

MUREXIN

Laying ceramic coverings

on thermal insulation systems

Technical information for planners, architects, property developers
and processors

Tiling System

It lasts.



Requirements for the hard covering



Ceramic tiles or boards

- Groups: Ala, Alb, Bla, Blb, Alla and Blla acc. to DIN EN 14411
- Frost-resistance acc. to DIN 52252-1
- Frequency distribution pore sizes: max. $R_p > 0.2 \mu\text{m}$
- Pore volume: $V_p > 20 \text{ mm}^3/\text{g}$
- Area: max. 0.36 m^2
- Side length: max. 60 cm, for Ala and Bla max. 30 cm
- Material thickness: max. 15 mm
- Water absorption: 13.8 %



Brick and clinker bricks

- In accordance with DIN 105-100
- Frost-resistance acc. to DIN 52252-1
- Frequency distribution pore sizes: max. $R_p > 0.2 \mu\text{m}$
- Pore volume: $V_p > 20 \text{ mm}^3/\text{g}$
- Area: max. 0.36 m^2
- Side length: max. 60 cm
- Material thickness: max. 15 mm
- Water absorption: 13.8 %



Natural stones

- Uncoated natural stone tiles according to DIN EN 12057
- Underside serrated,
- Flatness tolerance max. 0.5 % of board length;
- Bending strength: $> 8.7 \text{ N/mm}^2$ and $< 37.1 \text{ N/mm}^2$
- Water absorption: $< 5.7 \%$
- Petrographic appraisal according to DIN EN 12407, without negative features of the joint structure
- Proof of frost resistance according to DIN EN 12371 with at least 48 cycles
- Proof of resistance to crystallisation of salts according to DIN EN 12370
- Proof of bending strength according to DIN EN 12372
- Proof of water absorption according to DIN EN 13755
- In addition, an initial test (adhesive pull) must be carried out in advance in accordance with DIN EN 1348 with the tile adhesive used (after dry storage 28 d and after 50 freeze-thaw cycles: $\geq 0.5 \text{ N/mm}^2$).



Small-format natural stone tiles

- Material thickness: 6 - 20 mm
- Area: $< 0.19 \text{ m}^2$
- Side length: $< 0.61 \text{ m}$

Large-format natural stone tiles

- Material thickness: 6 - 20 mm
- Area: $< 0.72 \text{ m}^2$
- Side length: $< 1.20 \text{ m}$
- L/W ratio $1:1 < l/w < 1:3$

Foundations & Planning

Thermal insulation system with ceramic coverings can be used on **solid wall constructions in new buildings** or on the **thermal refurbishment** of existing buildings. Based on this Technical Information, **small areas** up to a maximum storey height and corresponding **joint planning** can be executed.

System weight

The system weight describes the weight of the following system components: Adhesive, insulation material, reinforced base plaster, covering material incl. adhesive and grout in dry condition. The information is given in kg/m².

Insulation material	System weight
EPS-F, EPS-S, XPS-R	40 kg/m ²



Joint planning & surface sizes

The joint area ratio must be at least 6 % and the joint width should be at least 8 mm. In the case of a joint area ratio $\leq 6\%$, proof of the long-term absence of condensation must be provided with the aid of a calculation procedure.

Brightness reference value

The brightness reference value must be ≥ 30 .



Joint pattern

Of great technical, but also aesthetic importance is the planning of the surface boundary joints. These are to be planned in time and in detail and handed over to the covering installer before the start of work.

In addition, expansion joints of the building structure must be adopted in the entire structure of the external thermal insulation composite system. Early planning of expansion and surface boundary joints may allow for the best possible arrangement of these covering breaks in a visually appealing way.

Laying ceramic coverings & joint formation

1. Laying

The hard coverings (clinker bricks, ceramic coverings and natural stone coverings) are laid on the hardened base plaster using the so-called **buttering-floating method** with, among others, tile adhesives (adhesive layer thickness approx. 5 mm) in accordance with EN 12004. The manufacturer's instructions must be observed.



2. Joint formation

The joints between the ceramic tiles or natural stones must be of sufficient width depending on the format.

The joint widths are governed by the following criteria:

- Board type
- Board format
- Board thickness
- special technical requirements

The joint ratio should be at least
6 % of the ceramic area.

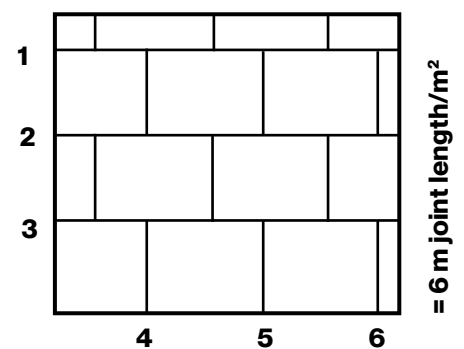
SAMPLE CALCULATION (see illustration on the right):

6 % of 1 m² corresponds to 600 cm²

This calculation is particularly important for fine stoneware tiles and crystalline natural stones such as marble, granite, basalt, synite, porphyry, as these stones have a water vapour diffusion resistance value μ of 10,000 and thus a high sD value. All water vapour that diffuses through the exterior wall due to the vapour pressure differences between the interior and exterior air must be able to escape through the mortar joints.

If joint widths deviating from this calculation are desired, the specialist planner or structural engineer must provide proof that the thermal insulation system construction is free of condensation in the long term using a suitable calculation method (e.g. according to DIN ISO 13788). If this proof cannot be provided even taking into account the planned vapour-tight expansion joints and surface boundary joints, the board format must be reduced and thus the joint area/m² increased.

Board format: 30 x 30 cm



$$\text{Calculation of the joint width} = \frac{600 \text{ cm}^2}{\text{Number of joints} \times 100 \text{ cm}}$$

Board format: 30 x 30 cm

Minimum joint width: $600 \text{ cm}^2 / 6 \times 100 \text{ cm} = 1 \text{ cm}$

Material	recommended joint width
Clinker bricks	8 - 12 mm
Natural stone tiles and ceramic coverings $\leq 40 \times 30 \text{ cm} / 0.12 \text{ m}^2$	8 - 12 mm
Natural stone tiles and ceramic coverings $\geq 40 \times 30 \text{ cm} / 0.12 \text{ m}^2$	12 - 20 mm

The products



Flex Adhesive Mortar Trass **KTF 55**

Powdery, water and frost-proof, highly tempered, hydraulically setting adhesive mortar for layer thickness from 3 to 20 mm especially for laying natural stone. The adhesive mortar offers more security against efflorescence and discolouration. Indoors and outdoors for flexible laying of ceramic tiles, boards, non-translucent natural stones, mosaics, artificial stone and cotto, as well as boards with strong profiles without levelling the substrate in the course of laying.

Consumption according to toothing: approx. 1.8 kg/m² to 3.2 kg/m²



Rapid Flex Adhesive Mortar Trass **SFK 85**

Almost temperature-independent, powdery, crystalline water-binding, food-safe, water and frost-resistant, highly tempered, fast, hydraulically setting grey adhesive mortar for laying in adhesive layer thicknesses up to 20 mm. The adhesive mortar offers more security against efflorescence and discolouration. For indoor and outdoor use on walls and floors for laying a wide variety of coverings (especially for large formats).

Consumption according to toothing: approx. 1.8 kg/m² to 3.2 kg/m²



Rapid Flex Adhesive Mortar White **SFK 81**

White, almost temperature-independent, powdery, crystalline water binding, water and frostproof, highly tempered, hydraulically setting flexible adhesive mortar for laying up to 20 mm adhesive bed thickness. No shine through for light materials. Indoors and outdoors for laying a wide variety of coverings, fine stoneware (especially for large formats) with increased thermal or static loads in a layer thickness up to an adhesive thickness of 4 to 20 mm.

Consumption according to toothing: approx. 1.8 kg/m² to 3.2 kg/m²



Stone Joint Trass **SF 50**

Powdery, food-safe, frost and de-icing salt resistant, waterproof, tempered, hydraulically setting grout with trass additive for the prevention of efflorescence. Indoors and outdoors for grouting 4-50 mm joint widths of concrete, natural stone, plaster and clinker coverings in bonded construction. Also well suited to processing with electric floor cleaning machines. Suitable for usage categories N1, N2 and N3 according to ZTV road construction.

Consumption: depending on stone format, the joint width and the joint depth.



Grout Trass **FMT 15**

Powdery, food-safe, water and frost-free, tempered, hydraulically setting grout based on trass for grouting wide joints. Offers additional safety against efflorescence and discolouration. Indoors and outdoors for grouting 4 - 15 mm wide joints in natural stone, absorbent tiles and artificial stone.

Consumption: 0.6 - 2.0 kg/m², depending on tile format and joint width



Flexfuge Platinum **FX 66**

Powdery, food-safe, water and frost-proof, super-smooth, high-strength and flexible grout with pearl effect. Moreover, the low water consumption of the highly abrasion-resistant grout reliably prevents the formation of patches. Indoors and outdoors on wall and floor surfaces for grouting of joint widths from 1 to 10 mm.

Consumption: 0.2 - 0.9 kg/m² depending on tile format and joint width



Natural Stone Silicone **SIL 50**

Single-component, UV-resistant, waterproof, up to 20% permanently flexible sealing mass based on neutral silicone. Suitable for indoors and outdoors. No edge zone contamination (discolouration). Also suitable for use in swimming pools and wetrooms.

Consumption: 1 cartridge is sufficient for approx. 10 running metres with 5 mm joint width



Special Sealant **X-BOND MS-D 81**

1-component, solvent and silicone-free, odourless, UV and weather-resistant, waterproof, MS polymer-based sealant. For grouting large format boards outdoors. Resistant to fungi and bacteria. Can be used to seal expansion joints, wall and floor niches in ceramic coverings, as well as joints between tile coverings and foreign materials.

Consumption: 1 cartridge is sufficient for approx. 10 running metres with a 5 mm joint width



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Subject to typesetting and printing errors. **Edition: 04/2024.** We would like to point out that the photos used are only symbolic photos and that these objects do not require our products but only demonstrate areas of application, unless they are explicitly mentioned as reference objects.

It lasts.