

## Tile & Stone Installation Systems

# Installing large-format, opaque glass tiles



## TECHNICAL BULLETIN 010115-TB

Large-format glass tiles are defined as 3" x 3" (7,5 x 7,5 cm) or greater in size. Opaque glass tiles are not transparent or translucent, meaning that you cannot see completely through the tile to the back side. The glass may be "through-color" or "color-coated clear" in design.

### Selecting glass tile

Refer to the most recent edition of the TCNA Handbook for guidance in selecting glass tile. Also, look for glass tiles that meet the specifications in ANSI A137.2 ("Standard Specification for Glass Tile"); these tiles meet the criteria for size variation, breaking strength, bonding ability and other characteristics important for a successful installation. For glass tiles not meeting the ANSI A137.2 standard, install according to instructions from the glass tile's manufacturer.

### Qualifying substrates

Glass-tile installations require strong, solid substrates that are extremely well supported. Prepare substrates to comply with ANSI A108.1 ("General Requirements: Subsurfaces and Preparation by Other Trades"), ANSI A108.14 ("Installation of Paper-Faced Glass Mosaic Tile,") ANSI A108.15 ("Alternate Method of Installation of Paper-Faced Glass Mosaic Tile"), and ANSI A108.16 ("Installation of Paper-Faced, Back-Mounted, Edge-Mounted or Clear Film Face-Mounted Glass Mosaic Tile"). Some glass-tile manufacturers will also recommend the use of crack-isolation membranes. Always check with the glass-tile manufacturer for substrate recommendations and requirements. Also see MAPEI's "Surface Preparation Requirements" document in the Reference & Installation Guides section of the Tile & Stone Installations Systems page on MAPEI's Website.

### Selecting a mortar

For interior applications, use mortars that are specifically designed for setting opaque glass tiles, that meet the ANSI A118.4 standard ("Standard Specification for Modified Dry-Set Cement") and that are classified as at least ISO C2. MAPEI's *Mosaic & Glass Tile Mortar* and *Adesilex™ P10* fit these criteria.

For exterior applications, use mortars that are specifically designed for setting opaque glass tiles, that meet the ANSI A118.15 standard and that are classified as at least ISO C2S1. MAPEI's *Mosaic & Glass Tile Mortar* mixed with MAPEI's *Polymer Additive* and MAPEI's *Adesilex P10* mixed with MAPEI's *Keraply™* fit these criteria.

However, some types of opaque glass tiles may consist of transparent or clear glass with a white or colored coating (non-metal) applied to the back of each tile. When installing glass tiles with a coated backing, and their tile packaging or literature does not state that they meet ANSI A137.2, always verify whether the tile manufacturer recommends a polymer-modified/latex-modified cement mortar that meets or is classified as ANSI A118.4 / ISO C2 or ANSI A118.15 / ISO C2S1.

Due to their alkalinity, cement-based mortars are not recommended for installations of mirror tile or metal-backed tile. Refer to the glass-tile manufacturer for adhesive recommendations for these types of tiles.

### Considerations for grouting

Grout joints should not be less than 1/16" (1,5 mm), even when the glass tile is pre-mounted. For additional grout joint requirements, see ANSI A108.2 ("General Requirement: Materials, Environmental and Workmanship") as well as the glass mosaic installation standards ANSI A108.15 and A108.16.

Movement joints in accordance with TCNA EJ-171 (or TTMAC's 301-MJ in Canada) are required. Glass tiles exhibit more dimensional change due to temperature fluctuations than do ceramic or porcelain tiles. Joint spacing recommendations in EJ-171 (301-MJ) give a range for interior and exterior applications. For glass-tile installations, add additional movement joints in order to reduce stresses.

Selection of the proper grouting material is crucial. Glass tiles vary in hardness, and some glass tiles can be scratched by grouts containing sharp aggregates like sand. Always use the type of grout that is recommended by the glass-tile manufacturer.

### Mockups

All large-format glass tiles can look substantially different after they are installed than when they are viewed as individual pieces. For this reason, it is highly recommended to create a sample board, installing several tiles using the mortar and grout that have been selected.

### Setting the tile

Plan and mark the layout, and then follow these steps:

#### Step 1: Spread the mortar

1. Using a notched trowel, spread mortar while holding the trowel at a 45-degree angle to the floor or wall surface.
2. First, use the straight edge of the trowel to apply a thin, even coat to the surface.
3. Follow immediately with more mortar and "comb" the mortar in one direction, using the notched side of the trowel to achieve an even-setting bed. Back-butter tiles before setting tile to provide uniform mortar coverage and maximum support.
4. Only spread as much material as can be covered with tiles before the mortar skins over or loses transfer when touched.

#### Step 2: Set the tiles

1. Place the first tile at the intersection of the layout lines, making sure that the tile is properly aligned with both chalk lines.
2. Place the tiles in position on the substrate and firmly apply pressure to the face of the tile while moving the tile back and forth perpendicular to the trowel ridges. This helps to ensure that the mortar transfers to the back of the tile and that the tile is in an even plane with adjacent tiles.
3. Check several of the set tiles for adequate mortar coverage by lifting them up. Make sure that all of the ridges are collapsed and that no voids in the mortar are present.
4. Keep a damp cloth or sponge nearby for quick cleanup in case mortar is dropped on the tiles or any other surfaces.

Step 3: Grout and protect the installation

1. Keep joints clean before grouting and follow instructions for the grouting material.
2. Avoid walking on tiles or grouting for at least 48 hours. Protect from impact, vibration, and hammering on adjacent and opposite walls for at least 14 days. Curing or drying times will vary due to temperature, humidity and porosity of tile and substrate, in addition to the tile size and the setting/grouting materials used.

**Maintaining the installation**

A grout sealer such as MAPEI's *UltraCare*™ Grout Sealer will help to maintain cement grout and keep it clean. MAPEI offers many high-quality care and maintenance products through its *UltraCare* line.

For the most current installation instructions, Technical Data Sheets and Safety Data Sheets, always refer to the MAPEI's Website at [www.mapei.com](http://www.mapei.com). For additional information, please contact MAPEI's Technical Services Department.



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