



TILE & STONE INSTALLATION SYSTEMS

Gauged porcelain tile panels/slabs – Walls

For interior/exterior wall, ceiling and soffit tiles 3 to 6.5 mm (6,5 mm) in thickness

Defining gauged porcelain tile panels/slabs

Gauged porcelain tiles and gauged porcelain tile panels/slabs are lightweight products that are produced using less materials and less energy. This combination makes them a perfect choice for many “sustainable” installation projects, specifying interior walls, floors and facades.

Typically, “gauged porcelain tile panels/slabs” range in thickness from 3 to 6.5 mm (6,5 mm), and “standard-body porcelain tiles” are greater than 7 mm thick.

Installation of gauged porcelain tile panels/slabs is different from that of standard-body porcelain tile, requiring special techniques to prevent breakage during and after installation. In addition to the reduced tile thickness, many of these thin tiles are produced in large-format sizes ranging from 20” x 20” to 63” x 126” (50 x 50 cm to 160 x 320 cm) or larger, which may require special tools and equipment when placing the tiles and making adjustments. The manufacturer of the gauged porcelain tile panels/slabs should be consulted before selection and installation to determine the tile’s suitability for the specified project. All interior installations must follow ANSI A108.19-2017 standard for “Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method Bonded with Modified Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar.”

For definitions of various types, sizes, physical properties and grading procedures for porcelain tile, refer to ANSI A137.3 - 2017 (“American National Standard Specifications for Gauged Porcelain Tile and Gauged Porcelain Tile Panels/Slabs”). Refer to ANSI A108.19 for procedures and requirements for interior installation of gauged porcelain tiles and gauged porcelain tile panels/slabs. Consult the gauged tile manufacturer and local building code requirements regarding use of gauged porcelain tile panels/slabs on exterior commercial facades. Refer to the most current installation methods of the Tile Council of North America (TCNA) or the Terrazzo Tile & Marble Association of Canada (TTMAC) for interior and exterior walls and ceilings.

Before tile selection and installation, consult the manufacturer of the gauged porcelain tile and gauged porcelain tile panels/slabs to determine the tile’s suitability in accordance with all federal, state/provincial and local municipal codes for wall and ceiling applications.



Example of a gauged porcelain tile panel/slab 3.5 mm (3,5 mm) thick with reinforcing mesh



Example of a gauged porcelain tile panel/slab 5 mm thick

Interior walls

- *Granirapid®* System (classified as ISO 13007 C2FS2P2 and meeting ANSI A118.4F, A118.11 and A118.15F)
- *Kerabond® T / Keralastic®* System (classified as ISO 13007 C2ES2P2 and meeting ANSI A118.4E, A118.11 and A118.15E)
- *Kerabond/Keralastic™* System (classified as ISO 13007 C2ES2P2 and meeting ANSI A118.4E, A118.11 and A118.15E)
- *Ultraflex™ LFT™ Rapid* (classified as ISO 13007 C2TFS1P1 and meeting ANSI A118.4TF, A118.11 and A118.15TF)
- *Ultraflex LFT* (classified as ISO 13007 C2TES1P1 and meeting ANSI A118.4TE, A118.11 and A118.15TE)



Gauged porcelain tile panels/slab on an interior wall

- *MAPEI Ultralite™ S2* (classified as ISO 13007 C2ES2P2 and meeting ANSI A118.4E, A118.11, A118.15E and A138.1)
- *MAPEI Ultralite Mortar* (classified as ISO 13007 C2TES1P1 and meeting ANSI A118.4TE, A118.11, A118.15TE and A138.1)
- *MAPEI Ultralite Mortar Pro* (classified as ISO 13007 C1TES1 and meeting ANSI A118.4TE, A118.11 and A138.1)
- *MAPEI Ultralite S1 Quick* (classified as ISO C2TFS1P1 and meeting ANSI A118.4TF, A118.11, A118.15TF and A138.1)

Exterior facades, ceilings and soffits

- *Granirapid System* (classified as ISO 13007 C2FS2P2 and meeting ANSI A118.4F, A118.11 and A118.15F)
- *Kerabond T / Keralastic System* (classified as ISO 13007 C2ES2P2 and meeting ANSI A118.4E, A118.11 and A118.15E)
- *Kerabond / Keralastic System* (classified as ISO 13007 C2ES2P2 and meeting ANSI A118.4E, A118.11 and A118.15E)
- *MAPEI Ultralite S2* (classified as ISO 13007 C2ES2P2 and meeting ANSI A118.4E, A118.11, A118.15E and A138.1)
- *Kerapoxy® 410** (classified as ISO 13007 R2 and meeting ANSI A118.3)

* To ensure product suitability, prior to installation contact our MAPEI Technical Services Product Support Team.

Due to the potential for thermal growth, shrinkage and vibration, exterior facade, ceiling and soffit installations should include a cementitious mortar with an ISO 13007 classification of at least C2S2, for improved bond and high deformability. In addition, *MAPEI Ultralite S2*, *MAPEI Ultralite Mortar*, *MAPEI Ultralite Mortar Pro* and *MAPEI Ultralite S1 Quick* are SCS Green Squared Certified, meeting criteria of the ANSI A138.1 standard. And all cementitious MAPEI mortars have a TCNA Industry-average UL Certified EPD for Mortars.



Gauged porcelain tile panels/slab on an exterior facade

Surface preparation

Interior walls and exterior facades as well as ceilings and soffits must be structurally stable and capable of supporting the tile, setting system, and associated live loads and dead loads. Vertical and overhead substrates in addition to existing tile should be fully cured and free of soap scum, dust, dirt, oil, wax, sealers, paint, coatings, and any other substances that could reduce or inhibit proper adhesion performance. For specific requirements, refer to MAPEI's "Surface Preparation Requirements" reference guide for tile and stone installation.

Suitable substrates

Walls, ceilings and soffits with the following criteria are considered suitable substrates:

- Cement and masonry block
- Cement backer units (CBUs) – The CBUs should conform to the quality standard requirements of ANSI A118.9. They must be installed according to the CBU manufacturer's instructions and in strict accordance with ANSI A108.11 standards for interior and exterior installation of CBUs.
- Gypsum wall surfaces (for interior dry areas only) – Prime all drywall and plaster wall surfaces with MAPEI's *Primer L™* and let it dry completely before applying the mortar. For more information, see the "Tiling over gypsum" technical bulletin at www.mapei.com.
- Interior existing tile should be sound, stable, well-bonded and prepared using either of the following options:

Option 1: Refer to the most current TCNA handbook, Method TR713; or the TTMAC Tile Installation Manual, Detail 323RW.

Option 2: Prime the existing tile over concrete with MAPEI's *ECO Prim Grip™*. Refer to the most current Technical Data Sheet (TDS) at www.mapei.com. *ECO Prim Grip* per TCNA Environmental Classifications is limited to RES 3 or COM 3.

The wall must have the following flatness before installation:

All approved and properly prepared substrates should have no more than a permissible variation of 1/8" in 10 feet (3 mm in 3,05 m) from the required plane; nor more than 1/16" in 24" (2 mm in 60 cm) when measured from high points in the surface with a straight edge.

Trowel selection

Use a trowel with a configuration that helps to maximize mortar coverage between the substrate and the gauged porcelain tile panels/slabs. Evenly spread the mortar across the bonding side of the tile, minimizing air pockets and promoting the interlock between the mortar on the substrate and what is applied to the back of the tile. It is up to the installer to select the most suitable trowel or trowels.

Either of the following trowels is acceptable to use (consult the Website of either Raimondi or European Tile Masters for specific ordering information):



- European Tile Masters' Euro Notch Trowel (which comes in 3 models): 1Y- Euro Notch Trowel (rubber handle); 1YW- Euro Notch Trowel (wood handle); or 2YW- Euro Angle Trowel (ergonomic handle)



- Raimondi's Flow Ridge, Slant Notch Trowel: Part # (183HFV8), with 5/16" x 5/16" (8 x 8 mm) notches

Setting the tile

1. Mortar should be applied and notched to both the substrate and back of the tile. The troweled ridges on the tile back and the substrate should be troweled in a straight line such that they will be parallel to the shortest dimension of the tile.
2. Do not allow mortar to dry or skin over on either surface before setting the tile. This may require careful planning to ensure that sufficient personnel are on site to complete the installation.
3. Place tile into the fresh mortar and firmly press from the center of the tile outward to cause the ridges to flatten out and come together into a continuous void-free bed.
4. Install desired spacers. Grout joint width should not be based on the edge-leveling device's strap. Using spacers in addition to the strap will allow for easier cleaning of the grout joint.
5. Place the straps along the tile edge according to the recommended spacing and place the caps on the top of the strap, but do not seat them at this time.
 - ▶ For gauged porcelain tile panels/slabs with a thickness of 3.6 to 6.5 mm (3,6 to 6,5 mm), lightly tamp the surface of the tile with the Raimondi Tile beat-in paddle (LTBBLF) or a hard-rubber grout float to ensure good contact. (Do not use a rubber mallet.)
 - ▶ For gauged porcelain tile panels/slabs of 3 to 3.5 mm (3,5 mm), lightly vibrate the edges of the tile with an orbital sander to ensure good contact. Do not apply excessive pressure to the vibrator. Rather, allow it to float across the surface of the tile. Do not cause excessive vibration of the tile, which can reduce mortar performance.
6. There should be full mortar coverage on the back of the tile. When an edge-leveling device is used, it is imperative to have sufficient mortar under the body of the tile, under the corners and at the tile edges for full support. Fill any voids with the mortar for complete support.
7. Install adjacent tile.
8. Remove any excess mortar from grout joints as work progresses.
9. Using the installation tool, pull the caps down into contact with the tile face and apply recommended tension until the tile edges are in alignment. All corners and edges should be fully supported by mortar. Continue this process with each tile across the installation area, repeating steps 1-8 and checking edge alignment.
10. Specific to the Tuscan and MLT edge-leveling devices: When the mortar has cured sufficiently (wait at least 24 hours for a traditional-setting mortar,

and at least 3 to 4 hours for a rapid-setting mortar), it is possible to remove the strap and cap. Grip the strap above the cap with the installation tool, set the tension setting to "Strap" and squeeze the tool until the strap snaps off.

Edge-leveling devices

Edge-leveling devices – such as the Tuscan, MLT or Raimondi lippage control system – will greatly assist in the installation of gauged porcelain tile panels/slabs to reduce the effects of lippage and subsequent "wall-washing effect."



Example of gauged tile over existing tile during a renovation using a mechanical edge-leveling system

Edge-leveling devices are intended to be used in conjunction with good substrate-preparation practices, not as a substitute for those practices. To demonstrate the use of a lippage control system, the MLT System will be referenced in this Reference Guide. However, it is up to the installer to decide which edge-leveling devices will be used.

For the most current information on these edge-leveling devices, visit the Website of the manufacturer.

Optional layering components

Waterproofing:

- MAPEI's *Mapelastic AquaDefense* waterproofing can be installed on interior and exterior tile installations that are exposed to intermittent or continuous wet conditions. (TCNA Environmental Exposure Classifications RES 1-6 & COM 1-6; consult the most current TCNA handbook to determine the appropriate classification for either an interior or exterior wall tile installation). MAPEI's *Reinforcing Fabric* is optional as part of the entire waterproofing installation as described in the TDS.
- Meet ANSI A118.10 standard
- Listed by IAPMO (International Association of Plumbing and Mechanical Officials)
- ICC-ES Report: ESR 3474

Movement joints

Field movement joints are required within tile installations. Expansion, construction and contraction joints should be carried through the tile without exception. Refer to the most current TCNA handbook, Method EJ171; or the TTMAC Tile Installation Manual, Detail 301MJ.

MAPEI recommends the use of *Mapesil™ T*, a professional-grade, 100%-silicone sealant that meets TCNA EJ171 requirements for heavy traffic and expansion/movement joints.

Grouting the tile

A minimum grout joint width of 1/16" (1,5 mm) should be maintained through the entire installation. Any tile failure due to inadequate mortar transfer or coverage will not be covered by MAPEI's Limited Warranty program. Grout is not to be considered compensation for lack of coverage and should not be mixed to a loose consistency to attempt filling of gaps under the tile edge.

Grout the joints with any of the following MAPEI grouts, according to installation needs. All grout joints should be packed full and free of voids.

- *Ultracolor® Plus FA* (classified as ISO 13007 CG2WAF and meeting ANSI A118.7). It is also SCS Green Squared Certified, meeting criteria of the ANSI A138.1 standard. All cementitious MAPEI grouts have a TCNA Industry-Average UL Certified EPD for Grouts.
- *Kerapoxy® CQ* (classified as ISO 13007 R2/RG and meeting ANSI A118.3)
- *MAPEI Flexcolor™ CQ* (meets or exceeds specific tests in ANSI A118.3 and A118.6 standards covering other grout types, although ready-to-use grouts do not yet have ANSI requirements)

When these recommendations are followed along with the ANSI A108.19-2017 standard for "Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method," a successful project should be achieved. Refer to the most current TDSs for details regarding the use of MAPEI products. Technical Data Sheets and Safety Data Sheets are available at www.mapei.com.

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MAPEI Headquarters of North America
1144 East Newport Center Drive
Deerfield Beach, Florida 33442
1-888-US-MAPEI (1-888-876-2734) /
(954) 246-8888