

SINTEF Building and Infrastructure confirms that

Protan G 1.5 wet-room membrane

has been found to be fit for use in Norway and to meet the provisions regarding product documentation given in the regulation relating to the marketing of products for construction works (DOK) and regulations on technical requirements for building works (TEK), with the properties, fields of application and conditions for use as stated in this document

1. Holder of the approval

Protan AS
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 NO-3002 Drammen
www.protan.no

2. 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. Protan G 1.5 is a weldable membrane that can be used on both walls and floor. Standard surface colours are light and dark grey. The underside is black. The tiles are attached to the textured surface.

The system includes the following products:

- Protan G 1.5
- Membrane adhesive: CascoProff CFE Floor Adhesive
- Protan Sealant
- Tile adhesive Schönox PFK with the primer Schönox SHP
- Corner profiles
- Pipe collars

Table 1 shows the standard dimensions and tolerances.

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	≥ 1,65 kg/m ²	-
Width	2,0 m	± 2 %
Roll length	7,5 and 15 m	+2 % / -0 %
Weight of fibreglass	50 g/m ²	

3. Fields of application

Protan G 1.5 can be used as a waterproof layer for wet-room floors and walls, either as a membrane laid directly under tiles, see fig. 1, or as a membrane under a cast floor screed, see fig. 2. Area of use include residential buildings, or hotels and wetrooms with similar moisture levels.

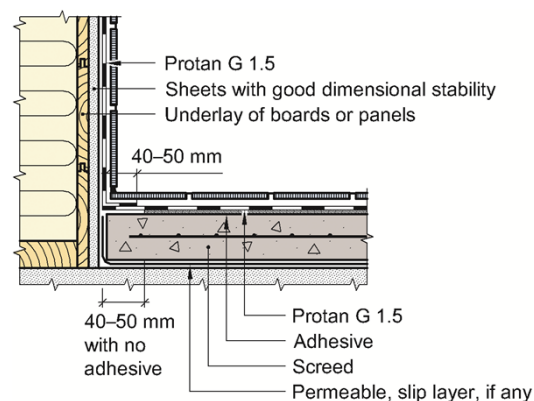


Fig. 1
 Protan G 1.5 laid just under tiles

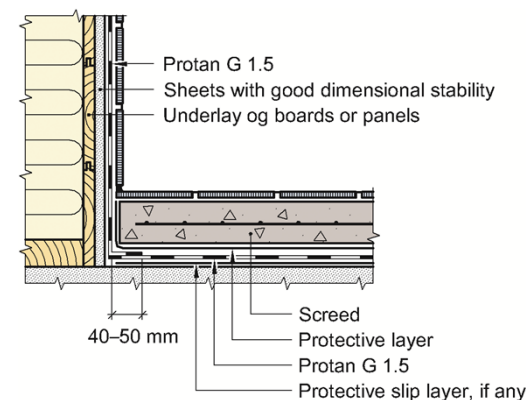


Fig. 2
 Protan G 1.5 laid under floor screed

The membrane is approved for use on concrete substrates, quick drying spackling compound and building boards suitable for wet rooms. The membrane must be covered with tiles or concrete. Additional conditions for use are given in part 7.

4. Properties

Protan G 1.5 was type tested according to ETAG 022 *Guideline for European Technical Approval of Watertight covering kits for wet room floors and or walls: Part 2. Kits based on flexible sheets*. The product characteristics are shown in table 2.

Table 2
Product characteristics – type testing

Property	Value	Test method
Water tightness around penetrations in floors ¹⁾	Passed	ETAG 022, annex A
Water tightness around penetrations in walls ²⁾	Passed	ETAG 022, Annex F
Water tightness	Passed	EN 13553
Water vapour resistance, equivalent air thickness s_d	20 m	EN ISO 12572, Annex C. 23 °C and 50/93 % RF
Joint bridging ability, shear and tensile 2 mm	Passed	ETAG 022, Annex B
Crack bridging ability, minimum 0,4 mm	Passed	ETAG 022, Part 2, chapter 2.4.4.2.
Dimensional stability L/T	± 0,1 %	EN ISO 23999
Bond strength	0,8 MPa	EN 14891, chapter A 6.2
Resistance to temperature, 4 weeks at 70 °C	Passed	ETAG 022, Part 2, chapter 2.4.6.2
Resistance to water	≥ 0,3 MPa	EN 14891, chapter A6.3
Resistance to alkalinity, 4 weeks at 80 °C	Passed, category 1	ETAG 022, Part 2, chapter 2.4.6.4

¹⁾ Documented with Joti and Jafo gullies.

5. Environmental aspects

Substances hazardous to health and environment

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

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.

Waste treatment/recycling

Protan G 1.5 and supplementary products can be sorted as residual waste on the building/demolition site. The product shall be delivered to an authorized waste treatment plant for energy recovery.

Non dry adhesive and sealant is defined as hazardous waste (according to the Norwegian Waste Regulation (Avfallsforskriften)). The product must be sorted as hazardous waste on the building site, and be delivered to an authorized treatment plant for hazardous waste. The dried products are not hazardous waste.

Environmental declaration

No environmental declaration (EPD) has been worked out for Protan G 1.5.

6. Special conditions for use and installation

General Procedure

Protan G 1.5 is hot air welded, and the work must be done by an authorised installer in accordance with the manufacturer's installation instructions.

Penetrations of the membrane and wall connections must be done in accordance with the principles described in Building Research design guide 541.805 *Golv i bad og andre våtrom*. Prefabricated pipe collars are to be used, and all corners should be reinforced with prefabricated corner profiles.

The membrane may be used with underfloor heating. Even though the membrane tolerates long-term temperatures above 60 °C, and can be in direct contact with heating cables, a minimum distance of 5 mm is recommended.

Do not use plastic sheets behind building boards or other walls facing outdoor climate or rooms with no or limited heating.

General requirement for the substrate

The substrate must be clean and dry before the membrane is applied. Remove loose particles, grease, paint and other dirt.

Porous underlayers must be primed with diluted flooring adhesive before bonding. This ensures good adhesion between the membrane and the substrate and prevents patchy drying of adhesive.

Concrete substrates must be steel trowelled, levelled with a levelling product before the membrane is attached. The surface must be absorbent.

Before the installation of Protan G 1.5, ensure that the floor is properly sloped towards the drain, as described in Building Research design guide 541.805 *Golv i bad og andre våtrom*.

Types of substrates - floor

Protan G 1.5 can be installed on concrete or building board sub floors with stiffness and construction details according to SINTEF Building Research design guide 541.805 *Golv i bad og andre våtrom*. The membrane can also be installed on floor boards when a concrete layer is to be cast over the top of the membrane.

Types of substrates - wall

Protan G1.5 can be installed on level concrete, moisture resistant building boards or other building boards suitable for wet rooms as described in SINTEF Building Research design guide 543.506 *Våtromsvegger med fliskledning*. A spackling compound that is approved for wet rooms shall be used for leveling unevenness on the wall.

Moisture content of the substrate

When installing Protan G 1.5 on concrete floors without underfloor heating, a maximum moisture content of 85 % RH in the concrete is allowed. When installing Protan G 1.5 on concrete floors with underfloor heating, the moisture content in the concrete cannot exceed 75 % RH.

When installing Protan G 1.5 on wood based sub floors without underfloor heating, a maximum moisture content of 15 % by weight in the sub floor is allowed. When installing Protan G 1.5 on wood based sub floors with underfloor heating, the moisture content in the sub floor cannot exceed 7 % by weight.

Sealing around pipe penetrations

Pipe penetrations in the wall is sealed by cutting a hole with a smooth edge in the membrane. The diameter of the hole have to be cut about 10 mm less than the diameter of the penetrating pipe. The membrane is heated and pulled over the wall box before applying the Protan sealant in the transition between the pipe penetration and membrane, see Fig. 3.

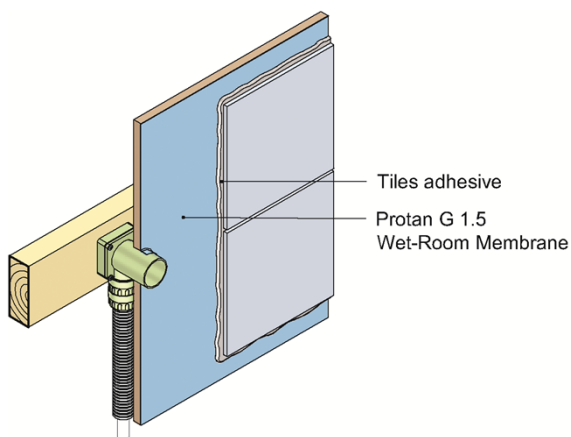


Fig. 3 Sealing around pipe penetrations in a wall

Pipe penetration in the floor is sealed by cutting the membrane close to the penetration pipe. Membrane can be split to work around the penetration. A piece of membrane of about 100 mm is welded over the split. A prefabricated pipe collar of correct diameter is pulled over the pipe and welded to the membrane with hot air welding. Use Protan Sealant to seal the pipe penetration.

Floor gully

The floor gully clamping ring is removed before the membrane is installed. The membrane is simultaneously heated and rolled into the gully, stretching the membrane into the gully, see Fig. 4.

If the clamping ring is attached with screws, the screws are fixed while the membrane is still soft from the heating.

Follow the gully manufacturer's installation instructions regarding the placement of the membrane in relation to the clamping ring.

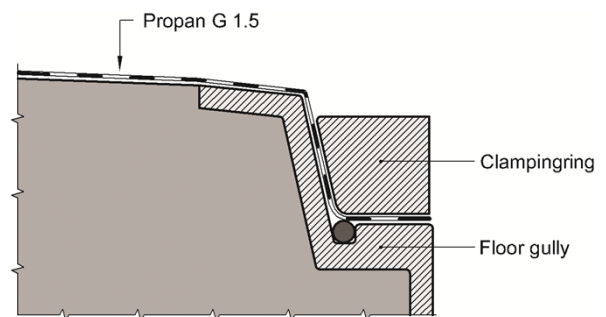


Fig. 4
Detail of floor gully.

Joints

Protan G 1.5 is hot air welded at the overlaps. Welded joints should be placed no closer to the floor gully than 300 mm.

Membrane under wall and floor screed

Figure 1 and 2 shows the transition between a floor and wall with Protan G 1,5 wet room membrane installed on both surfaces. With a transition from a floor to other wall materials, follow the respective installation guides.

Water tightness test

The water tightness of the membrane system should be tested before the tiles are laid, see Norwegian Code of Practice for Wet Rooms BVN 53.010.

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 tarpaulins or similar. During installation, the relative moisture level in the room should be 30-60 % RH.

7. Factory production control

The product is produced by Protan AS, Postboks 420, NO-3002 Drammen.

The holder of the approval is responsible for the factory production control in order to ensure that the product is produced in accordance with the preconditions applying to this approval.

The manufacturing of the product is subject to continuous surveillance of the factory production control in accordance with the contract regarding SINTEF 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.

8. Basis for the approval

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

- SINTEF Byggforsk, report no. O 14112-1, dated 15.05.03
- SINTEF Byggforsk, report no. O 9999 - 93, dated 26.09.07
- SINTEF Byggforsk, report no. SBF2013F0142, dated 30.5.2013
- SINTEF Byggforsk, report no. SBF2016F0133, dated 18.3.2016
- SP Sveriges Tekniska Forskningsinstitut, report no. 6F004301 dated 24.5.2016

9. 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

10. 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

for SINTEF Building and Infrastructure

Hans Boye Skogstad
Approval Manager