

INSTALLATION BULLETIN # 11

INSTALLATION OF THIN LARGE FORMAT PORCELAIN TILE



SCOPE

This Flextile Installation Bulletin outlines the general procedures for proper installation of large format, reduced thickness (thin-tiles) porcelain tiles. These tiles are available in ~ 3.5 - 7 mm thickness (1/8"-5/16") with dimensions from one by two feet up to 5 by 10 feet panels, some manufactured with a resin bonded mesh backing for extra reinforcement. The efficiency and durability of the installation, as with all specialty tile installations, will very much depend on the specific installation parameters. Proper surface preparation as well as selection of the installation products, and adhering to those surface preparation products, and installation techniques recommended is essential. It is important to follow the tile manufacturer's recommendations for proper handling, cutting, and using recommended tools (such as specific cutting tools, suction cups and installation frames), as well as unique installation techniques for the specific tile to be installed. Although some thin large format porcelain tile are offered for the more demanding requirements of interior floor applications or exterior façade applications, it is important to confirm the tile service rating for the intended installation. Flextile strongly recommends the use of pre-qualified, experienced installers, providing proper references for similar installations effected.

SUBSTRATE PREPARATION

Because of the reduced thickness of the tiles, the flatness of the substrate is particularly important. If there are voids or gaps in the substrate or in the adhesive layer, the tiles may fracture if subject to concentrated loads.

Lippage should be minimized to no more than 0.75mm or 1/32", to prevent damage to tile: commercial edge-leveling systems (involving mechanical clamps), helping to properly align the tile, eliminating lippage, are therefore required.

The flatness of the substrate must be verified: surface tolerances required for large format tile installation are in general acceptable. All supporting surfaces shall be structurally sound, solid, stable, level, plumb and true to a tolerance in plane of 3 mm in 2,4 m (1/8" in 8'), and 1.5mm in 1 m (1.16" in 3'), with no abrupt irregularities greater than 0.75mm (1.32"). If the high and low points exceed these values, then use Flextile 5900 Self-Levelling Underlayment to level floors to flatness requirements.

All surfaces shall be dry, clean and free of dust, oil, grease, paint, tar, wax, curing agents, primer, sealer, form release agents or any deleterious substance or debris which may prevent or reduce adhesion. Refer to Flextile Installation Bulletin # 7 Surface Preparation – Concrete Slabs and current edition of TTMAC 09 30 00 Tile Installation Manual or TCNA Handbook for Ceramic Tile Installation for all other substrate preparation details.

Acceptable substrates:

Concrete, well cured (for at least three months) with deflection less than 1/360 of the total span. Concrete substrates must be free of loose areas and surface treatments which could potentially compromise the bond.

Well cured mortar beds—ANSI A108.1B (cured a minimum of 7 days). Screeds must be cured sufficiently: the waiting time before installation is around 7-10 days per centimeter of thickness.

Screeds made from special binders such as Flextile Fast-Set Screed Concentrate:

Waiting times before laying thin porcelain tiles may be reduced considerably by using special binders.

Cementitious backer units (CBU)—ANSI A118.9.

Gypsum board (dry areas only)—ASTM C1396: **The maximum loading recommended for Gypsum Board is 5lbs/ sf including setting and grouting materials.**

Crack Isolation and Waterproofing

Where a waterproof barrier is required and crack isolation is recommended apply Flextile WP-980 or WP-900 Crack Isolation and Waterproof Membrane on the substrate prior to large format glass tile installation following the Technical Data Sheet installation procedures.

Movement Joints

Follow detail 301MJ in TTMAC 09 30 00 Tile Installation Manual and EJ171 in TCNA Handbook for Ceramic Tile Installation for expansion and control joint recommendations.

It is important to observe all building codes, as well as TTMAC and TCNA requirements for thin tile installation.

INSTALLATION

Follow the tile manufacturer's recommendations for proper handling and cutting.

Leave a gap of at least 3 mm between the tiles, as directed by the thin tile panel manufacturer. The joint between tiles is extremely important, to allow for thermal shrinkage or expansion etc, reducing the modulus of elasticity, thus avoiding stresses and potential detachment of the tiles.

Leave a gap of at least 5mm from walls, columns and other vertical elements.

For job specific installation systems, recommendations, project warranty information, or for assistance with installation specifications, please contact Flextile's technical department.

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Install using:

Flextile 51 White Thin-Set Mortar mixed with Flextile 44 High Solids Acrylic Mortar Additive (ANSI A118.4).

Flextile White 58XT Fast Setting Two Component Mortar System

Flextile 5400 Maxiflex Superior-Grade, Polymer-Modified Mortar.

For improved sag resistance applications install using Flextile 66 Premium Wall and Floor Lightweight Mortar mixed with Flextile 43 Acrylic Latex Thin-Mortar Additive, (ANSI A118.4).

Resin and mesh backed panels require pretesting to confirm proper adhesion (adhesion failure between the mesh and the panels is not the responsibility of Flextile Ltd.).

Spread an even coat of mortar to substrate using the proper recommended trowel by the tile manufacturer, such as the European "z" shaped notched trowel (with tilted teeth) for the substrate and 6 mm x 6 mm (1/4" x 1/4") notched trowel for the tile panel; and in all cases "back-butter" simultaneously each piece with the flat edge of the trowel to provide a void free installation with no unsupported areas and 100% contact with both the tile and substrate mortar coat. Trowel the mortar in straight lines, on both the tile back and the substrate, parallel to each other, perpendicular to the longer tile side. Lay the tiles while both mortar surfaces are fresh. Spread only enough mortar that can be covered with tile before mortar starts to skin.

A paint roller, rubber flooring roller or vibrating pads, working from the centre to the tile edges, may help in obtain proper even mortar coverage on the tile panels, with virtually no voids. Mechanical edge-leveling systems, as directed by the tile manufacturer, may assist in minimizing lippage in the installation and ensure proper coverage at all edges.

Proper full transfer of mortar to tile back should be checked periodically, especially edges and corners, always handling tiles cautiously, as they are particularly fragile and may crack. The specialized aluminum frames with suction cups may be used to shift the panels slightly, which can keep the panel perfectly stiff, and ensure safe handling, as recommended by the panel manufacturer.

Remove smudges or smears of setting material from the surface with a damp sponge or cloth immediately after final adjustment. Allow installation to cure for a minimum of 72 hours for normal-setting mortars and 24 hrs for rapid-curing mortars, prior to grouting the installed panels.

GROUTING

IMPORTANT: Always perform tests before using a product on a spare tile

Follow grouting instructions in Flextile grout product technical data sheets. Always do a small application in an inconspicuous test area to confirm, before proceeding with the grouting of the entire work.

Grout using:

Flextile 6000 Grout Optimizer Additive mixed with 600 Sanded Grout Series or 500 Unsanded Grout Series.

Flextile 6000 Grout Optimizer Additive mixed with 1600 Series RSG Rapid Setting Grout.

Flextile ColourMax Plus Urethane Grout or Flexepoxy 100 100% Epoxy Grout, where chemical and stain resistance is required.

IMPORTANT NOTE: Some tile may be prone to abrasion using sanded grout. This should be verified prior to grouting by doing a small test application on the loose tile.

The entire depth of the panel should be free of mortar in the joints to receive the grout: extra care is required, especially with thin porcelain panels, to ensure all mortar is properly removed from the joints prior to grouting.

Using a rubber float, spread the grout diagonally across the tile surface, applying enough pressure to fully pack the joints. Remove excess grout from the tiles with the rubber float held at 90° to the surface, working diagonally across the joints to produce flush, even grout joints. Once grout is firm in the joints, remove any grout haze or glue residue with a clean, damp sponge or cheesecloth. Note: dampening tile surfaces lightly with a clean sponge and water prior to grouting facilitates easier removal of excess grout. Once grout has dried, polish tile surface with a clean cloth or towel.

Protect floor installations from heavy traffic, typically for at least 7 days. Cure rates depend on prevailing temperatures as well as the panel sizes. Protection of the installed tile from heavy equipment such as heavy lifts etc. should be effected using thick protective plywood paneling. Porcelain panel manufacturer should be consulted re protection requirements of new installations in normal and heavy traffic: certain panel manufacturers recommend at least 48 hours before treading on it and 15 days before using the flooring installation.

CAUTION

- Do not install when temperature is below 10°C (50°F)
- Maintain temperature in tiled areas at not less than 10°C (50°F) or more than 35°C (95°F) during installation and for 7 days after completion.

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