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RMC in the Interior

Technical Documentation for Professionals

RMC
beyond the stone

RMC for Interior

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beyond the stone

Welcome,

RMC material is suitable for both interior and exterior applications. Just like ceramic, engineered or natural stone, there are certain best practices that should be followed before and during installation.

This document will guide you through the most important ones to ensure you get the best look and performance that RMC can deliver.

Disclaimer: Although we have carefully prepared this document in cooperation with the manufacturers of the installation products mentioned, the names of the products, their technical parameters and installation procedures are subject to change by the respective manufacturers without notice. Please always check and follow the information on the packaging and technical data sheets.

RMC for Interior

Highlights

RMC
beyond the stone

GENERAL RECOMMENDATIONS

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General Notes

In order to achieve the best performance, please take in consideration the following recommendations

- The performance of RMC tiles is directly related to the **quality of the installation**. The correct type of adhesive, its method of application and respect for the dilation of the material are absolutely essential.
- As RMC material contains approximately 95% of natural marble, it is **sensitive to contact with acids** (e.g. lemon juice), especially in a combination with strong pigments (e.g. red wine). These can damage the surface of RMC material (usually loss of gloss, corrosion or a stain). RMC offers the application of **antiacid impregnation** as a partial protection against accidental contact with acid.

- RMC tiles applied on interior or exterior **walls over 2.4 meters** high must be mechanically fixed. Chemical fixation is not recommended for safety reasons.

GENERAL RECOMMENDATIONS

Thickness

In order to achieve the best performance, please take in consideration the following recommendations

- The most common thicknesses of RMC tiles are 12, 20 and 30 millimeters. Which one to use depends on the **tile size**, expected **load** and **local regulations**. In general, for RMC tiles larger than 1.44 square meters, please use a thickness equal to or greater than 20 millimeters.

- For special applications such as high-traffic pavements, raised floors or ventilated facades, please contact your sales representative for specific technical details to help you calculate the required thickness of RMC tiles.

- In case of **special surfaces** like Bush-hammered, Satin or Sandy, the thickness of the tile must be equal to or greater than 20 millimeters.

GENERAL RECOMMENDATIONS

Colors

In order to achieve the best performance, please take in consideration the following recommendations

- As with other natural materials, **dark colors generally tend to fade faster than light colors**. This is less common in interiors and never affects the stability of the material. RMC offers a color-enhancing impregnation that helps keep colors vibrant even when installed outdoors.

- Dark colors are generally **not recommended for high traffic flooring areas**. Scratches and stains caused by improper use of the tiles may be more visible. For more information on color suitability, please contact your sales representative.

TECHNICAL PARAMETERS

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Tolerances

RMC tiles are produced in accordance with European Standards (EN), which define several limits for technical parameters. For installation, one of the most important is the **dimensional tolerance**.

- Length and Width: +/- 0,5 mm (for tiles up to 600mm length)
  +/- 1 mm (for tiles with more than 600mm length)
- Thickness: +/- 0,7 mm
- Squareness: up to 0,5 mm
- Bending: less than 0,13% of length

TECHNICAL PARAMETERS

Thermal Expansion

Another important parameter for installation is the thermal expansion.

- All stone materials expand as the temperature rises. This expansion can be calculated using the coefficient of thermal expansion, thus predicting the size required for joints.

- For RMC material, this coefficient ranges from 9.7 to 21.2 x 10-6 °C-1, depending on the collection. The darker the color, the higher its maximum reachable temperature and, the greater the amount of resin in the reference, the greater its expansion capacity. It is therefore important to install RMC material in accordance with the recommendations for expansion joints.

- Dilatation can be calculated using the following formula →

$$\frac{\Delta L}{L} = \alpha[\Delta T]$$

ΔL = Change in Length
ΔT = Change in Temperature
α = Coefficient of Thermal Expansion (CTE)

For example, an RMC tile of Merrazzo Algarve with dimensions of 600x600mm and thermal expansion coefficient of 17,3 x 10-6 °C-1, can dilate up to 1,07 mm during sun exposure (eg. a room with large window without A/C) - tests showed up to 60°C on the surface of the tiles during summer. This accumulates to just over 3 mm dilatation in 1.8 m of RMC material.

INSTALLATION PROCESS

INSTALLATION PROCESS

Pre-Installation Tasks

Base Preparation

Primer

Waterproofing

Installation

Adhesive

Grout

Silicone

RMC
beyond the stone

INSTALLATION PROCESS

Pre-Installation Tasks

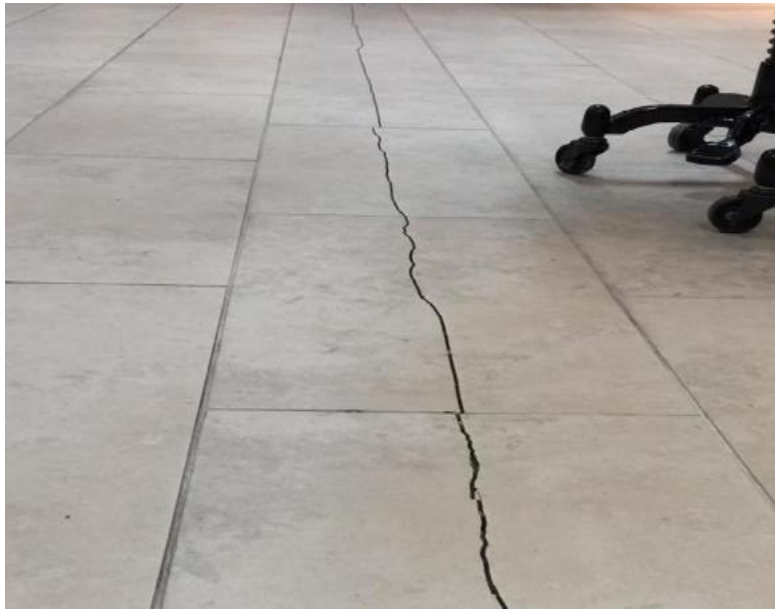
- Ensure a clean, dry substrate, free of any coatings, compounds, soap, wax, oil or silicone that may be incompatible with the fixing materials.
- Ensure a firm substrate, within the specified flatness tolerances, without any excessive bumps or grooves.
- Ensure a maximum residual humidity of:
    - 4.5% for concrete screed.
    - 0.5% for anhydrite screed.
    - 0.3% for heated floors.
- Ensure that all chemical products used are within their expiration date.

INSTALLATION PROCESS

Pre-Installation Tasks

Plan the installation scheme properly so that the expansion joints in the base are aligned with the expansion joints in the tiles, even if this means making additional cuts.

Tiles should never be installed over an expansion joint in the base, as there is a risk of cracking.



INSTALLATION PROCESS

Base Preparation

Primer for Absorbent bases

RAKO PE 202

Reduces water absorption, solidifies the base surface and increases adhesion to the base in interior and exterior applications before tilling using cement adhesives and before water-proofing coatings.

INSTALLATION PROCESS

Base Preparation

Contact Bridge

For Non-absorbent bases

RAKO CP 203

Contact adhesive coating for compact bases (glass, old tiles, natural stone, polished concrete, synthetic coatings, asphalt, etc.) suitable for interior and exterior before tilling using cement adhesives and before water-proofing coatings.

For All bases except cement screed

MAPEI ECO PRIM GRIP PLUS

INSTALLATION PROCESS

Base Preparation

Waterproofing - we recommend using the following products:

RAKO SE 1

for interior and no permanent contact with water (bathroom, shower bases, etc).

RAKO SE 6

for exterior and permanent contact with water or high pressure (swimming pools, terraces, etc.).

RAKO SE 5

sealing tape for all contacts floor x wall and wall x wall.

OR

MAPEI Mapelastic

for both interior and exterior applications.

MAPEI Mapeband Easy

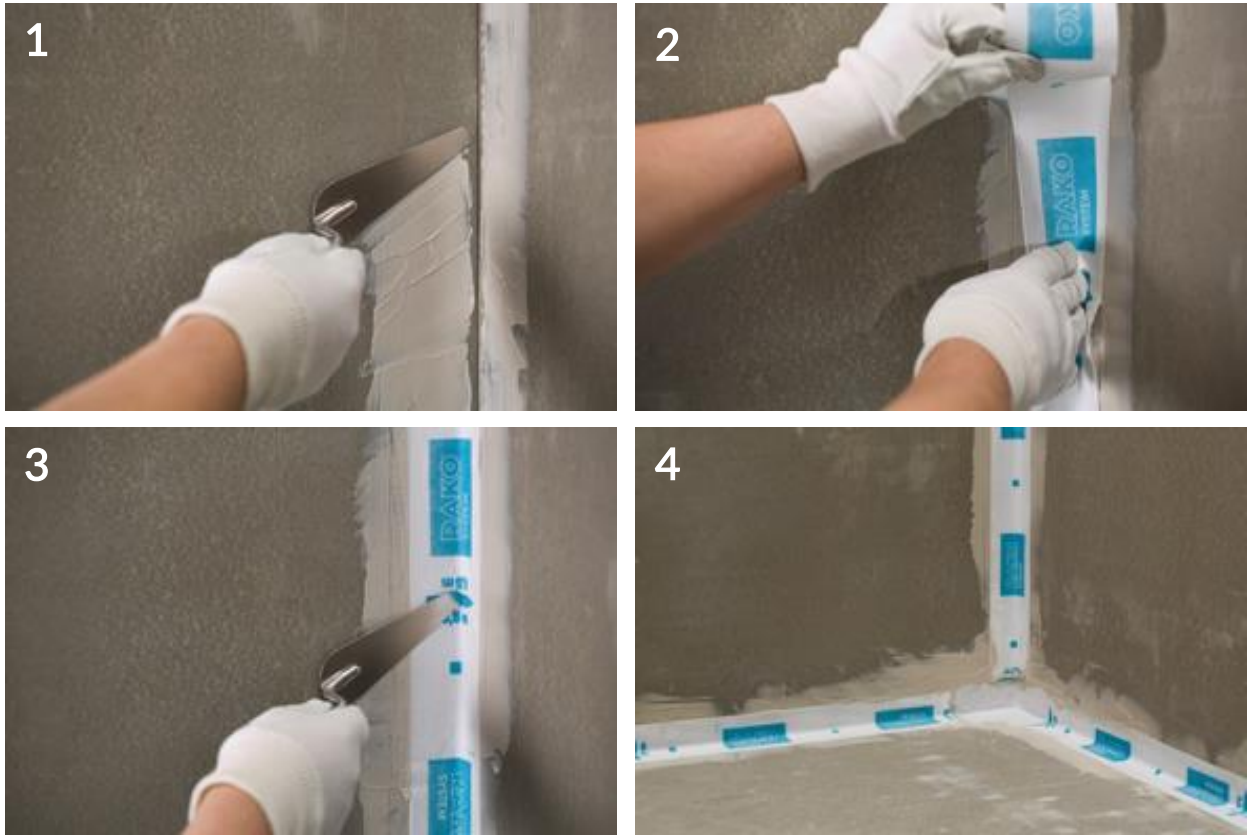
sealing tape for all contacts floor x wall and wall x wall.

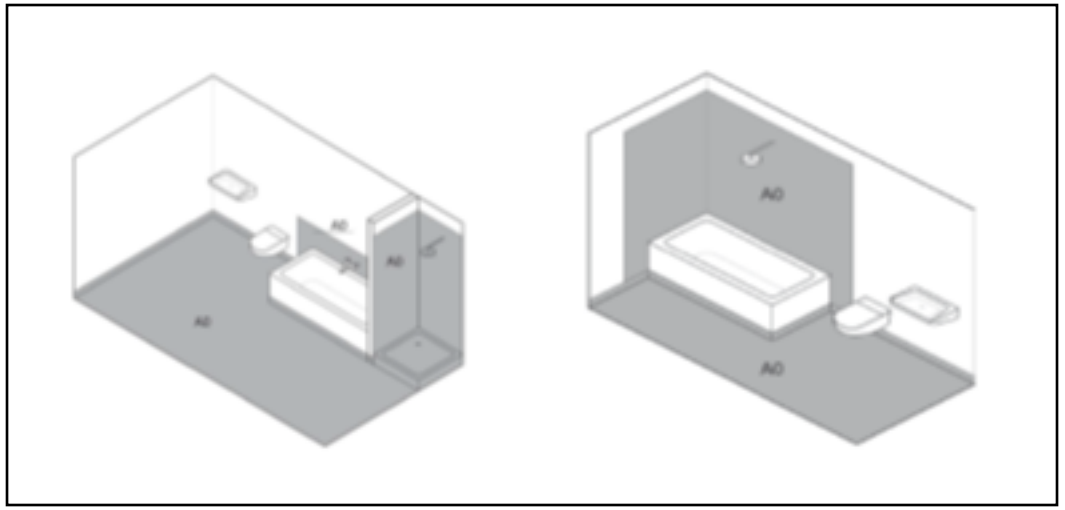
INSTALLATION PROCESS

Base Preparation

Waterproofing Steps

- Sealing tape must be applied to all expansion joints and to all contacts floor x wall and wall x wall.





INSTALLATION PROCESS

Base Preparation

Waterproofing Steps

- Liquid waterproofing such as RAKO SE 1 should be applied with a roller or trowel.


- Waterproofing screed such as RAKO SE 6 should only be applied with a trowel.


INSTALLATION PROCESS

Installation

Recommended adhesive type for RMC installations outdoors:

C2TE S1

C : Cementitious Adhesives

2 : Improved Adhesives

T : Adhesive with Reduced Slip

E : Adhesive with Extended Open Time

S1 : Deformable Adhesives

INSTALLATION PROCESS

Installation

Installation - we recommend using the following products:

Adhesives

RAKO AD530 or AD550 or MAPEI Keraflex XX

&

Grout

RAKO GF DRY or MAPEI Keracolor FF

&

Silicones

MAPEI Mapesil LM

INSTALLATION PROCESS

Installation

Tiles laying

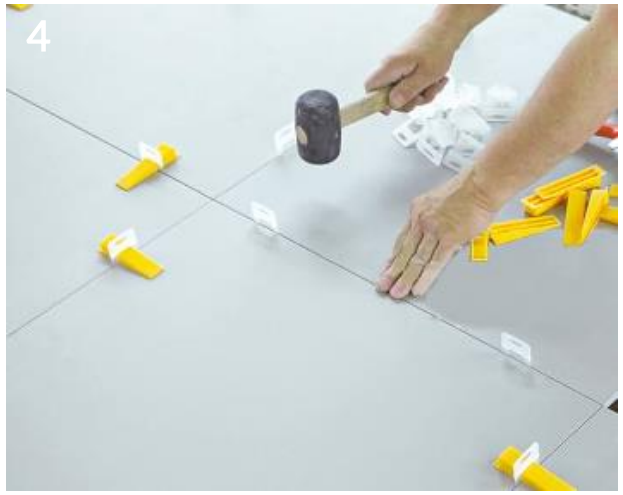
- Ensure that any previously applied product is completely dry and cured.
- Follow the instructions recommended on the packaging regarding the dilution ratio, mixing time and drying time of the products used.
- Use a trowel with 10x10mm teeth.
- Always use the double-coating technique to ensure 100% coating of the backside.
- Consider this process the only correct procedure for gluing RMC tiles.

INSTALLATION PROCESS

Installation

Tiles laying

- Tap on each tile with a rubber mallet and push back and forth in a perpendicular direction to the trowel lines to help spread the glue evenly on the backside of each tile.
- Press or tap on the tiles to align with adjacent tiles.
- Grout joints should be at least 2mm wide and 10mm deep.
- Any excess of fixing material should be removed, before drying, with a damp cloth or sponge.
- Use spacers of the recommended width to ensure joints between the tiles.
- Remember that RMC tiles have a thickness tolerance of +/-0.7mm. In order to obtain a levelled surface, the use of levelling wedges is recommended.



INSTALLATION PROCESS

Installation

Grout joints

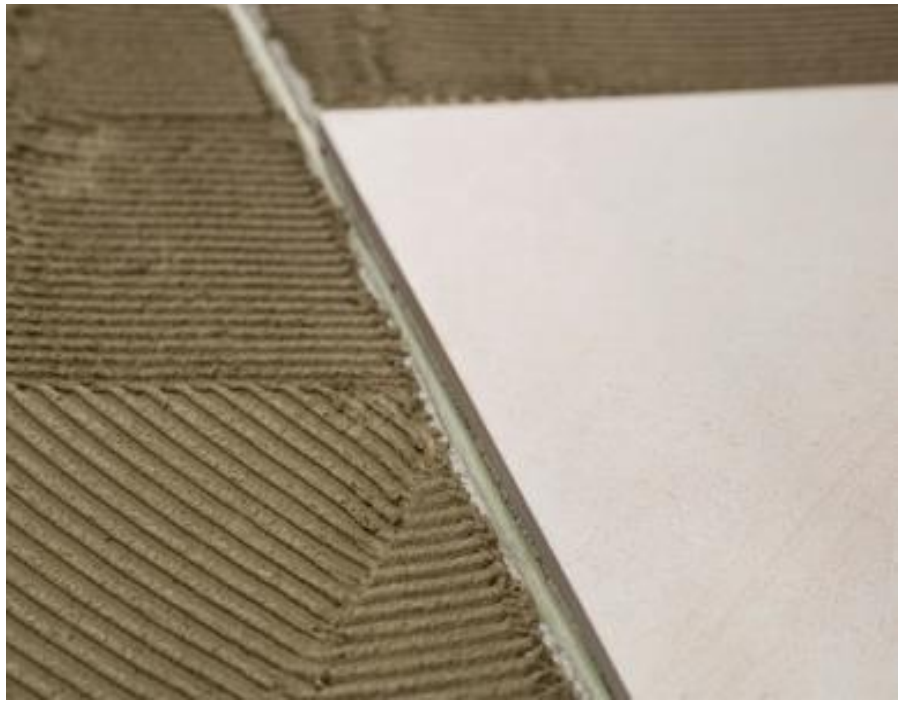
- After the adhesive has matured, depending on the temperature, relative humidity and the adhesive used, the joints can be filled with mortar of the selected color. Respect at least 2 millimeters for joints.
- Always follow the instructions on the packaging regarding dilution ratio, mixing time and drying time.
- Apply the mortar diagonally across the joints with a mortar trowel.
- After allowing to dry slightly, wipe off the excess with a soft sponge.
- Rinse the sponge regularly in a container of clean water to remove any residue.

INSTALLATION PROCESS

Installation

Dilatation joints

- When installing tiles, it is very important to follow the instructions regarding expansion joints.
- The expansion joints in the base must always be followed.

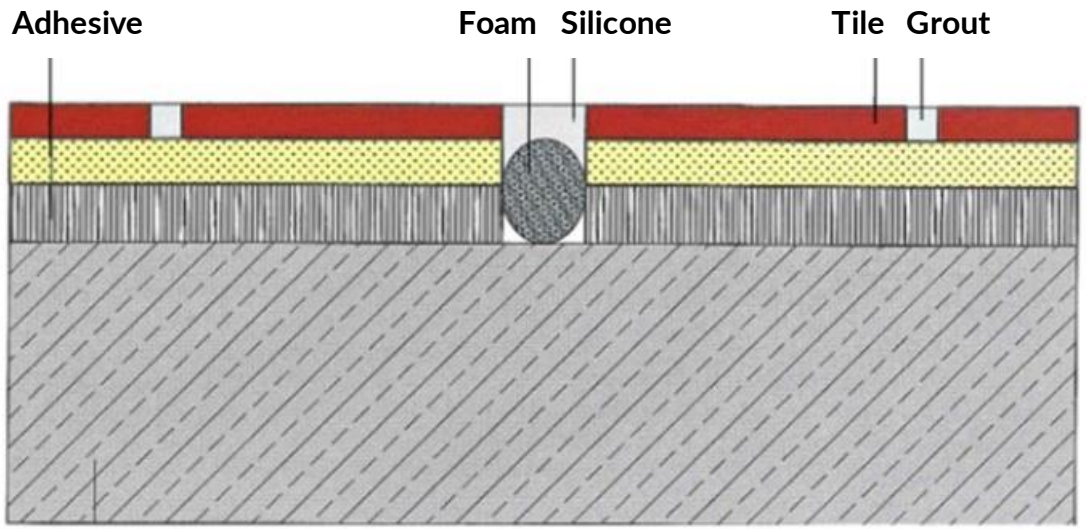


INSTALLATION PROCESS

Installation

Dilatation joints

- Dilatation joints must be ensured between the tiles during installation.
- Adjust the dilatation joints according to the dimensions of the tiles, the layout of the application and the dilatation joints of the base.
- It is very important to use silicone with a neutral pH.
- Expansion joints should never be filled with grout.
- The recommended width of the dilatation joint is 2mm every 3x3m for interior applications, however, it's recommended to ensure a minimum width of 4mm in case of tiles with larger dimensions (>1200mm), heated floor or direct sunlight through big windows.



INSTALLATION PROCESS

Installation

Dilatation joints

- Clean any adhesive residue from the expansion joints.
- Insert the separation cord - this ensures that the expansion joint functions correctly and prevents the silicone from tearing.
- We recommend covering both sides of the joints with adhesive tape to make it easier to apply the sealant and remove the residues.

INSTALLATION PROCESS

Installation

Dilatation joints

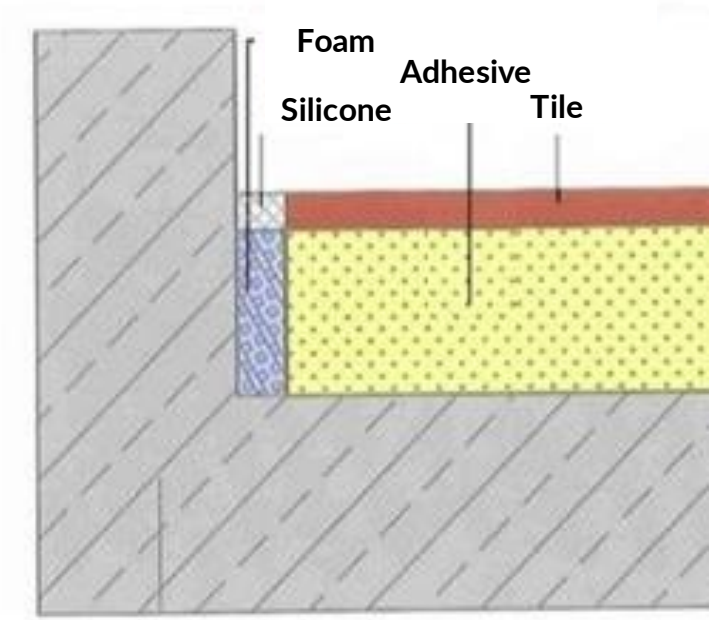
- Apply the sealant and shape it with a spatula.
- The final finish can be made with water and suitable tools to the desired shape.
- After allowing the sealant to dry slightly, remove the excess tape.

INSTALLATION PROCESS

Installation

Perimeter joints

- The perimeter expansion joint should be made around the room at every floor-to-wall and wall-to-wall contact.
- The recommended width of the perimeter joint is 5mm for interior applications.
- Use foam and silicone to fill the perimeter joint.

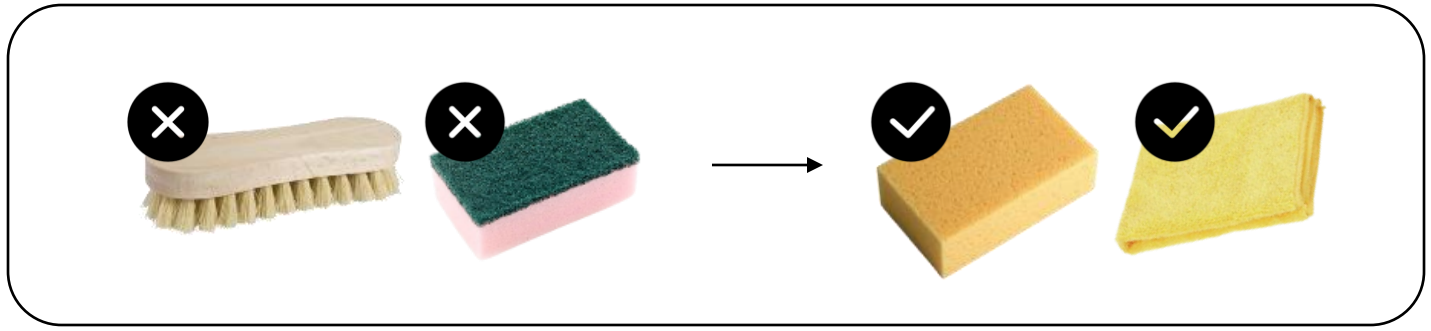


INSTALLATION PROCESS

Installation

Best practices

- Ensure that no excess water is trapped under the installed tiles due to incorrect dilutions or external sources.
- Use spacers and levelling wedges to ensure the minimum recommended width and alignment of the joints, as well as the alignment of the surface of the tiles.
- Residues of the fixing material should be quickly removed before drying, using cloths or sponges with water or neutral detergent.
- Never use acidic products, anticalcar or abrasive brushes and sponges to clean RMC tiles.
- Take into consideration large windows, air conditioners and other elements that may change the room temperature during the day



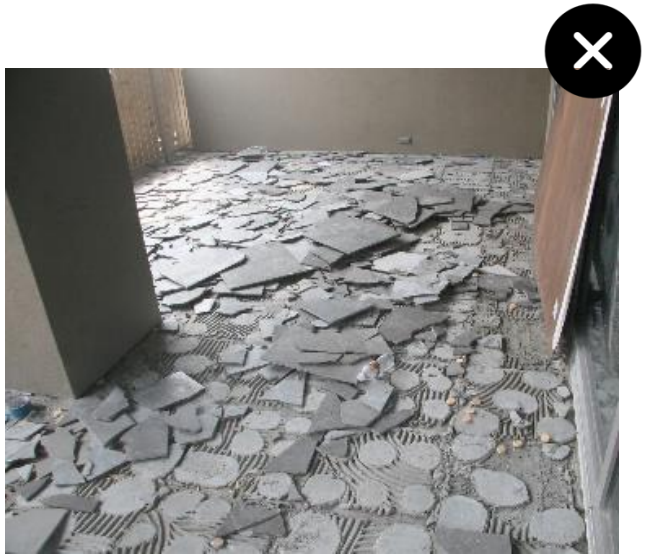
INSTALLATION PROCESS

Installation

Best practices

- Never apply adhesive in isolated spots, always use the trowel to evenly distribute the fixing material to ensure a well-spread layer when double-coating the tiles with at least 85% coverage.

Note: If too much adhesive is used to coat the backside, residues will fill the joints during laying and pressing, this excess must be removed before drying to leave the joint empty.



INSTALLATION PROCESS

Installation

Best practices

- Compare received shades and respect the color code on each package.
- Do not mix tiles from different shades and always compare adjacent tiles to ensure color continuity.

Contact us for more information

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