

MAPEGUARD UM 35

Installation manual



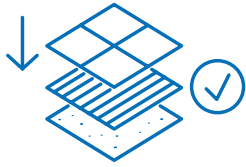


**WATERPROOFING, UNCOUPLING
AND ANTI-FRACTURE MEMBRANE
FOR CRACKED, DAMP AND/OR NOT PERFECTLY
CURED SUBSTRATES FOR THE INSTALLATION
OF CERAMIC TILES AND STONE MATERIAL.**

Mapeguard UM 35

Installation manual

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Introduction to Mapeguard UM 35

UNI 11493-1 and UNI 11714-1 Standards define the **performance characteristics the supports should meet** for the installation of ceramics or stone material. Substrates such as concrete, cementitious screeds, old existing ceramic and wood flooring, anhydrite screeds must therefore meet specific performances and requirements.

Nonetheless some substrates, especially when talking about restorations, can be difficult to handle or simply do not meet the needed requirements.

Conditions such as:

- moisture
- seamless (in case of control or expansion joints)
- stability
- watertightness

if not managed in the right way may affect the correct laying of the flooring.

Mapeguard UM 35 is a membrane made from a layer of honeycomb HDPE with a rough surface and polypropylene fabric backing that allows to install ceramics or stone material on most substrates even when these present problems and/or do not meet the standard needed requirements.

Advantages of the system



Crack control

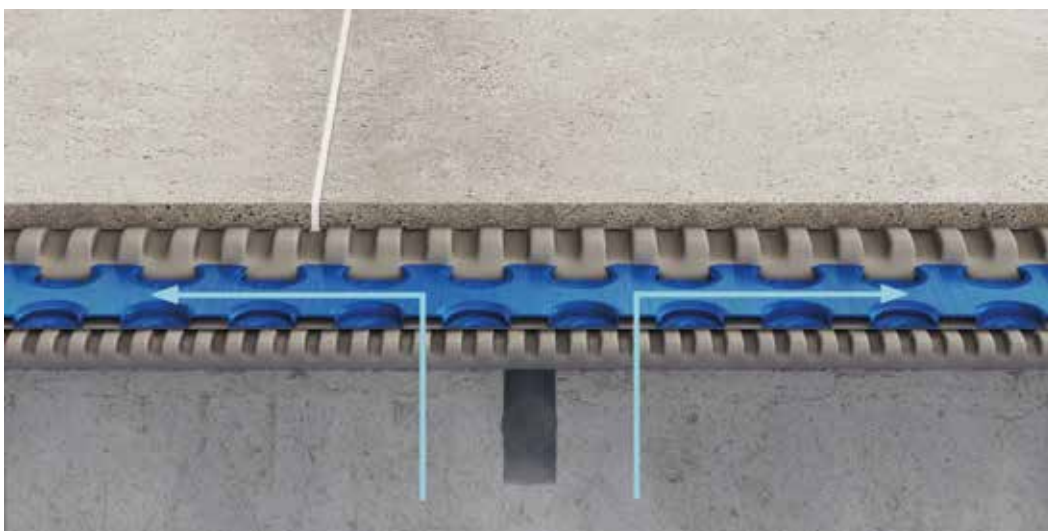
Mapeguard UM 35 allows the control of cracks in the substrate acting as an **anti-fracture membrane**. It acts as an **uncoupling element** that prevents the transmission of substrate cracks to the flooring.



Waterproofing

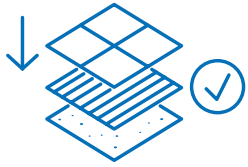
Mapeguard UM 35 membrane is **waterproof** and protects substrates from infiltrations of water, thus improving their durability.

It may be used on internal and external surfaces in combination with **Mapeband Easy** for sealing joints between the sheets and waterproofing critical areas (edges, corners, etc.).

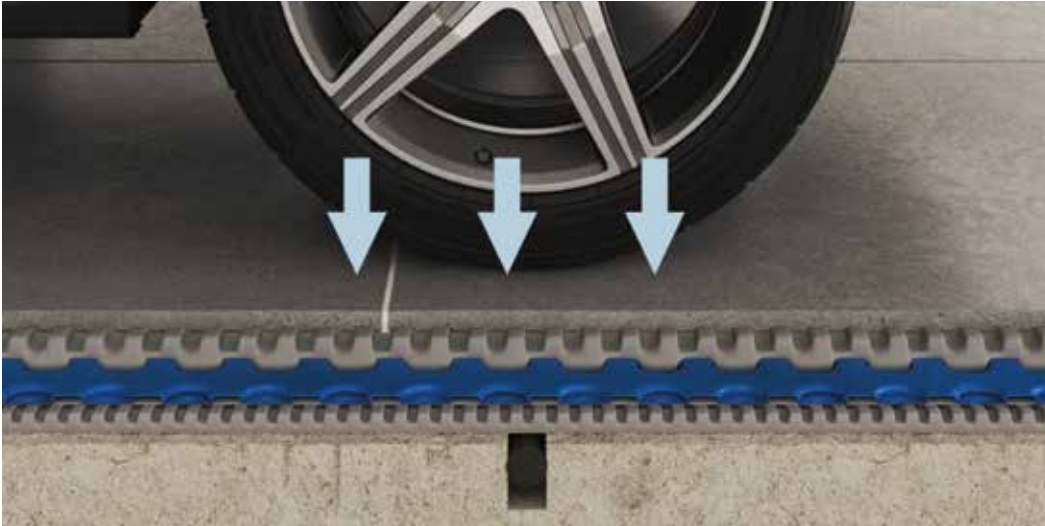


Vapour control

Any moisture in the substrates evaporates thanks to the air channels on the back of the membrane. Therefore, **Mapeguard UM 35** is suitable for use on **damp substrates and/or on substrates that are not fully cured**, including in external surroundings.

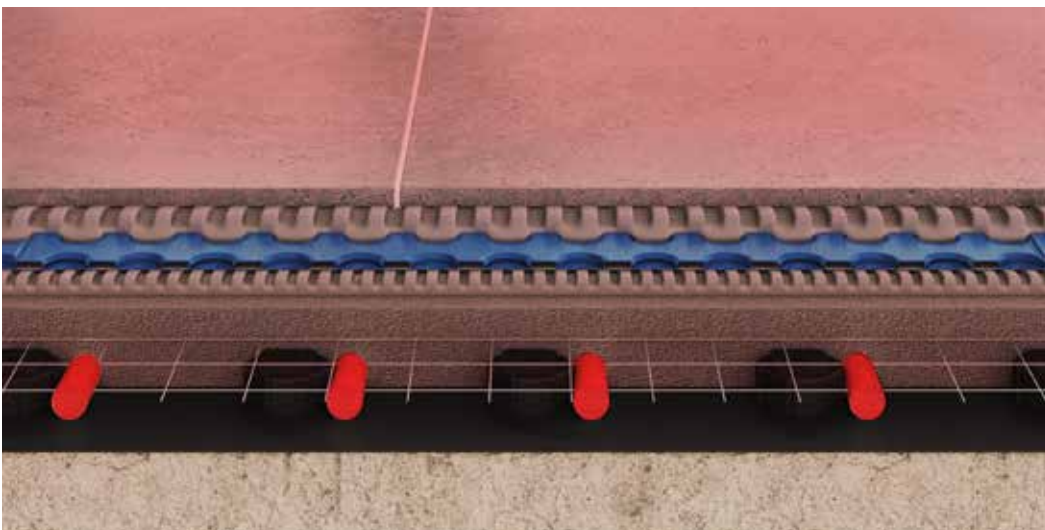


Introduction to **Mapeguard UM 35**



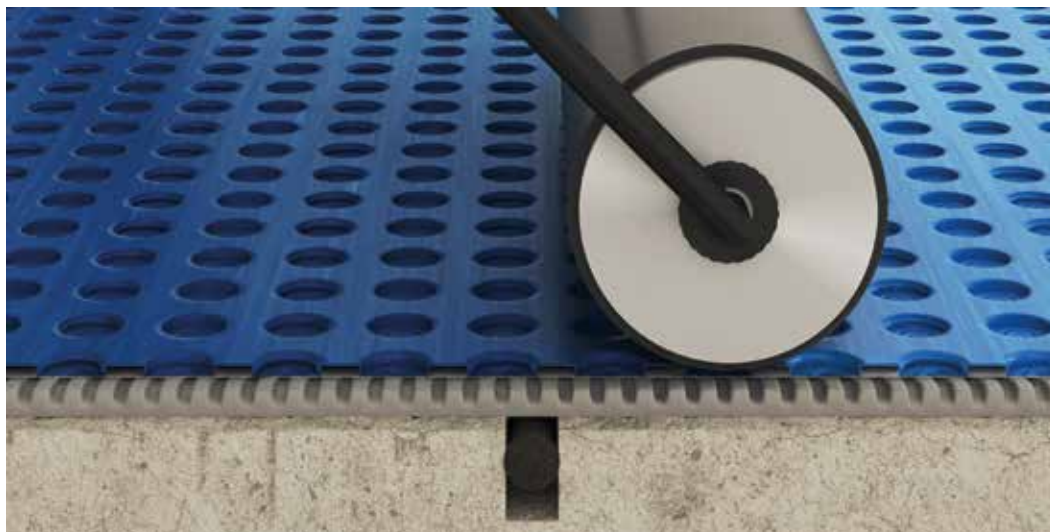
Mechanical strength

Mapeguard UM 35 allows the distribution of stresses also on floorings subject to heavy loads. **Mapeguard UM 35** is certified as **Extra Heavy Commercial Rating** according to TCNA test reports, complying with ASTM C 627 American standards and is suitable for use in residential and commercial surroundings.



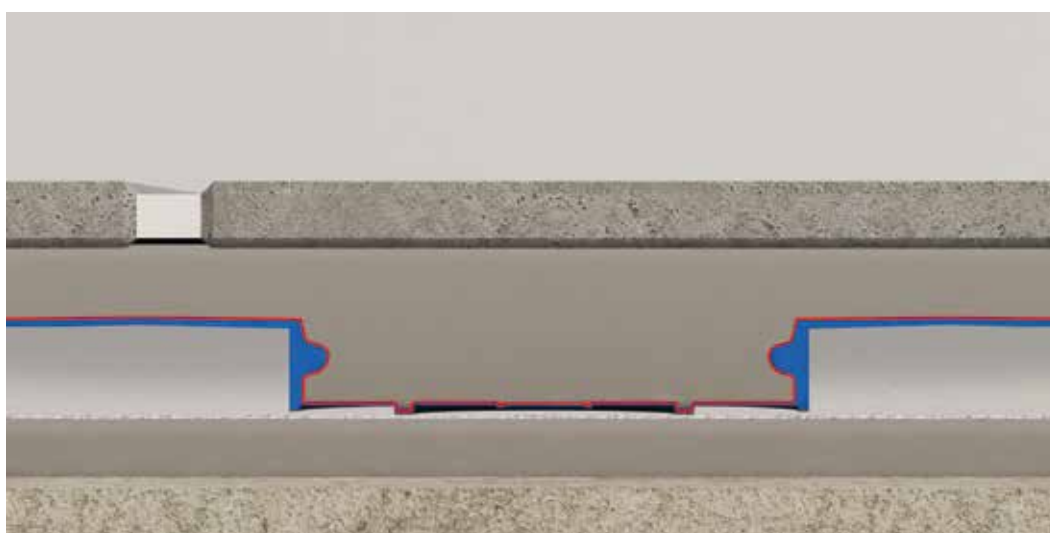
Even heat distribution

Mapeguard UM 35 guarantees that **heat is distributed** evenly when applied on heated floors, including compact heated floors.



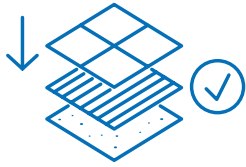
Transparency

Mapeguard UM 35 is semi-transparent and this **allows to verify the correct distribution of the adhesive** underneath. It also **allows to easily locate the presence of potential elements passing** through surfaces (such as drains) thus making the cutting of the membrane easier.



Improved adhesion

Thanks to the particular shape of the embosses on **Mapeguard UM 35** surface, the adhesive used for laying the covering strongly bonds to it. The special shape of the embosses offers a perfect **mechanical bonding of the adhesive** in order to obtain a high adhesion between the ceramic or stone covering and **Mapeguard UM 35**.



Where to use

Interior and exterior installation as an uncoupling and anti-fracture membrane for installing ceramic and stone flooring on difficult, cracked and not fully cured substrates, and without having to copy the layout of control and expansion joints (as defined in UNI 114931-1 and UNI 11714-1) in the substrate.

Mapeguard UM 35 is suitable for **balconies and terraces**, since it creates an uncoupling and vapour compensation layer on damp substrates and/or on substrates that are not fully cured.

Mapeguard UM 35 is a **waterproofing, uncoupling** and **anti-fracture membrane** that allows moisture in the underlying layers to be released.

Mapeguard UM 35 is suitable for installing ceramic and stone tiles, **including when overlaying existing flooring**.

Mapeguard UM 35 may be used in the following surroundings



*New residential buildings
and residential buildings under renovation*



Commercial surroundings



Hospitals



Hotels



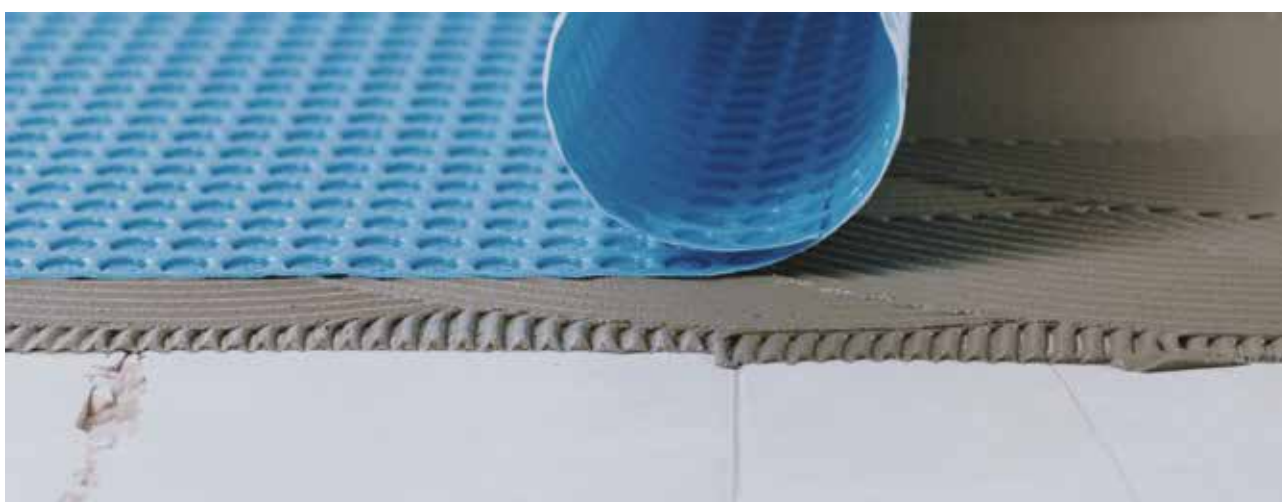
Balconies and terraces



Bathrooms



Laying **Mapeguard UM 35** on a cementitious screed with control joints.



Laying **Mapeguard UM 35** on existing cracked ceramic flooring.



Laying **Mapeguard UM 35** on existing ceramic flooring with expansion joints.



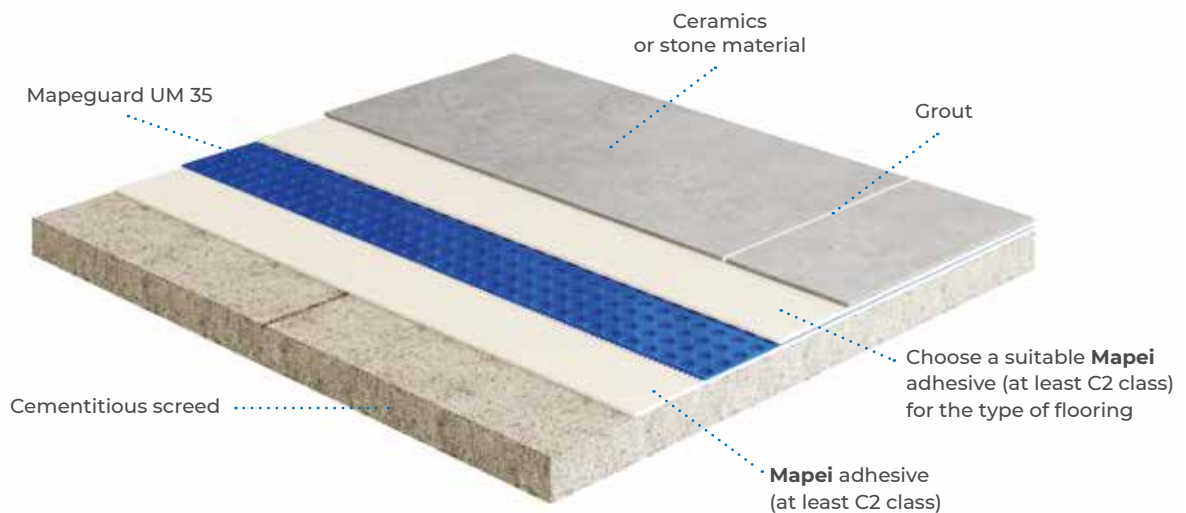
Types of substrate

Mapeguard UM 35 is suitable for these types of support:

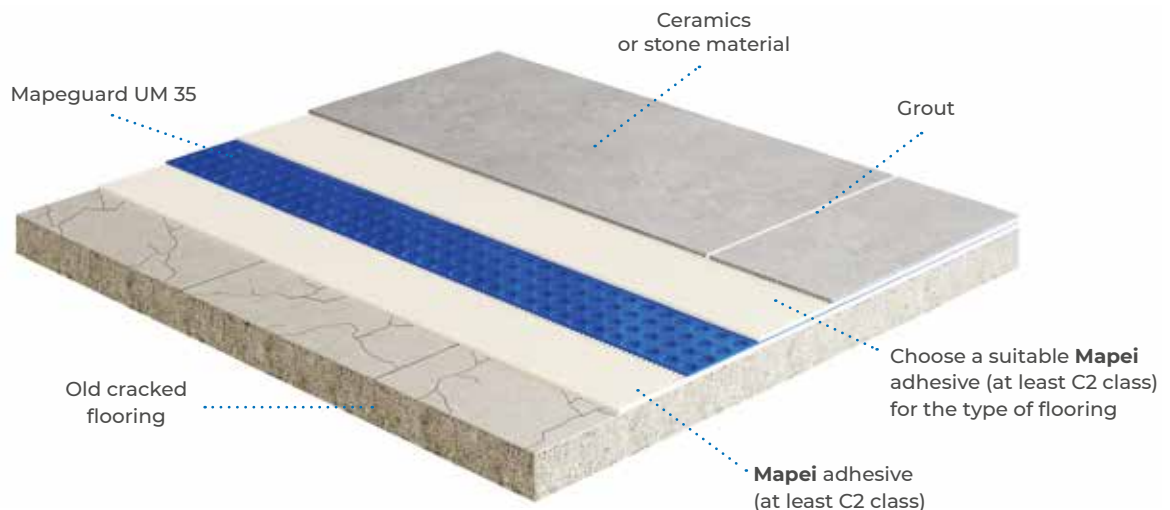
- Concrete*
- Cementitious screeds*
- Cementitious screeds with heating system*
- Anhydrite screeds
- Anhydrite screeds with heating systems
- Old ceramic flooring
- Old resin flooring
- Old wood flooring

**Mapeguard UM 35 helps substrates mature correctly by preventing water from evaporating off too quickly.*

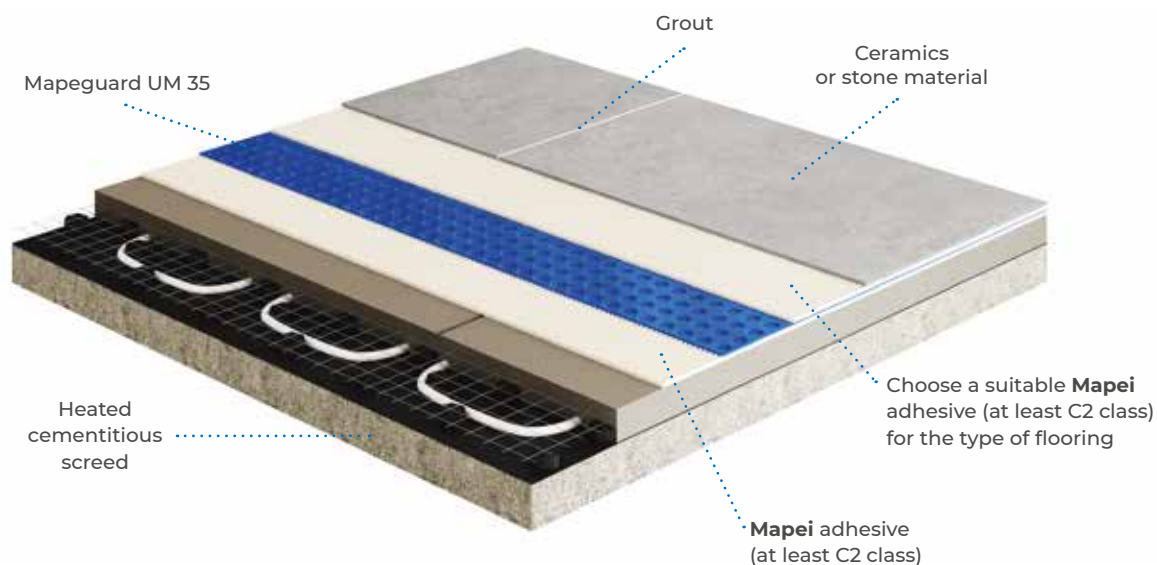
Installation of **Mapeguard UM 35** on a cementitious screed with control joints



Installation of **Mapeguard UM 35** on a screed or an existing cracked ceramic flooring



Installation of **Mapeguard UM 35** on a heated screed



Recommendations

- The substrate must have an adequate mechanical strength according to expected loads.
- Do not use in correspondence with structural joints on the substrate.
- Do not apply over cracks or joints subject to out-of-plane movements.
- Do not apply directly over structural cracks and/or cracks wider than 3 mm.
- Do not use with tiles smaller than 5x5 cm.
- For substrates with residual moisture, use **Mapeband Easy** to seal joints between adjacent sheets of the membrane.
- Do not use on dry anhydrite substrates unless they have been treated beforehand with special primer such as **Primer G** or **Eco Prim T**.
- Do not apply directly on bituminous membranes.
- **Mapeguard UM 35** needs to be covered with suitable ceramic or stone flooring.
- Do not use on lightweight screeds.

Preparation of the **substrate**

Preparation of screeds

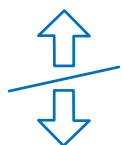
For information on how to install screeds and suitable products to create screeds please refer to Mapei Technical Notebook "Installation of Heated Screeds and Substrates for Laying Floors".

In order to be suitable for laying floors, screeds must comply with the requirements of UNI 11493-1 standards, as follows.



Integrity

The **thickness of the screed** must be defined according to its type (uncoupling screed, floating screed, bonded screed or heated screed) and the design loads it will be subjected to. Any gaps or hollows in the screed must be repaired with **rapid-setting mortars**, such as **Topcem Pronto** or **Mapecem Pronto**, applied using the wet-on-wet technique over bonding slurry made from water, cement and **Planicrete**, or with **Eporip**. The **layer of mortars** applied over pipe runs must be at least 2.5 cm thick above the pipes and lightweight mesh must be positioned so that it straddles the pipes. Any **cracks** in the screed (more than 3 mm wide) must be sealed monolithically by filling them with epoxy or polyester resin (such as **Eporip**, **Eporip Turbo** or **Epojet**). The resin must then be broadcast while still wet with dry sand to improve adhesion of the next layers.

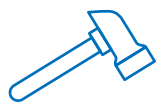


Mechanical strength

The **mechanical strength** of the screed depends on the area of use of the flooring.

UNI 11493-1 standards define the requirements of a screed according to the loads it is subjected to (e.g. 16 MPa for a screed without a heating system inside residential buildings, 20 MPa for a heated screed inside residential buildings and 30 MPa for a cementitious screed outside residential buildings).

If an internal screed has a crumbling surface, it may be consolidated by treating it with special consolidating primers, such as **Primer MF**, **Primer MF EC Plus**, **Eco Prim PU 1K** or **Prosfas**.



Compaction and uniformity

The surface of the screed must be **compact** and **strong**. In certain cases, a surface may appear to be compact but could still have **surface bleeding**. This may reduce its design characteristics and may cause detachment of the flooring if not verified before it has been installed.

The compactness of a screed **may be checked empirically** with a rubber mallet and surface bleeding may be examined by cutting into the surface with a punch or bradawl. Any surface bleeding must be removed mechanically and, if necessary, the surface must then be repaired by applying a coat of primer and skimming compound.



Cleaning

The screed must be clean and free from dust, oil, detached areas or any other material or substance that could affect the adhesion of the next layer (cement laitance, old adhesive, paint, etc.).

The screed must be cleaned mechanically or with a specific product, depending on the type of contaminant on the surface.



Flatness and levelness



The **maximum tolerances for horizontal surfaces** depend on the tolerances allowed to install the flooring material. Unless otherwise specified, a surface is considered as sufficiently flat if any gaps under a 2 m straight edge are not over ± 3 mm.

If a **slope** is required **for drainage purposes**, the condition of the surface still needs to be checked and a slope of at least 1% needs to be created.

If a screed does not meet the requirements in terms of flatness/levelness or slope, a suitable levelling product may be applied to correct the difference; which product to use depends on whether it is for internal or external use, whether a slope needs to be formed and on the thickness that needs to be reintegrated.

For internal surfaces that are not perfectly flat, **self-levelling products** and **thixotropic mortars** from **Mapei range** may be used (such as **Ultraplan**, **Ultraplan Maxi**, **Planex HR Maxi**, **Adesilex P4**, **Planitop Fast 330** or **Nivorapid**).

In case of external surfaces, if a slope needs to be corrected or a new slope needs to be created, use a product such as **Adesilex P4**, **Planitop Fast 330** or **Planex HR Maxi**.

Preparation of the **substrate**

Preparation of existing floors

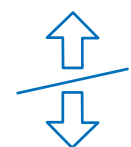
When carrying out renovation work, old flooring is often overlaid with new ceramic flooring. The installation should meet the following requirements.



Integrity

The existing floor covering must be firmly bonded to the substrate and the substrate itself must be strong enough for the type of use specified.

Any damaged, detached or cracked areas must be removed. If any **elements are either detached or have been removed**, the compaction of the underlying substrate must be assessed and, if necessary, it must be repaired where required (with a product such as **Planitop Fast 330** or **Adesilex P4**). If the substrate is not strong enough, the flooring must be removed and the substrate must be repaired.



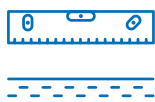
Mechanical strength

If the mechanical strength of the substrate is not high enough, the flooring has to be removed and the substrate must be repaired.



Cleaning

All existing surfaces must be **thoroughly cleaned** and have no detached areas or substances that could affect adhesion (cement laitance, oil, wax, grease, etc.). Before installing ceramics, it is also recommended to clean the surfaces with **a product suitable for the type of contaminant on the surface**: an acid cleaning solution to remove cement, water and caustic soda or a specific de-waxing product to remove oil, wax, etc.



Flatness and levelness

Tolerances for flatness are the same as those for screeds. Also, when forming a slope, make sure the existing slope meets the requirements, or reintegrate the slope if it is either inexistent or insufficient.

After being cleaned thoroughly, old ceramic flooring may be levelled over with a suitable skimming product.



Application of Mapeguard UM 35

Uncoupling and anti-fracture layer in internal surroundings

1

Cutting Mapeguard UM 35

Unroll the membrane and cut it to the shape and size of the area, taking into account the presence of side walls, kerbs, pillars, drains, etc.

The **membrane may be cut** to shape with simple tools, such as scissors or a craft knife.



2

Application of the adhesive

Spread the adhesive over the surface of the substrate with a suitable notched trowel (e.g. a 5 mm notches trowel). Use a **Mapei** class C2 improved adhesive according to EN 12004 or ISO 13007-1 standards (such as **Keraquick Maxi S1**, **Ultralite S1**, **Keraflex**, **Keraflex Maxi S1 zero**, **Keraflex Easy S1**).

When laying the membrane on wood, metal or resilient flooring, it is recommended to use a reactive adhesive such as **Keralastic** or **Ultrabond Eco PU 2K**.

The special fabric on the backside of **Mapeguard UM 35** creates an **excellent mechanical grip** between the membrane and the adhesive and guarantees a great bonding.



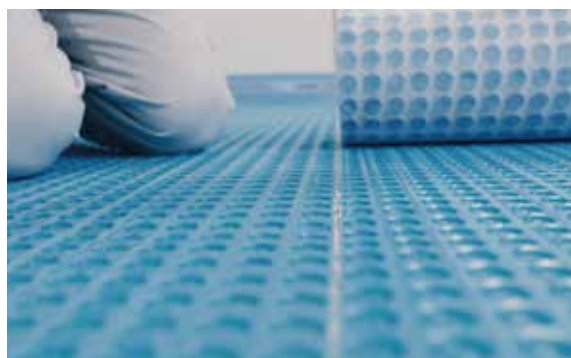


Application of Mapeguard UM 35

3

Laying Mapeguard UM 35

Lay the membrane over the adhesive while it is still wet **with the blue side facing upwards**; make sure the white felt backing is completely impregnated with the adhesive. When laying the rolls of the membrane, it is recommended to leave a **3-5 mm gap between the sheets**.



4

Pressing Mapeguard UM 35

When carrying out this operation, it is very important to go over the membrane with a float or roller and **apply pressure to ensure proper embedding of the adhesive** (maximum 35 kg). If necessary, place weights on the ends of the rolls until the adhesive sets.



5

Protection of Mapeguard UM 35

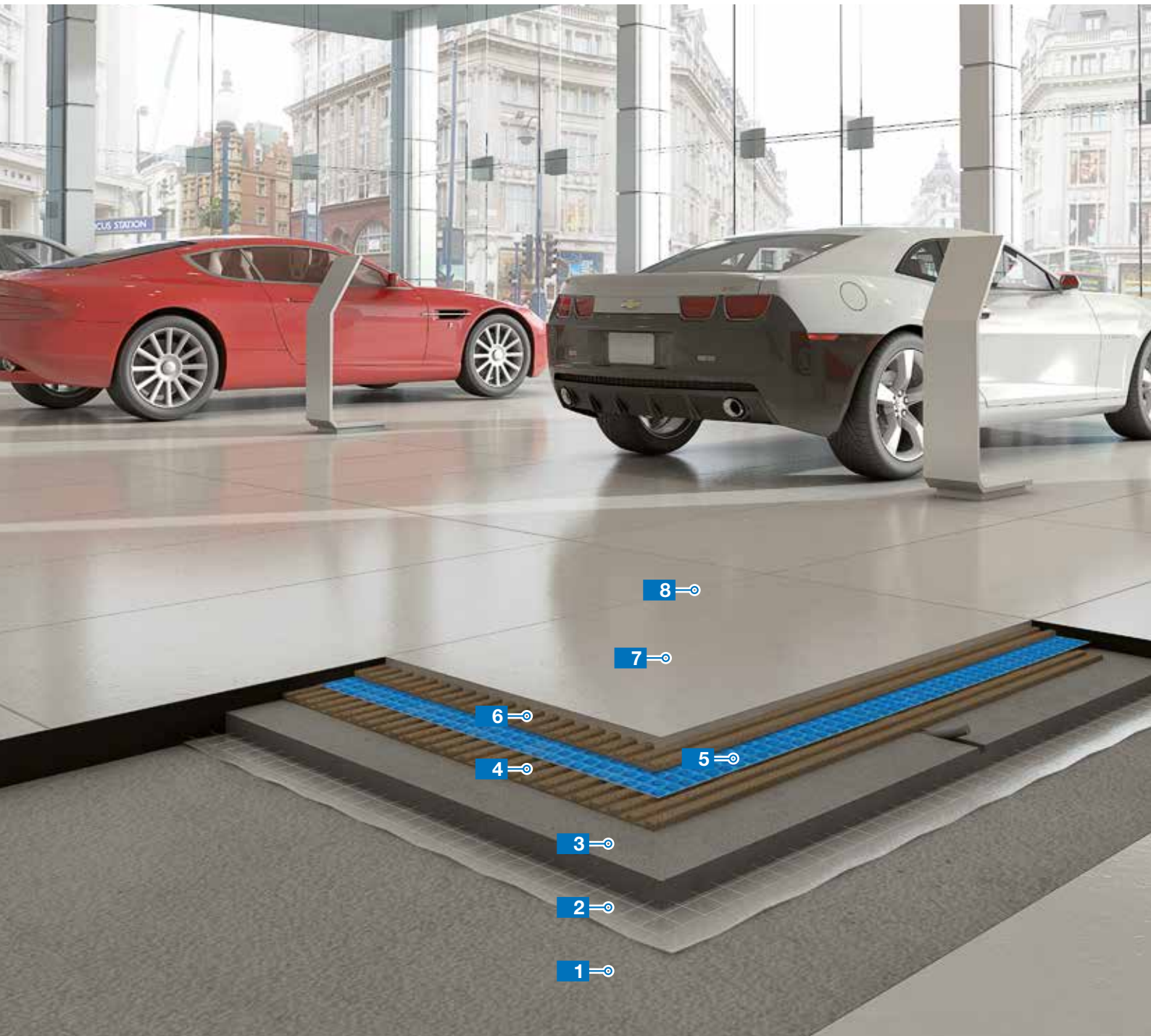
After laying **Mapeguard UM 35**, **protect the surface** of the membrane with wooden panels, in case of frequent traffic.



Recommendations

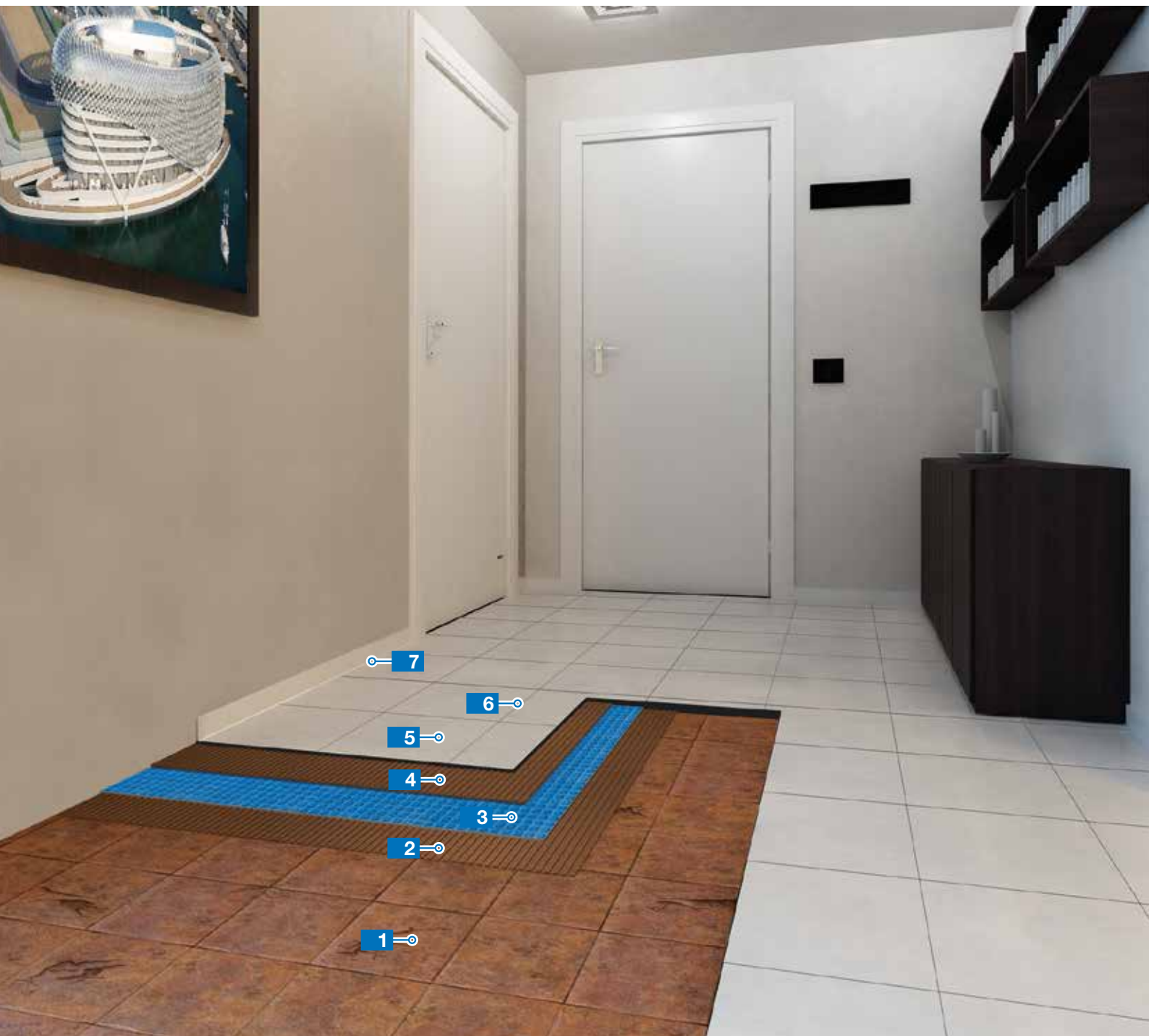
- Any expansion or control joints (according to UNI 11493-1 and UNI 11714-1) present in the substrate must not be in the same position as joints between adjacent sheets.

System for installing **large format tiles** using an **uncoupling, anti-fracture membrane** on a cementitious screed **without** having to **copy the layout of control joints** in the substrate.



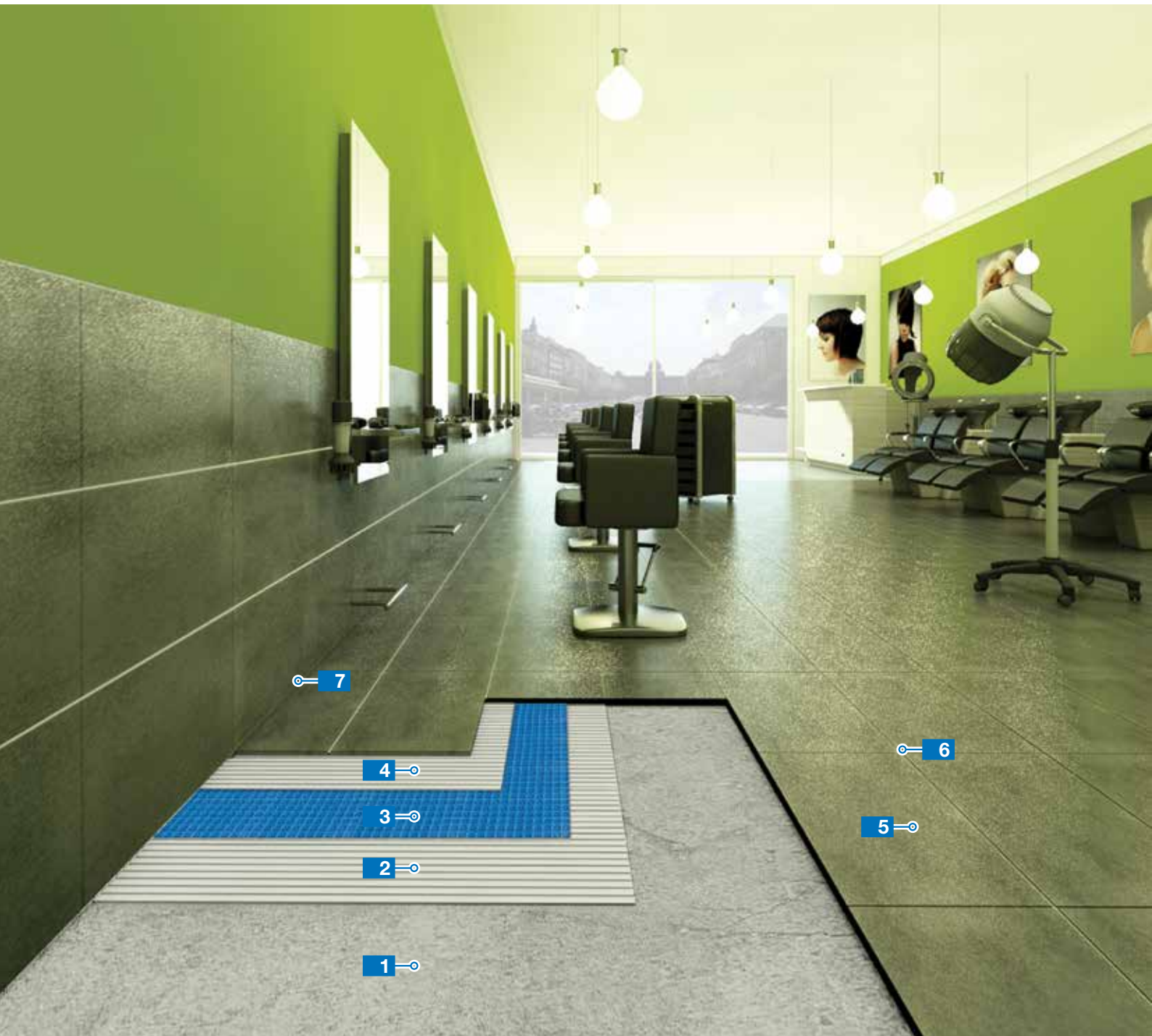
- | | | | |
|----------|--|----------|--|
| 1 | Concrete substrate | 1 | Mapeguard UM 35 uncoupling anti-fracture membrane |
| 2 | Damp proofing barrier | 2 | Ultralite S1 adhesive |
| 3 | Topcem Pronto cementitious screed | 3 | Large format porcelain tiles |
| 4 | Ultralite S1 adhesive | 4 | Ultracolor Plus grout |

Rapid system for **overlaying on** existing cracked flooring using an **anti-fracture, uncoupling membrane**.



- | | |
|---|---|
| 1 Existing cracked flooring | 4 Keraflex Maxi S1 zero adhesive |
| 2 Keraflex Maxi S1 zero adhesive | 5 Porcelain tiles |
| 3 Mapeguard UM 35 anti-fracture, uncoupling membrane | 6 Ultracolor Plus grout |
| | 7 Mapesil AC sealant |

System for installing **ceramic tiles on micro-cracked cementitious substrates** using an **uncoupling, anti-fracture membrane**.



- 1** Micro-cracked screed
- 2** **Keraflex Maxi S1** adhesive
- 3** **Mapeguard UM 35** uncoupling, anti-fracture membrane

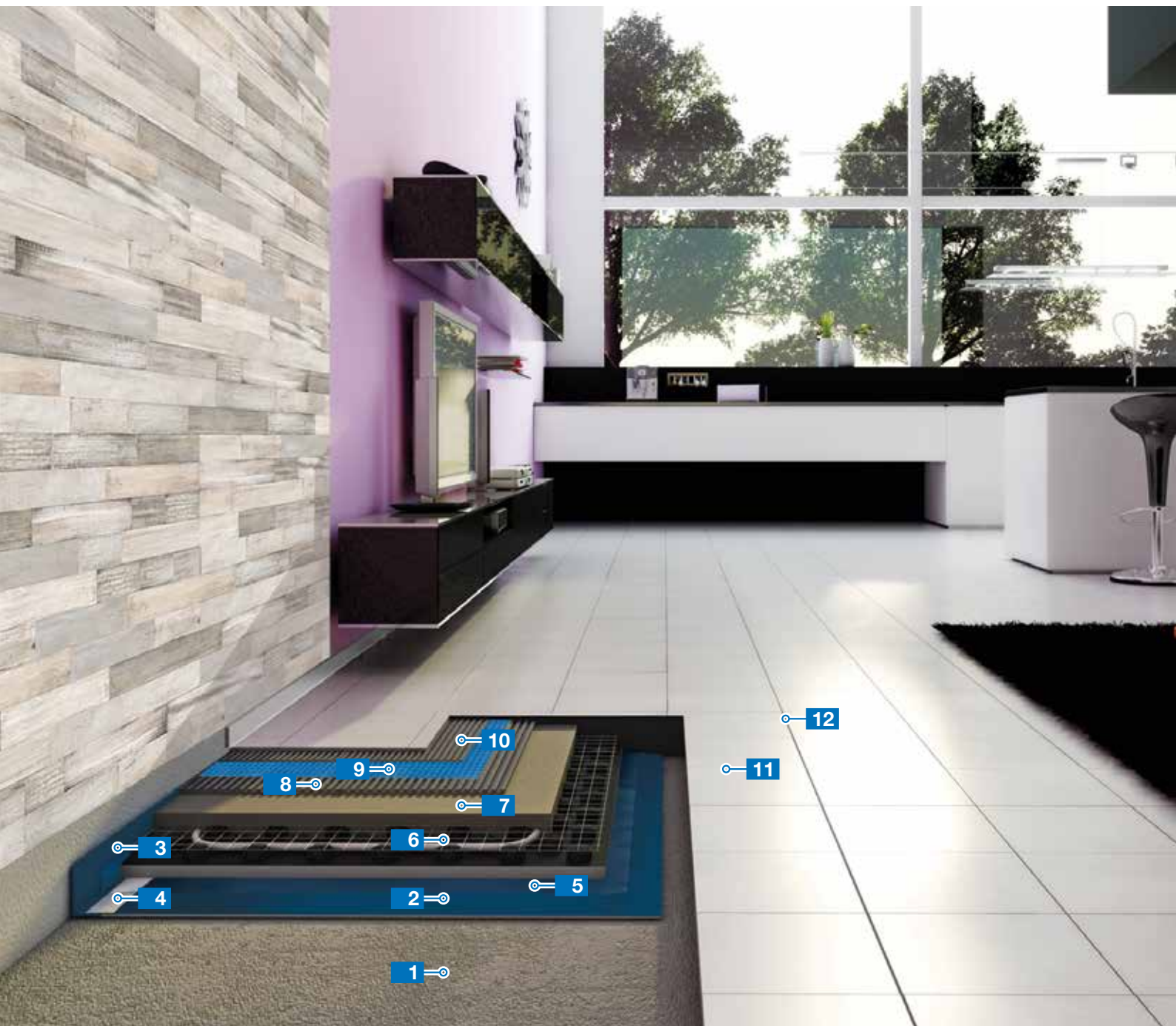
- 4** **Keraflex Maxi S1** adhesive
- 5** Porcelain tiles
- 6** **Keracolor GG** grout
- 7** **Mapesil AC** sealant

System for installing **ceramic tiles on underfloor thin heating system** after having applied an **uncoupling, anti-fracture membrane**.



- | | | |
|---|--|---------------------------------------|
| 1 Existing ceramic flooring | 4 Novoplan Maxi smoothing compound | 7 Ultralite S1 adhesive |
| 2 Eco Prim T primer | 5 Ultralite S1 adhesive | 8 Ultracolor Plus grout |
| 3 Underfloor thin heating system | 6 Mapeguard UM 35 uncoupling, anti-fracture membrane | |

System for installing **ceramic tiles on heated screed** after having applied an **uncoupling, anti-fracture membrane**.



- | | | |
|---|---------------------------------------|--|
| 1 Concrete substrate | 5 Damp proofing membrane | 9 Mapeguard UM 35 uncoupling, anti-fracture membrane |
| 2 Mapesilent Comfort soundproofing membrane | 6 Floor heating system | 10 Ultralite S1 adhesive |
| 3 Mapesilent Band R soundproofing strip | 7 Topcem Pronto screed | 11 Porcelain tiles |
| 4 Mapesilent Tape soundproofing tape | 8 Ultralite S1 adhesive | 12 Ultracolor Plus grout |



Application of Mapeguard UM 35

Uncoupling, anti-fracture and waterproofing layer

Before laying **Mapeguard UM 35** waterproofing membrane, check and/or create a suitable slope in the substrate to ensure that water drains away sufficiently.

1

Perimeter groove

Cut a **perimeter groove** around 10 cm high around the edge of the area so that the membrane may be inserted under the existing render.

If required, **level off the surface** with **Planitop Fast 330** so that the **Mapeband Easy** to be applied afterwards can be positioned correctly (see note on page 24).



2

Cut of Mapeguard UM 35

Unroll the membrane and cut it to the shape and size of the area, taking into account the presence of side walls, kerbs, pillars, drains, etc.

The **membrane may be cut** to shape with simple tools, such as scissors or a craft knife.





Application of Mapeguard UM 35

3

Spreading the adhesive

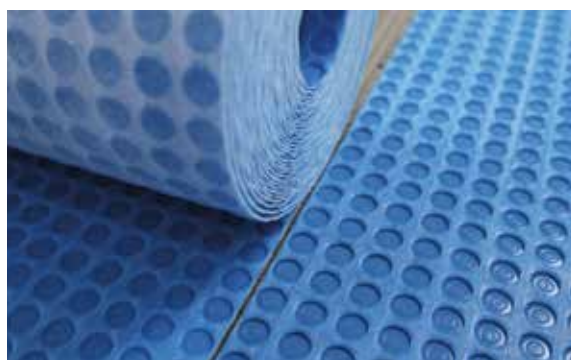
Spread the adhesive over the surface of the substrate with a suitable notched trowel (e.g. a trowel with 5 mm notches). Use a **Mapei** class C2 improved **adhesive** according to EN 12004 or ISO 13007-1 standards (such as **Keraquick Maxi S1**, **Ultralite S1**, **Keraflex** or **Keraflex Maxi S1 zero**). When laying the membrane on wood, metal or resilient flooring, it is recommended to use a reactive adhesive such as **Keralastic** or **Ultrabond Eco PU 2K**. The special fabric on **Mapeguard UM 35** creates an excellent mechanical grip between the membrane and the adhesive and forms a particularly strong bond.



4

Laying Mapeguard UM 35

Lay the membrane over the adhesive while it is still wet, with the **blue side facing upwards**; make sure the white felt backing is completely impregnated with adhesive. While laying the rolls of the membrane, it is recommended to leave a 3-5 mm gap between the sheets.



5

Pressing Mapeguard UM 35

When carrying out this operation, it is very important to **go over the membrane** with a float or roller **and apply pressure to ensure proper embedding of the adhesive** (maximum 35 kg). If necessary, place weights on the ends of the rolls until the adhesive sets.



6

Waterproofing

Waterproof all the joints between the different sheets, all the edges and corners between the membrane and side walls by applying **Mapeband Easy** bonded with **Mapeguard WP Adhesive** (e.g. with a 3 mm notches trowel). The strips of **Mapeband Easy** must overlap by at least 5 cm. In order to create a continuous waterproofing layer, **Mapeband Easy 90° and 270°** may be applied around edges and in corners. Then level off the perimeter groove with **Planitop Fast 330**.





Application of Mapeguard UM 35

7

Protection of Mapeguard UM 35

After laying **Mapeguard UM 35** membrane, protect the surface with wooden panels, in case of frequent traffic.



Note:

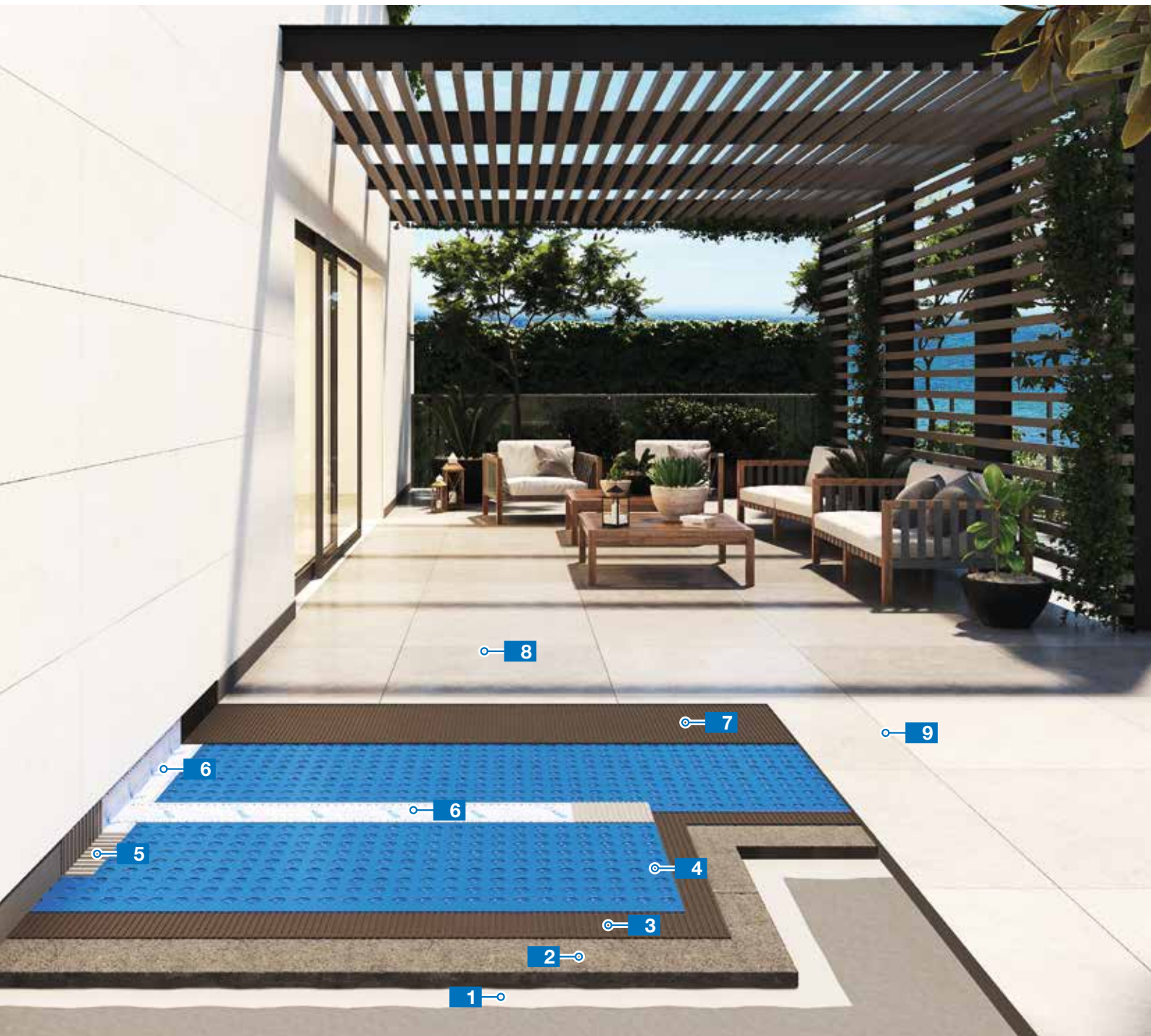
If **Mapeband Easy** needs to be bonded on areas where the bituminous membrane has been folded up along the side walls, apply **Primer for Aquaflex** before **Mapeband SA** on the membrane and then **Mapeguard UM 35**. Only after laying **Mapeguard UM 35**, **Mapeband Easy** may be applied.



Recommendations

- Any expansion and control joints (according to UNI 11493-1 and UNI 11714-1) present in the substrate must not be in the same position as joints between adjacent sheets.

System for installing **ceramic tiles in external** surroundings with an **uncoupling, anti-fracture** and **waterproofing membrane**, on a cementitious screed, **without** having to **copy the layout of control joints** in the substrate.



- | | | |
|--|--|--|
| 1 Damp proofing membrane | 4 Mapeguard UM 35
uncoupling, anti-fracture
and waterproofing membrane | 7 Keraflex Maxi S1 zero adhesive |
| 2 Topcem Pronto
cementitious screed | 5 Mapeguard WP Adhesive
adhesive | 8 Porcelain tiles |
| 3 Keraflex Maxi S1 zero
adhesive | 6 Mapeband Easy
waterproofing rubber tape | 9 Ultracolor Plus grout |



Waterproofing of critical areas

In order to achieve a fully waterproofed system, it is important not to overlook critical areas, such as drains, joints between bituminous membranes and door thresholds.

Waterproofing with Drain Vertical/Lateral

1

Mapeguard UM 35 cut

Cut the membrane in correspondence of the drain.



2

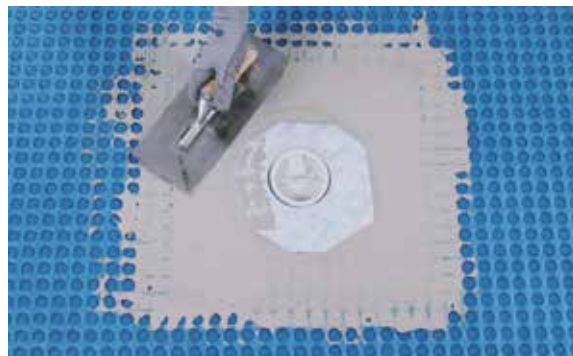
Application of Drain Vertical

Apply Drain Vertical/Drain Lateral by bonding the rim around the edge to Mapeguard UM 35 with Mapeguard WP Adhesive.

Once placed Drain Vertical/Drain Lateral, press it down with a flat trowel and cover the fabric with another coat of Mapeguard WP Adhesive.



2



Waterproofing with Drain Front

1

Skim the drain

Make a groove for the drain and apply **Adesilex PG4**. Insert **Drain Front** and skim the coat with **Adesilex PG4**. Then broadcast the skim coat with fine quartz sand on the wet adhesive.





Waterproofing of **critical areas**

2

Application of the strip on a bituminous sheath

When there is a bituminous sheath (in this case only), apply **Primer for Aquaflex** before **Mapeband SA**.



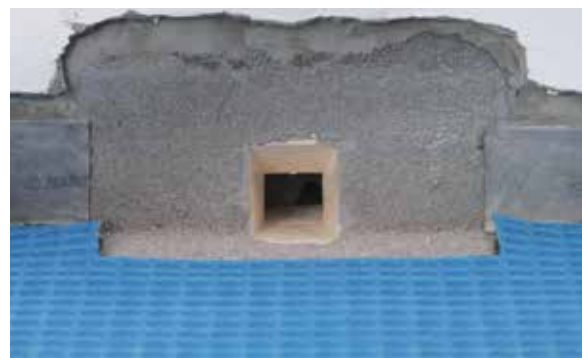
3

Laying **Mapeguard UM 35**

Place the membrane (already cut) around the drain and bond it in place by spreading adhesive on the substrate with a suitable notched trowel (e.g. with 5 mm notches).

Use **Mapei** class C2 improved adhesives according to EN 12004 or ISO 13007-1 standards (such as **Keraquick Maxi S1**, **Ultralite S1**, **Keraflex** or **Keraflex Maxi S1 zero**).

When laying the membrane on wood, metal or resilient flooring, it is recommended to use a reactive adhesive such as **Keralastic** or **Ultrabond Eco PU 2K**.



4

Waterproofing of the fillets

Apply **Mapeband Easy** and bond it in place with **Mapeguard WP Adhesive** around the fillets between the vertical surface/horizontal surface and the drain-fillet membrane.





Waterproofing of **critical areas**

Waterproofing of the threshold

1

Laying **Mapeband SA**

When there is a bituminous sheath, apply **Primer for Aquaflex** before **Mapeband SA**.



2

Waterproofing of the fillets

After laying **Mapeguard UM 35**, apply **Mapeband Easy** and bond it in place with **Mapeguard WP Adhesive**.





Choosing **adhesive** to install flooring

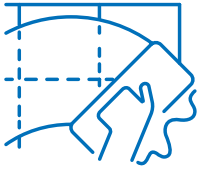
Once the membrane has been applied, **install the ceramic or stone flooring**.

Install the flooring with a **suitable class C2 Mapei adhesive**. Choose the type of adhesive according to the type and format of the ceramic or stone tile, their final use and the time available before they are ready for use.

Use the **back-buttering technique** to make sure that the tiles backsides are wetted correctly.

Apply a first layer of adhesive to fill the cavities in the membrane using the smooth edge of a trowel and then with a notched trowel suitable for the format of the tiles.





Grouting the flooring

Fill **grouts in flooring** with **cementitious grouting mortars** such as **Ultracolor Plus** (for grouts 2 to 20 mm wide), or **Keracolor (FF or GG)**, depending on the width of the grouts: FF for grouts up to 6 mm and GG for grouts 4 to 15 mm wide), or with an **epoxy grouting mortar** from the **Kerapoxy** range.

If **Keracolor** grouting mortar (**FF** or **GG**) is used for external surfaces, mix the product with **Fugolastic**.





Sealing the joints

According to UNI 11493-1 and UNI 11714-1 it is mandatory to create expansion joints:

- for interior, covering layer approx. 24-25 m² for ceramics and 20-25 m² for installing stone material;
- for exterior, covering layer approx. 9-16 m² for ceramics and 16 m² for installing stone material.

Joints must also be formed around the edge of the tiling and in correspondence with corners, edges and breaks or interruptions in the tiling.

Seal expansion joints with **Mapesil AC** or **Mapesil LM** when installing natural stone.



EVERYTHING'S OK WITH MAPEI

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