

RMC in Interior Installation Guide



RMC in Interior



Welcome,

Suitable for a wide variety of interior environments, RMC products deliver superior results when installed according to rigorous industry standards.

This document outlines essential installation requirements, including design and specification considerations, serving as a comprehensive guide to protecting the integrity and service life of your RMC surfaces.

Disclaimer: This documentation has been developed in collaboration with the manufacturers of our recommended installation products. Users are advised that specifications, technical data, and installation methodologies are subject to change without prior notice. Strict compliance with the latest instructions issued by the respective manufacturer is mandatory. For project-specific guidance, please consult your local technical representative..

RMC in Interior Installation Guide

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RMC in Interior Installation Guide

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GENERAL RECOMMENDATIONS



GENERAL RECOMMENDATIONS

General Notes

To ensure optimal long-term performance, RMC products must be accurately specified, handled, and installed in accordance with recognized industry standards.

- The performance of RMC tiles is directly related to the **quality of the installation**. The correct type of adhesive, its method of application and accommodation of the material's dimensional movement 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 tiles applied on interior **walls over 2.4 meters** high must be also mechanically fixed. Adhesive installation above 2.4 metres is not recommended without supplementary mechanical fixing.

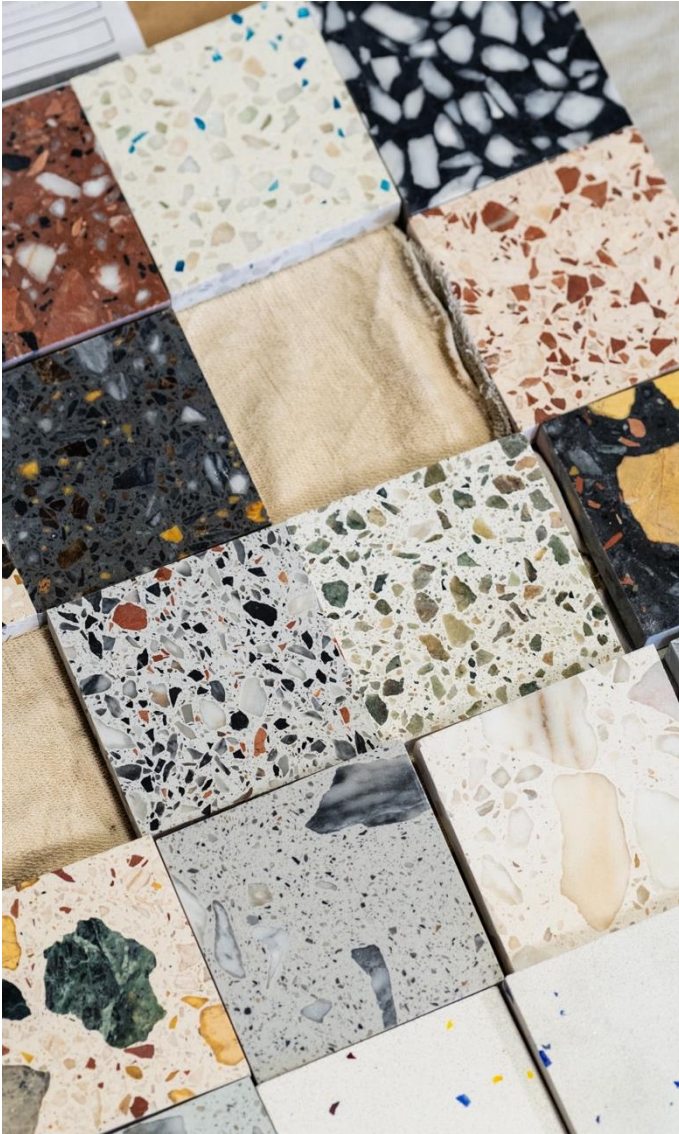


GENERAL RECOMMENDATIONS

Thickness and Surface Finish

In order to achieve optimal long-term performance, please take into consideration the following recommendations

- The most common thicknesses of RMC tiles are 12, 20 and 30 mm. The appropriate thickness depends on the **tile size**, expected **load** and **local regulations**. In general, for glued interior flooring tiles larger than 1.44 square meters, it's recommended to use a thickness equal to or greater than 20 mm.
- RMC provides a range of surface finishes engineered to address various **slip-resistance** performance requirements. The selection of the appropriate finish must be determined by the project designer according to the intended application and local regulations.
- For comprehensive details regarding available finishes and technical performance, please consult the relevant Technical Data Sheet (<https://www.rmc.pt/en/colors>) or contact your sales representative.
- In case of **special surfaces** like Bush-hammered, Satin, Sandy, Wavy or Grooved, the thickness of the tile must be equal to or greater than 20 mm.



GENERAL RECOMMENDATIONS

Colors

In order to achieve optimal long-term performance, please take into consideration the following recommendations

- As with other natural materials, dark colors are prone to faster fading than light colors. This phenomenon is less prevalent in interior applications and does not impact the material's structural stability. To preserve color vibrancy and mitigate the effects of fading, RMC recommends the following color-enhancing impregnations:



Stoneplus | Fila



Transformer Max | Akemi

- Dark colors are generally **not recommended for high-traffic floorings**. 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.

GENERAL RECOMMENDATIONS

Special Applications

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

- For special applications such as **high-traffic floorings** and **raised floors**, proper design and engineering evaluations must be conducted in accordance with applicable standards. RMC is available to provide support during the engineering phase of the project. Please contact your sales representative for specific technical details.
- The suitability of the material for high-traffic applications must be evaluated by the project designer, who shall determine the **minimum required abrasion class** based on the intended use, expected traffic volume, and other service factors.
- The suitability of the raised floor system must be evaluated by the project designer, and it is recommended its validation in accordance with **EN 12825:2001**.
- Always verify that the project requirements are consistent with the product's declared characteristics before installation. Please consult the relevant Technical Data Sheet (<https://www.rmc.pt/en/colors>) or contact your sales representative.



TECHNICAL CONSIDERATIONS

TECHNICAL PARAMETERS

Tolerances

RMC tiles are manufactured in accordance with European Standards (EN), which establish dimensional and performance requirements for a range of technical parameters. For installation purposes, dimensional tolerances are among the most critical characteristics to consider. For additional technical information, please refer to the Technical Data Sheet of the selected RMC product (<https://www.rmc.pt/en/colors>).

TECHNICAL DATA EN 15285	TOLERANCES ON DIMENSION AND SHAPE
Length and Width (≤ 600 mm)	± 0.5 mm
Thickness (≤ 20 mm)	± 0.7 mm
<i>Straightness of Sides</i>	± 0.3 mm
Rectangularity	± 0.9 mm
Flatness: Centre & Edge Curvature, Warping	$\pm 0.2\%$ (referred to length)
Bevel Angle and Width	45° 1.0 mm (± 0.7 mm)

TECHNICAL DATA EN 15286	TOLERANCES ON DIMENSION AND SHAPE
Length and Width (< 600 mm)	± 0.5 mm
Length and Width (≥ 600 and ≤ 1000 mm)	± 0.7 mm
Length and Width (> 1000 and ≤ 3500 mm)	± 1.0 mm
Thickness	± 0.7 mm
Diagonal Lengths (< 600 mm of tile length)	± 0.9 mm
Diagonal Lengths (≥ 600 and ≤ 1000 mm of tile length)	± 1.2 mm
Diagonal Lengths (> 1000 and ≤ 3000 mm of tile length)	± 3.0 mm
Surface Flatness Deviations	$\pm 0.3\%$ referred to diagonal length or 4 mm (whatever is lower)

TECHNICAL PARAMETERS

Thermal Expansion

Another important parameter for installation is the thermal expansion.

- As with all construction materials, RMC products are subject to dimensional changes resulting from temperature fluctuations. The magnitude of thermal expansion varies based on the specific product, color, and environmental conditions, with larger tile formats or darker colors potentially exhibiting greater dimensional variation.
- For RMC materials, the coefficient of thermal expansion generally ranges from 9.7 to $21.2 \times 10^{-6} \text{ }^{\circ}\text{C}^{-1}$ (please refer to the respective Technical Data Sheet - <https://www.rmc.pt/en/colors>), depending on the collection. **Darker colors** generally achieve higher surface temperatures and consequently **exhibit greater thermal expansion**. It is therefore essential that RMC materials are installed in accordance with the recommended **expansion joints**.

For example, an RMC Merrazzo Algarve tile with dimensions of 600×600 mm and a coefficient of thermal expansion of $17.3 \times 10^{-6} \text{ }^{\circ}\text{C}^{-1}$ may expand up to 0.3 mm when subjected to a temperature differential of $30 \text{ }^{\circ}\text{C}$ (an extreme scenario, e.g. a room with large glazed openings and no air conditioning).

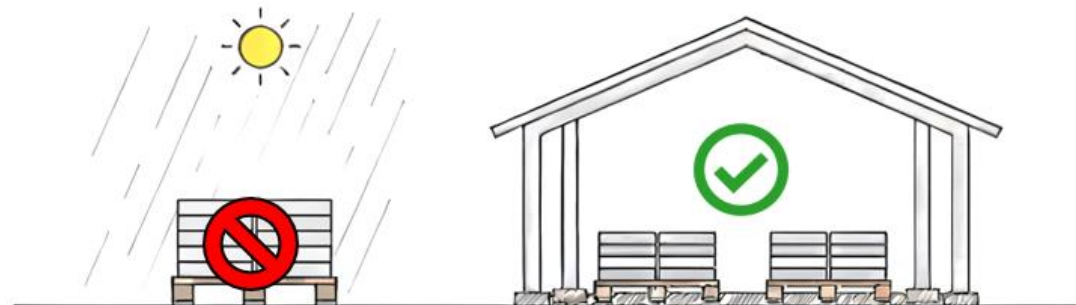
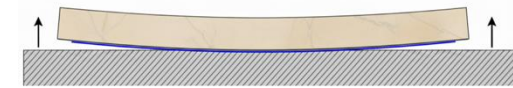
Considering a tile of the same material with dimensions of 1800×1200 mm, the dimensional variation under the same temperature differential may reach up to 1 mm.

TECHNICAL PARAMETERS

Moisture & Dimensional Stability

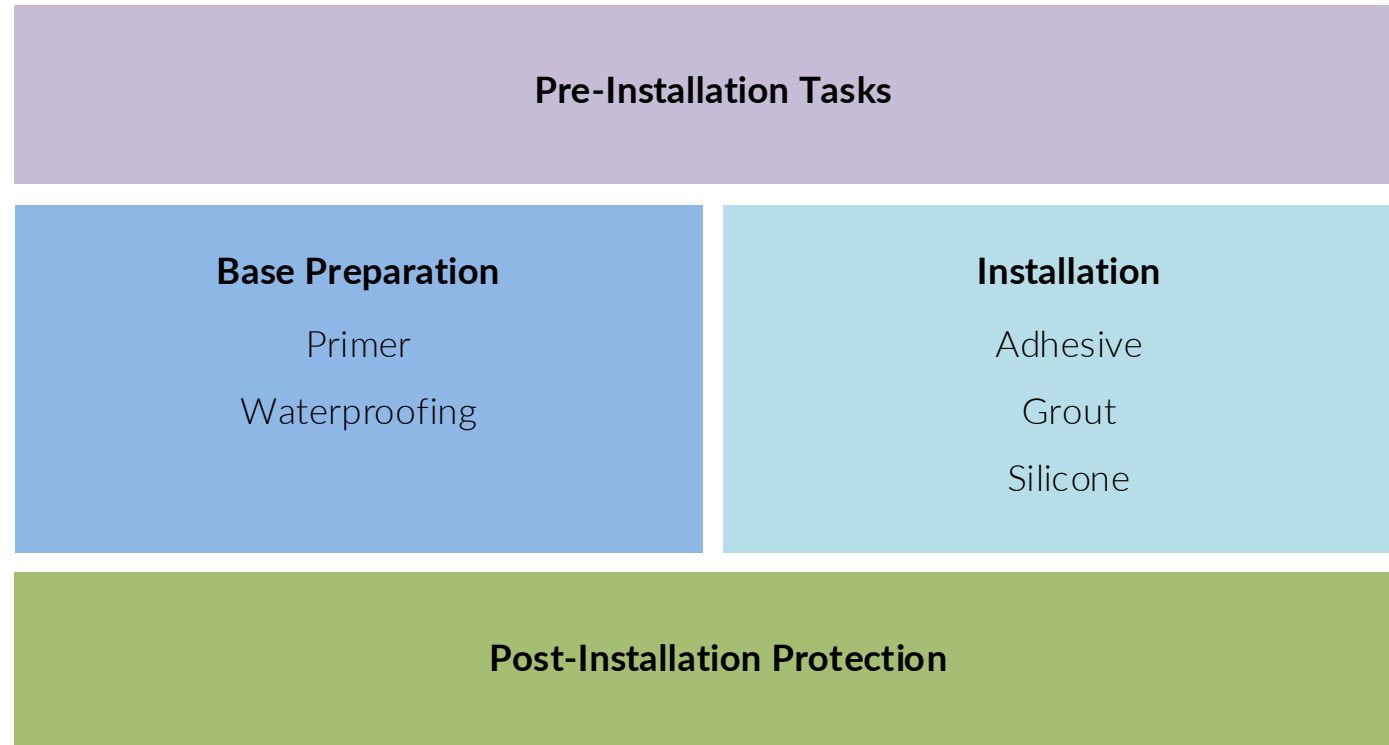
Another important parameter for installation is the dimensional stability.

- While RMC products maintain dimensional stability under normal service conditions, it is imperative to avoid prolonged moisture exposure to the backside of the tiles.
- Prior to installation, substrates must satisfy maximum residual moisture requirements as follows:
 - Cementitious screed: $\leq 2.0\%$
 - Cementitious screed with underfloor heating: $\leq 1.8\%$
 - Anhydrite screed: $\leq 0.5\%$
 - Anhydrite screed with underfloor heating: $\leq 0.3\%$
- Excess free moisture beneath installed tiles must be avoided at all times.
- To ensure material integrity, products must be stored indoors, protected from rain, humidity, and environmental exposure. It is advised that materials remain in their original packaging until the time of installation. For further technical specifications, please consult the applicable Technical Data Sheet (<https://www.rmc.pt/en/colors>).



INSTALLATION PROCESS

INSTALLATION PROCESS



Pre-Installation Tasks

Best practices

- Proper technical design and specification should be completed before installation begins.
- Ensure a firm substrate, within the specified flatness tolerances, without any excessive bumps or grooves.
- Ensure a clean, dry substrate, free of any coatings, compounds, soap, wax, oil or silicone that may be incompatible with the fixing materials.
- Ensure that a suitable primer is applied where necessary, according to the substrate type.
- Ensure that all wet areas have been correctly waterproofed.
- Ensure that substrate moisture levels comply with the specifications required:
 - Cementitious screed: $\leq 2.0\%$ ($\leq 1.8\%$ if with underfloor heating)
 - Anhydrite screed: $\leq 0.5\%$ ($\leq 0.3\%$ if with underfloor heating)
- Ensure that all installation products are within their designated shelf life.
- Ensure that all installation products are technically suitable and fully compatible with RMC products.



Pre-Installation Tasks

Best practices

- Define the installation layout to ensure that expansion joints present in the substrate are respected and accurately transferred to the finished surface, even if this requires additional cutting to maintain proper alignment.
- Tiles should never be installed over expansion joints in the base, as doing so creates a significant risk of cracking.



Pre-Installation Tasks

Best practices

- Before installation, verify that all supplied materials correspond to the correct color and finish by comparing the received shades and respecting the color code indicated on each package.
- Do not mix tiles from different shade batches unless previously approved and always compare adjacent tiles during the installation process to ensure color continuity.
- Please note that any claims regarding color or shade variation cannot be accepted once the material has been installed.

TILES / LADRILHOS 600 x 600 mm		Thickness / Espessura, Quantity/Quantidade:		P H A S B					Surface / Acabamento:		Reveled / Bristado:	
Product / Produto:		Shade / Tom:	5	12 mm, 3 pcs								
				20 mm, 2 pcs								

Client:

RMC
beyond the stone
RMC order: 737

Bundle

Package 15/37

Product

SHADE	SQM	UN
5		



Base Preparation

Primer

- The selection of the primer, where necessary, shall be determined by the substrate type and the adhesive manufacturer's recommendations.
- The products listed below have been validated for their respective bases:



- Mapei Primer G – for Drywall, Anhydrite screeds and similar bases.



- Mapei Eco Prim Grip Plus – for Wood, OSB, Viroc, Cetriss and similar bases.



- Mapei Ultrabond Eco PU 2K – for Metal, PVC and similar bases (this product should be used as adhesive – it's not recommended to use cementitious adhesives for this base type).

The contractor is responsible for all primer application and shall ensure that all necessary procedures, materials, and installation steps are correctly implemented prior to installation of RMC material.

Equivalent products from other manufacturers may be used, provided their technical suitability and compatibility with compact marble have been verified.

Base Preparation

Waterproofing

- Waterproofing systems must be applied in all wet areas, according to the manufacturer's instructions and relevant local regulations.
- Special attention is required for the following critical areas:
 - Floor-to-wall junctions
 - Wall-to-wall junctions
 - Movement joints
- Recommended products:
 - Mapei Mapelastic Zero
 - Mapei Mapeband Easy



The contractor is responsible for all waterproofing application and shall ensure that all necessary procedures, materials, and installation steps are correctly implemented prior to installation of RMC material.

Equivalent products from other manufacturers may be used, provided their technical suitability and compatibility with compact marble have been verified.

INSTALLATION PROCESS

Installation

- **Validated adhesive for RMC in Interior:**
 - MAPEI KERAFLEX EXTRA S1 – Recommended cement-based adhesive that ensures optimal indoor performance.



- **Alternative Option:**

When using alternative products, the chemical manufacturer must always ensure compatibility with compact marble and for the intended application.

- KERAKOLL H40 Gel
- KOLSTONE GEL 3.0 S1
- RAKO AD550

Minimum required cementitious adhesive class C2TE S1



INSTALLATION PROCESS

Installation

Recommended products :

The following products have been validated for use with RMC products

Adhesive

KERAFLEX EXTRA S1



&

Grout

ULTRACOLOR PLUS



&

Silicone

MAPESIL LM



Alternative products from other manufacturers may be used, provided they have been verified as technically suitable and compatible with compact marble

INSTALLATION PROCESS

Installation

Tile Installation

- Ensure that any previously applied product is completely dry and cured.
- Follow the adhesive manufacturer's instructions regarding mixing, application and curing.
- Use a trowel with 10x10 mm teeth and spread adhesive in a single direction, usually following the shorter side of the tile.
- Apply adhesive to both the substrate and the back of the tile (double buttering) to achieve 100% adhesive coverage.
- Consider this process the only correct procedure for gluing RMC tiles.



INSTALLATION PROCESS

Installation

Tile Installation

- Place the tile into the adhesive bed and move it perpendicular to the trowel ridges to ensure full adhesive contact.
- Tap gently using a rubber mallet where necessary. For **big format tiles** it is recommended to use a **tile vibration machine** to ensure proper adhesive distribution.
- Press or tap on the tiles to align with adjacent tiles.
- Use spacers of the recommended width to ensure joints between the tiles.
- Recommended **3 mm joint** width for easier installation and proper alignment. Minimum required joint width of 2 mm for proper grout performance.
- Any excess of adhesive should be removed, before drying, with a damp cloth or sponge.
- Remember that RMC tiles have a thickness tolerance. To obtain a levelled surface, the use of **levelling wedges** is recommended.



INSTALLATION PROCESS

Installation

- **Validated grout for RMC in Interior:**
 - MAPEI ULTRACOLOR PLUS – Recommended cement-based grout that ensures optimal indoor performance.



- **Alternative Option:**

When using alternative products, the grout manufacturer must always ensure compatibility with compact marble and for the intended application.

- MAPEI KERACOLOR FF
- KOLORSTONE ULTRA FLEXIBLE
- RAKO GF DRY
- Epoxy grout - RG class

Minimum required cementitious grout class CG2WA



INSTALLATION PROCESS

Installation

Best practices

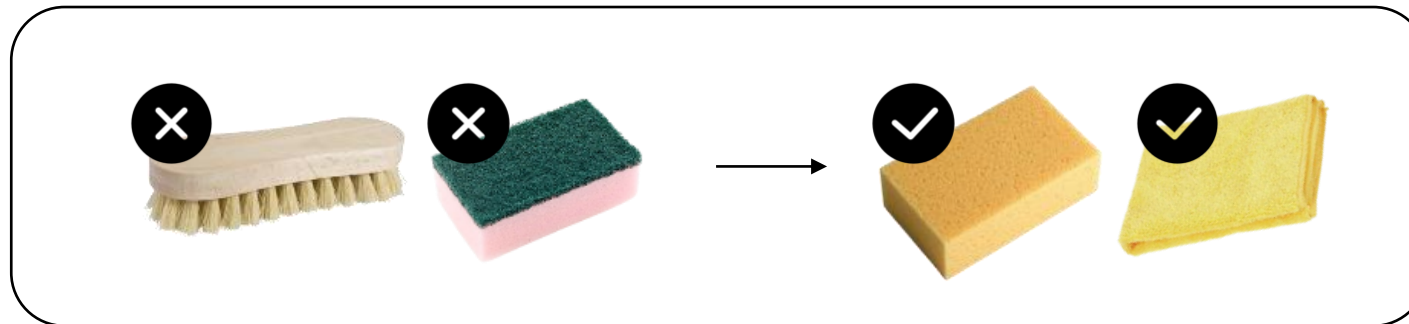
- Do not apply adhesive in isolated spots, creating voids under the tiles.
- Always use the trowel to evenly distribute the adhesive and ensure a well-spread layer when double-buttering to achieve 100% coverage.
- If too much adhesive is used to coat the backside, residues will fill the joints during laying and pressing; This excess must be removed before drying to leave the joints empty.



Installation

Best practices

- Ensure that under no circumstances **excess water** is trapped beneath 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 **pH neutral** detergent.
- Do not use **acidic or limescale** cleaning products, abrasive brushes or sponges when cleaning RMC tiles, as these may damage the surface.



INSTALLATION PROCESS

Installation

Grout joints

After the adhesive has fully cured:

- Fill the joints with grout of the selected color.
- 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 slightly dry, wipe off the excess with a soft sponge.
- Rinse the sponge regularly in a container of clean water to remove any residues.

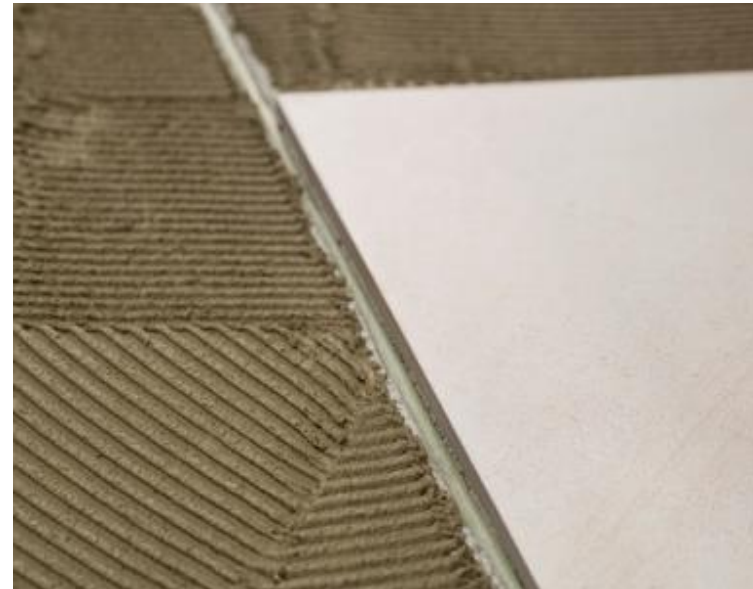


INSTALLATION PROCESS

Installation

Expansion 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, even if this means making additional cuts.

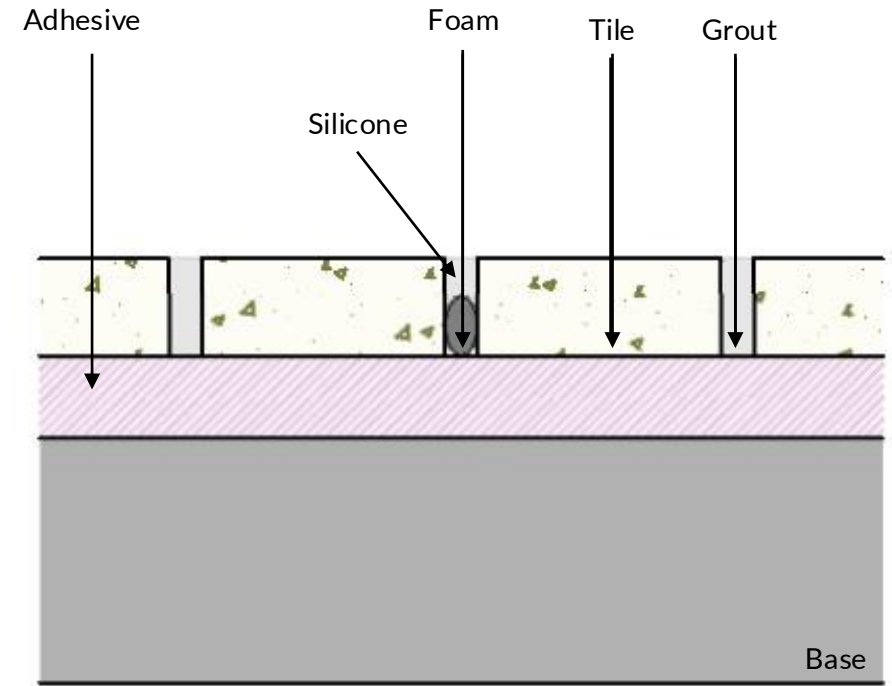


INSTALLATION PROCESS

Installation

Expansion joints

- Expansion joints must be ensured between the tiles during installation.
- Adjust the expansion joints according to the dimensions of the tiles, the layout of the application and the expansion joints in the base.
- Use separation cord and **neutral pH** silicone to fill expansion joints.
- Expansion joints should never be filled with grout.
- The recommended width of the expansion joint is **3 mm** every 3x3 m for interior applications.
- It is recommended to ensure a minimum expansion joint width of 4 mm in cases such as **larger dimensions** (≥ 1200 mm), **heated floors** or **direct sunlight** through big windows.



INSTALLATION PROCESS

Installation

Expansion 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 residues.



INSTALLATION PROCESS

Installation

Expansion joints

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

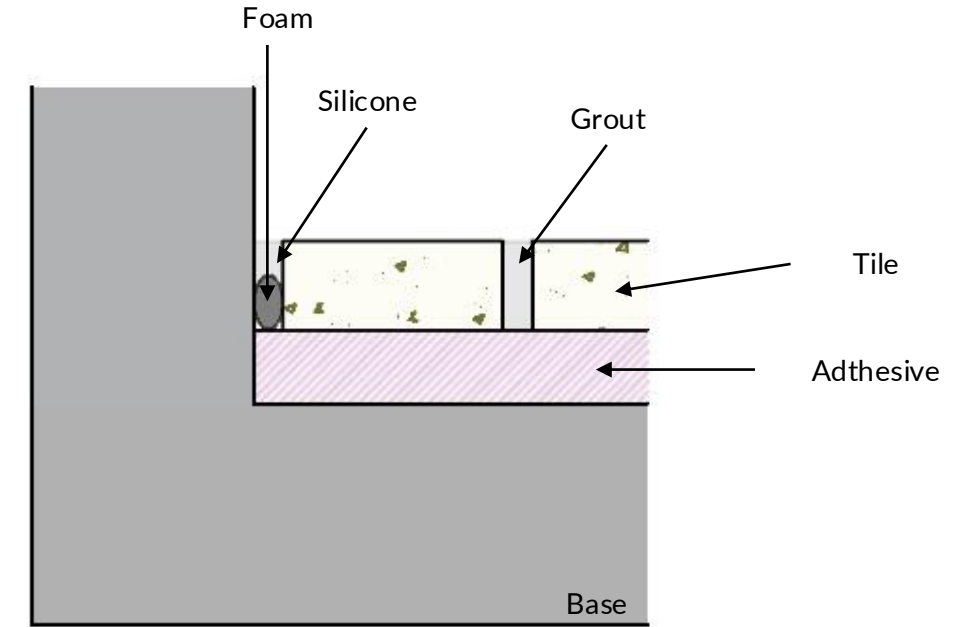


INSTALLATION PROCESS

Installation

Perimeter joints

- The perimeter expansion joint should be made around the room and at every floor-to-wall and wall-to-wall junctions.
- The recommended width of the **perimeter joint** is 5 mm.
- Use separation cord and **neutral pH silicone** to fill perimeter joints.
- Perimeter joints should never be filled with grout.



INSTALLATION PROCESS

Post-Installation Protection

Post-Installation Cleaning

Carry out the post-installation cleaning only after the grout has fully cured. Use:

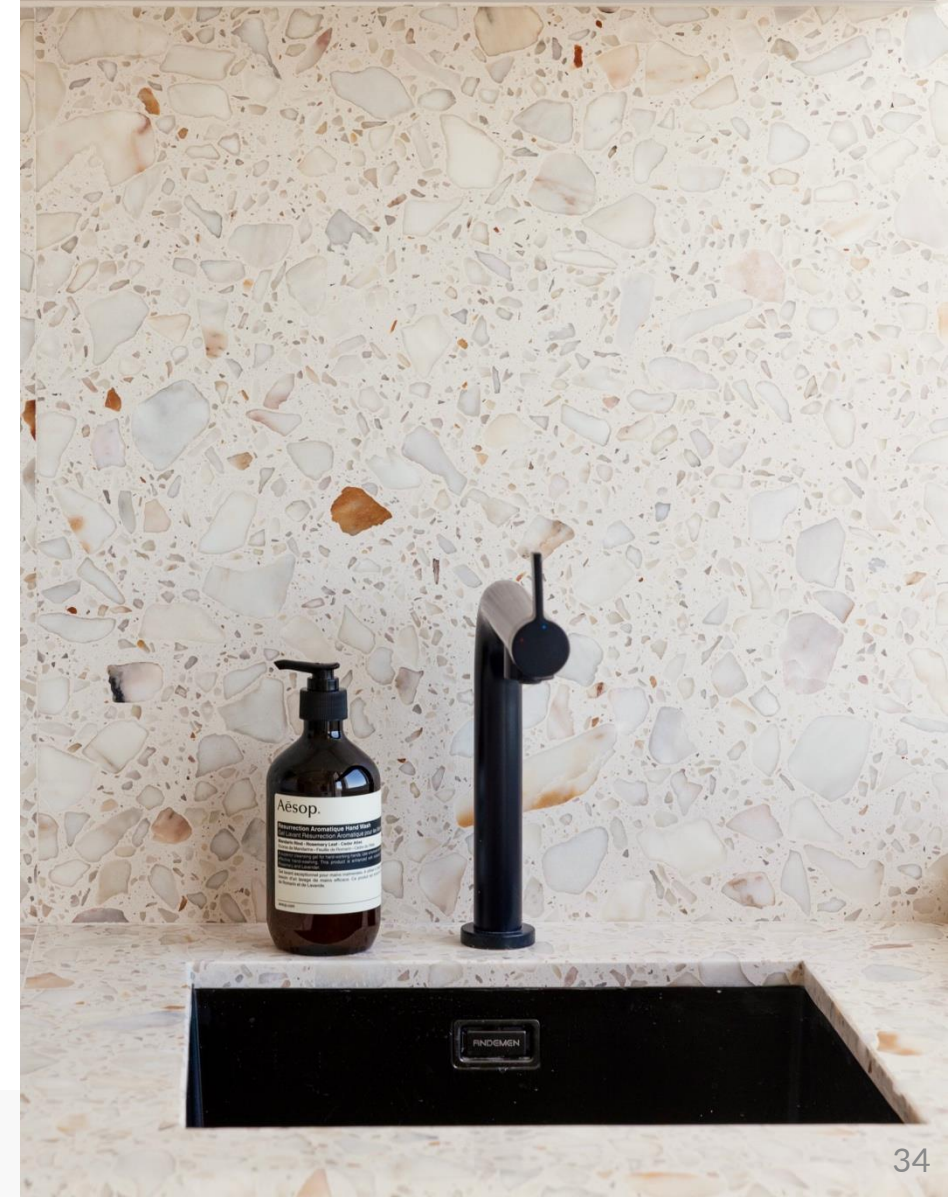
- ✓ pH-neutral detergent
- ✓ warm water
- ✓ soft cloth or mop

Rinse thoroughly with clean water and dry the surface before use.

Don't use:

- ✗ Acidic cleaners
- ✗ Abrasive products
- ✗ Steel wool
- ✗ Metallic scrubbing tools
- ✗ Aggressive solvents

These products may permanently damage the surface finish.



INSTALLATION PROCESS

Post-Installation Protection

During Construction

Protect installed surfaces from:

- falling tools;
- paint, plaster and construction debris;
- excessive construction traffic;
- concentrated point loads.

Where required, install rigid protection boards over the primary protective layer.

Protect the Installed Surface

Immediately after installation, RMC surfaces shall be protected against damage until final project handover.

Use clean, non-abrasive protective materials such as:

- Corrugated cardboard
- Protective felt
- Temporary floor protection systems
- Plywood sheeting, polyethylene sheeting or non-woven protective fabrics

Always ensure the surface is clean and dry before applying any protective covering.



SPECIAL APPLICATIONS

SPECIAL APPLICATIONS

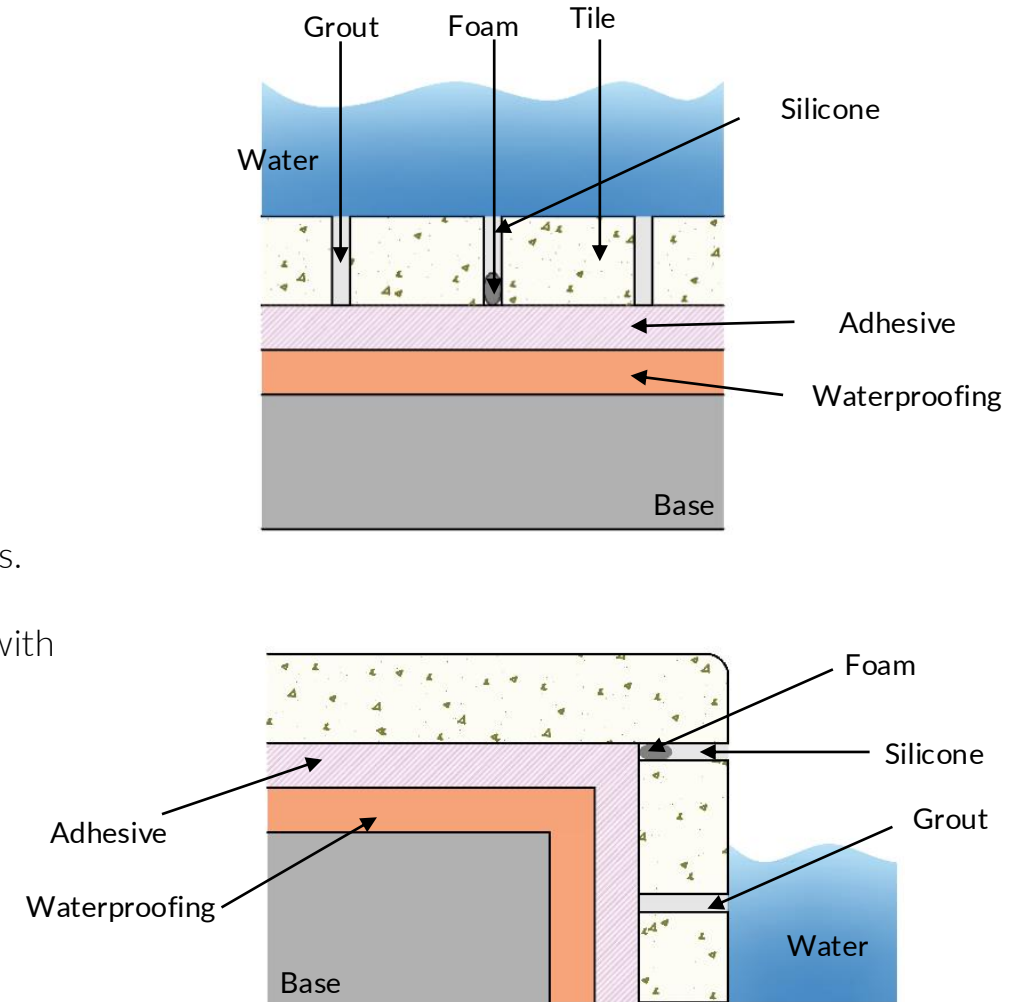
Swimming pools

Swimming pools – general comments

RMC material can be used for swimming pools if recommended guidelines are followed:

- Waterproofing the base is mandatory.
- Use recommended adhesive **Kolstone Gel 4.0 S2**.
- Joints must be aligned between flooring, walls and stairs.
- Use recommended grout **Kolorstone Supra Flexible** with min. 4 mm width joints.
- Min. 4 mm expansion joints every 3x3 m filled with **Mapefoam** and sealed with **Mapesil LM**.
- Min. 5 mm perimeter joints filled with **Mapefoam** and sealed with **Mapesil LM**.

For outdoor swimming pools, the same guidelines apply.



Swimming pools

Swimming pools – water treatment

- Chlorine treatment: Recommended to maintain a **good chlorine level of 0.5–4.0 ppm**, that corresponds to 0.00005–0.0004%.
- Salt treatment:
 - Recommended to keep **salt content between 3–5 g/L** (9 times lower than seawater).
 - **Warning:** Water with high salt content damages RMC material.
- Other possible treatments should be evaluated and tested case-by-case.
- Regardless of the treatment method, **water pH should be controlled between 7 and 7.6 in all cases.**
- Please be aware that, similar to natural marble and other materials, RMC material will have color fading if the pool is exposed to **direct sunlight**, and color differences can be observed between wet pieces in contact with water and dry pieces.

For outdoor swimming pools, the same guidelines apply.

Raised floors

Interior raised floors – general comments

RMC material can be used for interior raised floors if recommended guidelines are followed:

- Panels must be supported by an engineered pedestal sub-structure.
- Ensure correct pedestal spacing according to the panel dimensions and expected static and dynamic traffic loads.
- Maintain minimum required open joints of 3 mm between panels to allow for individual panel removal and sub-floor access.
- Use anti-noise and anti-vibration rubber pads on all pedestal heads to improve acoustic performance.
- Minimum recommended perimeter joint width of 5 mm against all walls, columns or other structural elements to allow for movement.

For more information, please contact your RMC representative.

Heated Floors

General comments

RMC material can be used for floors with underfloor heating if the following guidelines are strictly followed:

Pre-Installation:

- Ensure that a suitable screed for underfloor heating systems has been correctly specified and installed.
- The underfloor heating system must have completed a full heating and cooling cycle prior to installation, ensuring maximum residual moisture $\leq 1.8\%$ for cementitious screed and $\leq 0.3\%$ for anhydrite screed.
- Heating must be turned off at least 48 hours before applying the adhesive and kept off until the adhesive is fully cured.



Heated Floors

General comments

Application:

- Use a validated adhesive suitable for underfloor heating applications such as **Mapei Keraflex Extra S1**.
- Back-buttering is mandatory to ensure proper adhesive distribution and **100% coverage**, avoiding any voids under the tiles.

Joints & Grouting:

- Grout with a suitable product such as **Mapei Ultracolor Plus**.
- Minimum recommended joints width of **3 mm**.
- Minimum recommended expansion joint width of **4 mm** every 3 m x 3 m.
- Minimum recommended perimeter joint width of **5 mm** on every contact against walls, columns or other structural elements.
- All expansion and perimeter joints must be filled with suitable separation cord such as **Mapei Mapefoam** and suitable flexible **pH neutral** silicone such as **Mapei Mapesil LM**. Never fill expansion and perimeter joints with grout.

Heated Floors

General comments

Initial Commissioning (Post-Installation): After the adhesive is fully cured, a 5-day progressive low-temperature test cycle must be executed before normal operation:

- Day 1: 20°C | Day 2: 22°C | Day 3: 24°C | Day 4: 26°C | Day 5: 28°C.
- Maximum surface temperature during normal use must never exceed 30°C.

Heating System Specifics:

- Water Systems: Recommended operating water temperature is 35°C to 40°C. Water should never exceed 45°C. Higher temperatures increase tile stress without improving comfort.
- Electric Systems: A floor temperature sensor must be embedded in the base. Heating must be gradual, strictly avoiding "boost" modes, as rapid temperature spikes cause thermal stress to the tiles.

Tile Specifications & Colors:

- Standard interior floor recommendations apply.
- For specific conductivity performance please consult the applicable Technical Data Sheet (<https://www.rmc.pt/en/colors>).
- For more information, please contact your RMC representative.

Fireplaces

General comments

RMC material may be used around fireplaces, provided that the installation is designed and executed in accordance with the following requirements:

- RMC material must never be exposed to open fire.
- The fireplace structure must be properly insulated to prevent excessive heat transfer to the RMC surface.
- **The maximum temperature on the RMC surface must not exceed 50°C** under any operating conditions.
- It is the responsibility of the project designer and fireplace manufacturer to ensure that the installation complies with all applicable regulations and that adequate insulation and ventilation measures are in place.

Failure to comply with these requirements may result in damage to the material and may affect the performance and appearance of the installed surface.



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