

INSTALLING THIN (3 – 5 MM) PORCELAIN TILE

A new form of porcelain tile is gaining acceptance, particularly in the remodeling of tile installation. Because these tiles are only 1/8" - 3/16" thick (3 - 5 mm) they add very little height to the installation. They are ideal for installation over existing ceramic tile. They are also available in very large panels for ease of maintenance of the tiled surface. Some of these panels are as large as 4' (1.2 M) by 10' (3 M).

Most thin porcelain tile manufacturers recommend their use on interior and exterior walls. Some manufacturers of the thin porcelain tiles offer tiles that are suitable for floors. Generally the products recommended for floors are reinforced on the back with a resin bonded mesh fabric.

A key to a successful installation of these thin porcelain tiles is the preparation of the surface. The surface must be flat and true. In most cases, TCNA guidelines for surface tolerance are acceptable. Maximum allowable variation can not be more than 1/8" (3 mm) in 10' (3 M) and no more than 1/16" (1.6 mm) in 3' (.9 M), with no abrupt irregularities greater than 1/32" (.8 mm).

Lippage is another concern as the current TCNA guidelines allow up to 1/16" (1.6 mm) lippage between adjacent tiles. Because these tiles are so thin this can amount to 50% of the tiles thickness. It is therefore important to minimize lippage to less than 1/32" (.8 mm) to prevent damage to the tile.

Surface Preparation:

Custom Building Products offers several products to assist in preparing the surface:

- **Skim Coat & Patch Cement Underlayment** is a trowel applied patching and smoothing compound that should be used to eliminate imperfections in walls and floors. It can be used to bring the surface into the acceptable tolerance.
- **LevelQuik® RS Rapid Setting Self-Leveling Underlayment** is ideal for smoothing floors to acceptable tolerance with the least amount of effort.

Once the surface is properly smoothed, it may be necessary to waterproof or treat cracks in the substrate before the installation of the tile.

- **RedGard® Waterproofing and Crack Prevention Membrane** can be applied to a dry thickness of 30 mils for general waterproofing.

Thin Tile Bonding:

It is important to follow all TCNA recommendations for the installation of porcelain tile. To assure that the tiles do not crack from point load or impact, it is mandatory that the mortar coverage is greater than 95% and all edges must be

supported. To achieve continuous contact between the substrate and tiles, a paint roller or a rubber flooring roller may be useful. Exercise caution when checking these thin porcelain tiles for coverage as removing the thin tile can cause them to crack.

Custom Building Products recommends several mortars for the installation of these thin porcelain tile.

- **ProLite® Large Format Tile & Stone Mortar** is ideal for installation on walls. Its non-sag formula will support these large tiles without mechanical assistance.
- **MegaFlex® Crack Prevention Mortar** develops high bond strength for floor applications and aids in crack prevention.
- **Complete Contact™ Fortified Mortar** is best to assure full coverage of the back of the tile with minimal effort.
- **EBM-Lite™ Epoxy Bonding Mortar – 100% Solids or CEG-Lite™ 100% Solids Commercial Epoxy Grout** and setting mortar should be used when installing fiber mesh reinforced resin back thin porcelain tile.

Grouting:

Since these tiles are so thin, it is important that the mortar is completely removed from the grout joint. Mortar left in the grout joint will reduce the grout thickness to less than 1/8" thick. This can result in grout cracking. The following grouts are acceptable for use with the thin porcelain tile.

- **Polyblend® Grout** is available in 48 colors for joints >1/8" (3 mm) wide.
- **Prism® SureColor® Grout** reduces efflorescence and grout shading for joints >1/16" (1.6 mm).
- **CEG-Lite™ 100% Solids Commercial Epoxy Grout** should be used where stain and chemical resistance is important.

It is important to observe all building codes and TCNA requirements in the tile installation. In particular, all movement joints should be properly placed and filled with the appropriate soft jointing material, such as **Custom's Commercial 100% Silicone Caulk**. See TCNA EJ171 Detail for additional information.

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