

PRODUCT NAME

Tycroc Waterproofing System

CERTIFICATE HOLDER

Tycroc OÜ
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Estonia



PRODUCT DESCRIPTION

The Tycroc building board consists of XPS building boards that are meant to be installed on walls and floors, and are covered on both sides with reinforced fiberglass mesh fabric and polymer cement mortar. All inlets for pipes, angle faucets, and other uses are sealed with Tycroc Premium Fix sealant. Board joints of the floor and the walls and a joint between the wall and the floor are covered with Tycroc Premium Fix sealant. As additional seal for floor inlets and joints between the walls and the floor, a weber.vetonit Watertight covering kit reinforced with weber.vetonit Fibre Cloth is used and in the corners the weber.vetonit Fibre Mesh as well. For wall inlets a collar is used that is first covered with Premium Fix sealant and then with a weber.vetonit Waterproofing Membrane. The system includes adhesive for the tiles.

Thicknesses of Tycroc building boards for use in wet areas are 6 mm, 12 mm, 20 mm, 30 mm, 40 mm, 50 mm and 80 mm. The size of the board is 600 mm x 2500 mm.

Tycroc building boards are fastened to the stone walls and floors using the weber.vetonit RF tile adhesive. The boards can be fastened to stone structures using glue dots or mechanical fasteners. The boards with a thickness of 12 mm are suitable for installation on both wooden and metal shells as well.

The system is not suitable for use in saunas or premises that are not used that remain cold part of the time (such as summer houses).

CERTIFICATION PROCEDURE

This certificate is based on the type testing of the product and on inspection of quality assurance system according to section 3.11. General procedures of certification are based on the VTT Expert Services Oy certification system.

This certificate is valid until 15.12.2020, validity conditions are listed in section 17.

The validity can be checked from VTT Expert Services Oy, phone +358 (0)20 722 4911.

The use of the name of VTT Expert Services Oy or VTT in any other form in commercials and/or the partial distribution of this certificate is not allowed without written permission of the VTT Expert Services Oy.

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REGULATIONS, STANDARDS, GUIDELINES

1. Regulations and standards of product requirements

1.1 According to VTT Expert Services Oy, the Tycroc Waterproofing System meets the requirements essential for its use and listed in the following sections of The National Building Code of Finland, when used in a way that is specified in this certificate:

- C2 *Moisture, Regulations and guidelines 1998,*
 according to section 7 of this certificate
- D2 *Indoor climate and ventilation of buildings.*
 Regulations and guidelines 2012, according to section
 12 of this certificate

2. Other guidelines and standards

2.1 According to the manufacturer, the following guidelines and standards have been followed:

RIL 107-2000 The water and moisture insulation guidelines for buildings

PRODUCT INFORMATION

3. Product description, marking and quality control

3.1 The Tycroc Waterproofing System consists of extruded polystyrene (XPS) boards, Tycroc Premium Fix sealant, Tycroc drainage, board fixing accessories (mechanical fasteners and/or adhesive) and waterproofing membrane for joints and inlets.

3.2 Gray/blue XPS-boards are covered from both sides with special polymer cement mortar that is reinforced with fiberglass mesh fabric. The boards are fastened to dry stone surface with weber.vetonit RF tile adhesive. The joints, inlets and fasteners' places are covered with Tycroc Premium Fix sealant. weber.vetonit Watertight covering kit with Fibre Mesh and/or Fabre Cloth is installed to the corners, to the wall and floor joints, wall and floor inlets and to the gully and board joints. Other systems may be used as waterproofing material, providing that their compatibility with Tycroc building board is guaranteed.

3.3 The Tycroc Premium Fix sealant is one-component MS-hybrid seaming and fixing sealant. The sealant is used for attaching building boards together and for sealing wall and floor joints. Use generous amount of sealant, so that it sticks out of the seams and joints - extra sealant can be levelled out with a spatula.

3.4 The weber.vetonit Watertight covering kit consists of weber.vetonit Primer, weber.vetonit Waterproofing Membrane, weber.vetonit Fibre Mesh and weber.vetonit Fibre Cloth.

3.5 In the Tycroc Waterproofing System, the weber.vetonit RF tile adhesive corresponding to standard SFS-EN 12004 is used for fixing the boards. The compatibility of other adhesives should be checked with the supplier of Tycroc Waterproofing System.

3.6 The thickness of Tycroc building boards used in wet rooms depends on the usage of the boards. Boards are available in thicknesses of 6 mm, 12 mm, 20 mm, 30 mm, 40 mm, 50 mm and 80 mm. The size of the boards is 600 mm x 2500 mm.

3.7 In the Tycroc Waterproofing System ceramic tiles with water absorption of less than 15% are used as a rule. If the water absorption of the tiles is higher, the adhesive strength of adhesives may be lower than reported in this certificate. In Tycroc Waterproofing System the sealing of the boards should be carried out by mortars recommended by the certificate holder.

3.8 Only sanitary silicone, recommended by the certificate holder, should be used in the Tycroc Waterproofing System for sealing of the elastic seams of the boards, the corners, expansion joints, wall and floor joints, and inlets.

3.9 External quality control is carried out according to the certification contract between the manufacturer and VTT Expert Services Oy.

4. Delivery and storage

4.1 The boards are delivered on pallets in carton packages. Each product is marked with a batch number (LOT-code) and all products have an adhesive label with the name of the product, its article number and EAN-code.

4.2 Other parts and materials included in the system are delivered separately, well packed and protected from possible damage. These packages have also labels indicating the content of the package, the product code and, if necessary, the date of manufacturing and expiry of the product.

4.3 The boards should be stored on a flat base (surface) regardless of their thickness. The boards and other materials should be stored in a dry place protected from sunlight, dirt, fire and solvents. Liquid waterproofing membranes shall be delivered and stored protected from freezing and direct sunlight in temperature + 5 °C - + 30 °C. All products shall be protected from moisture before installation. Dirt may reduce adhesion.

TECHNICAL INFORMATION

5. General

5.1 The technical information in this certificate is based on a prerequisite, that the construction solutions, fastening procedures and other basic information correspond to those, presented in this certificate and that the said requirements, guidelines and standards are met.

6. Tensile strength

6.1 Tycroc Waterproofing System is not a load-bearing product. It bears however ordinary loads that occur in connection with installation and usage. The wall is durable enough for tiling, if there is a solid surface behind the board and attached to the board.

6.2 The impact resistance of Tycroc building boards is not defined by the stud spacing defined in the manufacturer's installation instructions.

6.3 The Tycroc building board installed on a stiff surface of the floor is impact tested, but its functionality and suitability as a base for a washing machine is still not quite clear.

7. Moisture properties

7.1 The design of the product complies with the requirements of the National Building Code of Finland, part C2, Moisture, Regulations and Guidelines 1998, taking into account the water resistance, water absorption and the water vapour permeability of Tycroc boards (Table 1).

7.2 Tycroc Waterproofing System with its seam and inlet sealing properties functions as a water-resistant system and prevents the constructions that are behind or beneath the boards from getting wet.

7.3 The moisture properties of the system are shown in Table 1.

7.4 The water vapour transmission rate of Tycroc boards is shown in Table 1. When planning the moisture technical solution for wet rooms, the water vapour permeability should be considered.

7.5 Wooden or other materials that are sensitive to moisture should not be enclosed between two compact surfaces without ventilation.

Table 1. Overview of Tycroc Waterproofing System's moisture properties

Property	Testing method	Requirement	Result
Water resistance	EN 1928, 100mm/ 14 days	Water resistant	Meets the requirements
Water vapour permeability of Tycroc building board	EN 12086	To be reported	$\leq 2,6 \cdot 10^{-12} \text{kg}/(\text{msPa})$
Water resistance of pipe inlets	ETAG 022, Annex A and F	Water resistant	Meets the requirements
Water resistance of board seams	ETAG 022, Annex A and F	Water resistant	Meets the requirements

8. Fire safety

8.1 The fire safety requirements for buildings and for products used in buildings are given in the National Building Code of Finland, part E1, Structural Fire Safety in Buildings, Regulations and Guidelines 2011.

8.2 The impact of the Tycroc Waterproofing System on fire safety has not been defined. Ceramic tiles and cement based mortars that are used for sealing and for attaching the tiles are non-flammable.

9. Thermal insulation

9.1 The impact of the Tycroc Waterproofing System on thermal insulation of constructions has not been defined. Thermal conductivity of the board is shown in Table 2.

10. Acoustic properties

10.1 The impact of the Tycroc Waterproofing System on sound insulation properties of buildings and wet rooms has not been defined.

11. Durability

11.1 The compatibility of Tycroc building boards and adhesives is determined by heat aging and water tests conducted according to the standard EN 12004. According to test results the compounds (combinations) presented in this certificate meet the requirements.

11.2 The durability properties and tightness of the Tycroc Waterproofing System and its components have been tested by splash-spray water tests and temperature variation tests of the wall constructions. The Tycroc Waterproofing System has maintained its water tightness in all aging and load tests.

12. Indoor climate and ventilation

12.1 Requirements for indoor climate and ventilation are presented in the National Building Code of Finland, part D2, Indoor climate and ventilation of buildings, Regulations and Guidelines 2012.

12.2 The exhaust air flow of bathrooms should be at least 15 l/s when the ventilation is functioning at a normal rate. The minimum exhaust air flow should be at least 10 l/s, in which case it should be possible to increase the ventilation if necessary. If the ventilation cannot be adjusted in each room or apartment separately, the exhaust air flow should constantly be at least 15 l/s.

Sufficient functioning of natural ventilation in wet rooms requires that the proper functioning of the exhaust air duct is ensured and the duct is cleaned when necessary. The valve of the exhaust air duct should be opened and the access of compensating air to the wet room guaranteed, e.g. through the door gap.

The ventilation can be considered compatible with wet room solution requirements of VTT certificates, when the excess moisture caused by the use of the wet room has evaporated within a few hours.

ASSEMBLY AND USAGE INSTRUCTIONS

13. Manufacturer's instructions

13.1 The boards should be installed and fastened to the walls according to the manufacturer's guidelines. Installation may be carried out in normal temperature conditions of a construction site.

13.2 Tycroc building boards can be installed in new sites on wooden or metal carcasses and in renovation sites on existing concrete or sheet metal walls. Leaving or using waterproofing membranes or a moisture barrier layer behind the boards in wet room structures is not necessary.

13.3 Tycroc building boards are fastened depending on the surface either by adhesive (concrete surface) or by glue sealant and fasteners (carcass and sheet metal surface) as instructed in manufacturer's guidelines. Boards with thickness of 12 mm or more are suitable for installation on carcasses. In that case, the stud spacing should be ≤ 300 mm. When the stud space is 600 mm, the impact resistance of the board has to be checked separately. The board edges in corners, around apertures and angle faucets and around attachment points of sinks and toilet seats should be supported in case there is otherwise a hollow space behind them.

13.4 Ceramic tiles are attached with weber.vetonit RF adhesive or some other adhesive that is compatible with Tycroc building board.

13.5 The Tycroc Waterproofing System is not suitable for use in saunas or premises that are not used in cold period of the year.

13.6 The boards should be installed in accordance with the manufacturer's written guidelines. To ensure the proper function of the construction, the guidelines should be followed closely.

13.7 Regular control and cleaning of wet room surfaces, including the drainage are of utmost importance. The condition of surface structures should be visually checked on a regular basis.

TECHNICAL DATA

14. Experimental tests

14.1 VTT Expert Services Oy has determined that in addition to properties mentioned in this text, the Tycroc Waterproofing System has properties listed in Table 1.

Table 2. Overview of Tycroc board XPS-core properties

Property	Unit	Testing method	Requirements	Result
Moisture absorption	til-%	EN 12087	To be reported	0,34
Thermal conductivity	W / (mK)	EN 12667	To be reported	0,039
Compressive strength	kPa	EN 826	To be reported	360 kPa
Density	kg / m ³	EN 1602	To be reported	36-38

Table 3. Overview of Tycroc board other properties

Property	Unit	Testing method	Requirements	Result
Adhesion strength of the weber.vetonit RF adhesive to the board	MPa	EN 1348		
- Initial adhesion (28d)			≥0,3	Meets the requirements
- Adhesion after the water load test			≥0,2	Meets the requirements
- Adhesion after the heat load			≥0,3	Meets the requirements
The bridging capacity of the board gaps when glued on concrete	mm	EN 1067-7	To be reported	0,4 mm

15. Other

15.1 The installation guidelines of the company Tycroc OÜ for Tycroc Waterproofing System.

VALIDITY OF THE CERTIFICATE

16. Validity period of the certificate

This certificate is valid until 15.12.2020.

17. Validity conditions

The certificate is valid if no substantial changes shall be made to the product and that the manufacturer has a valid certification contract. The list of valid certificates can be obtained from VTT Expert Services Oy.

18. Other conditions

All references in this certificate to the publications and standards of the National Building Code of Finland are valid in the form effective on the day of granting of the certification.

All recommendations in this certificate concerning the safe usage of the product are the minimum requirements that should be followed when using the product. The certificate does not contradict existing or future requirements set by law and legislative acts. In addition to clauses of this certificate, a good general construction practice must be followed when designing, manufacturing and using the product.

The manufacturer is responsible for the quality and continuous quality control of the product. By granting this Certificate the VTT Expert Services Oy accepts no liability for any personal or other damages, that may be directly or consequently caused by using the certificated product.

According to VTT Expert Services Oy, the Tycroc Waterproofing System is suitable for building use in the way presented in this certificate. This certificate no VTT-C-10341-13 according to the above content is granted to the company Tycroc OÜ.

On behalf of VTT Expert Services Oy
16.12.2015



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