



Technical Approval

SINTEF Building and Infrastructure confirms that

Protan Wet-Room Membrane

meets the provisions regarding product documentation given in Norwegian building regulations, with properties, fields of application and conditions as stated in this document

1. Holder of the approval

Protan AS
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2. Manufacturer

Protan AS, Drammen, Norway

3. Product description

Protan G 1.5 is a wet-room membrane made of fibreglass reinforced plasticised PVC. Stabiliser and plasticiser have been added to the product to enhance its properties, including making it more resistant to ageing and increasing its flexibility. Standard surface colors are light and dark grey. The underside is black.

As supplementary products for Protan G 1.5, there are also prefabricated cuffs for pipes and prefabricated corner solutions.

When the membrane is laid directly under tiles (see section 4), the following products shall be used:

- Membrane adhesive: CascoProff Extra.
- Tile adhesive: Keraquick diluted with Latex Plus, Alfix Combifix or Schönnox PFK with the primer Schönnox SHP

Table 1 shows the standard dimensions and tolerances for Protan G 1.5. Other thicknesses, lengths and widths outside of the standard can be custom made.

Table 1
 Dimensions and tolerances for Protan G 1.5

Specification	Standard dimension	Tolerance
Thickness	1,5 mm	+0,2 / -0,15 mm
Surface weight	≥ 1,5 kg/m ²	-
Width	2,0 m	± 2 %
Roll length	15 m	+2 % / -0 %
Weight of fibreglass	50 g/m ²	

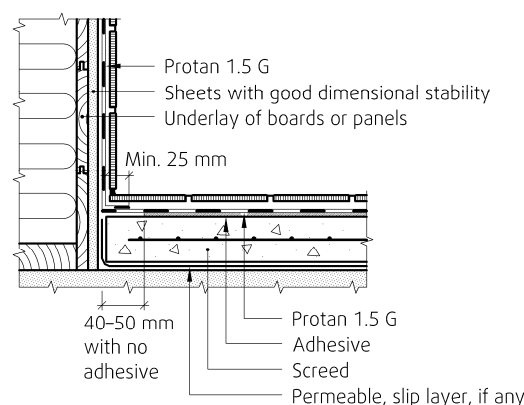


Fig. 1
 Protan G 1.5 laid directly under tiles

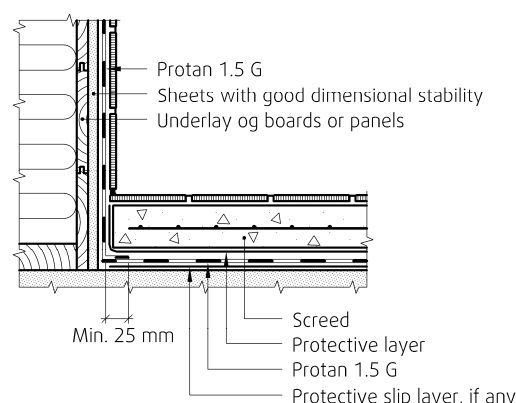


Fig. 2
 Protan G 1.5 laid under floor screed

4. Fields of application

Protan G 1.5 can be used as a waterproof layer for wet-room floors, either as a membrane laid directly under tiles, see fig. 1, or as a membrane under a floor screed, see fig.2. The membrane can also be use directly under tiles on walls.

The membrane may be used on a surface of concrete or building boards in accordance with Building Research design sheet 522.861.”

Table 2
Product properties of Protan G 1.5 fresh material

Quality	Values	Unit	Test Method	
Watertightness 10 kPa	Watertight	-	NS-EN 1928 (A)	
Water-pressure-tightness 150 kPa	Water-pressure-tight	-	NS-EN 1928 (B)	
Shear resistance of joints – overlap joints	≥ 480	N/50 mm	NS-EN 12317-2	
Tensile strength L/T	≥ 450	N/50 mm	NS-EN 12311-2	
Elongation L/T	≥ 180	%	NS-EN 12311-2	
Trapezoidal tear strength L/T	≥ 110	N	NS-EN 12310-2	
Puncturing	Static load Impact at +23 °C	≥ 150 ≤ 12	N mm diam.	NS-EN 12370 NS-EN 12691
Dimensional stability L/T	± 0,1	%	NS-EN 1107-2	
Water vapour resistant	105 x 10 ⁹ s _d =20 (equivalent air layer thickness)	m ² sPa/kg m	NS-EN ISO 12572	

5. Properties

Watertightness

Protan G 1.5 is function-tested with satisfactory results using the testing method NT Build 230 "Bathroom floors: Watertightness", and according to draft to "Guideline for European Technical Approval of watertight covering kits for wet room floors and or walls", Annex F "Water tightness of details in wet room walls including penetrations for pipes".

Testing of watertightness between membrane and floor gully has been done with the following types of gullies:

- Joti
- Serres
- Jafo

Material properties

Table 2 shows the main properties of Protan G 1.5. Additional material properties are documented in SINTEF Technical Approval no. 2008.

6. Environmental aspects

Effects on indoor environment

The product is not regarded as emitting any particles, gases or radiation that have a perceptible impact on the indoor climate, or to have any significant impact on health.

Environmental declaration

No environmental declaration according to ISO 21930 has been worked out for Protan Wet-Room Membrane.

Substances hazardous to health and environment

The product contains no hazardous substances with priority in quantities that pose any risk for human health and environment. Chemicals with priority include CMR, PBT or vPvB substances.

Waste treatment/recycling

Wet-Room Membrane shall be sorted as plaster-based materials on the building/demolition site. The product shall be delivered to an authorized waste treatment plant for material recovery.

7. Special conditions for use and installation

Storage

Protan G 1.5 should be stored in a dry place, with the rolls placed on pallets and protected at the building site by tarpaulines or similar measures.

General Procedure

Protan G 1.5 is bonded at the overlaps with hot air welding, and the work must be done by an authorised installer/contractor in accordance with the manufacturer's installation instructions.

Prior to installation of Protan G 1.5, the surface must be clean and dry. Large cracks and damages should be repaired in advance. Loose particles as well as grease and oil must be removed from the surface.

Penetrations of the membrane and wall connections must be done in accordance with the principles laid down in "Building Research design sheet 541.805". Prefabricated plumber's cuffs are to be used, and all corners should be reinforced with prefabricated corner solutions. Only components belonging to the membrane system must be used.

The membrane may be used in heated floors.

Membrane directly under tiles

Membranes laid directly under tiles, must be bonded to the surface with CascoProff Extra. Absorbing underlayes must be primed before bonding. When used in heated floors, the moisture level in the concrete should not exceed 75 % RH before bonding. The drying time can be reduced significantly by using quick curing fibre reinforced screed who is hardener curing quick, The manufacturer's instructions must be followed.

With no floor heating the moisture level limit is 85–90 % RH for a concrete underlay.

Figure 1 shows a construction with Protan G 1.5 laid directly under tiles.

Membrane under screed

If the membrane is installed under a floor screed, a fully covering protective layer made of plasticised PVC shall be used between the wet-room membrane and the screed.

When installed on a concrete slab on ground an antifriction and protective layer of plasticised PVC shall be used between the slab and the membrane. In other cases a fibre mesh can be used under the membrane.

Figure 2 shows a construction with Protan G 1.5 laid under a floor screed.

Floor gully

The gully's collar must be dismantled before the membrane is installed over the gully. The membrane must be heated and rolled into the gully simultaneously, so that the membrane is stretched. A round hole in the membrane is then cut.

Sealing around pipe penetrations

Sealing around wall boxes for pipe in tube system is made by cutting a hole with a smooth edge of the membrane. The diameter of the hole have to be cut about 20 mm less than the diameter of the wall box. The membrane is heated and pulled over the wall box, see Fig. 3.

8. Factory production control

Protan G 1.5 is subject to supervisory factory production and product control according to contract between SINTEF Building and Infrastructure and Protan AS concerning Technical Approval

The quality system of Protan AS is certified by Det Norske Veritas in accordance with ISO 9001, certificate no. 95-OSL-AQ-6343

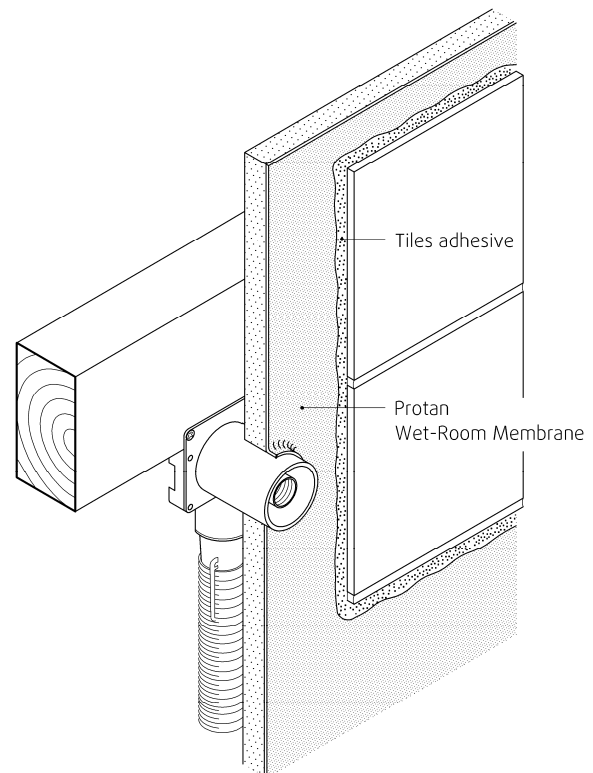


Fig. 3
Pipe in tube system. Sealing around pipes penetrations.

9. Basis for the approval

The approval is based on properties demonstrated through prototype testing, see NBI Technical Approval no. 2008 and og function testing documented in the following reports:

- Norwegian Building Research Institute. Report O 9999-34 of 31.08.05 (function testing of Protan G 1.5 as a membrane laid directly under the tile floor of a wet-room)
- Norwegian Building Research Institute. Report O 9999-57 av 07.09.06. (function testing of Protan G 1.5 as a membrane laid directly under the tile walls of a wet room)
- NBI Technical Approval no. 2008. Protan G, GG and GT roofing and water pressure membrane.
- Norwegian Building Research Institute. Report O 9999 – 93 av 26.09.07 (function testing of the tiles adhesive: Schönnox PFK).

10. Marking

All pallets/packages are to be marked with the manufacturer's name, product name and production date. All rolls must be marked with the manufacturer's production code.

The approval mark for Technical Approval No. 2437 may also be used.



Approval mark

11. Liability

The holder/manufacturer has sole product responsibility according to existing law. Claims resulting from the use of the product cannot be brought against SINTEF beyond the provisions of Norwegian Standard NS 8402

12. Technical management

Project manager for this approval is Thale S.W. Plesser, SINTEF Building and Infrastructure, dep. Energy and Architecture, Oslo.

for SINTEF Building and Infrastructure



Tore H. Erichsen
Approval Manager