

INSTALLING GAUGED PORCELAIN TILE PANELS/SLABS (A137.3)

Defining Gauged Porcelain

Gauged (thin) porcelain tiles and panels/slabs (GTP) appeal to architects and designers because of their modern aesthetic. They are being installed in a variety of applications, particularly in the remodeling of existing tile installations. Because these units are typically only 3.5 – 6.5 mm thick (1/8"-1/4"), they add very little additional height to the assembly. They are ideal for installing new tile over well-bonded, existing ceramic tile. Available in many popular sizes and shapes, up to very large 5' x 10' (1.5m x 3m) panels, this material can significantly ease maintenance of the tiled surface. Panels/slabs are defined as comprising an area greater than one square meter, otherwise they are considered tiles. GTP slabs are thicker materials for the fabricator market.

Gauged porcelain tiles and panels comply with the ANSI A137.3 standard. Because of the large size of these modules, the installer is cautioned that special handling and installation training is required. TCNA recommends checking with the tile manufacturer for handling, storage and shaping methods. In many cases, specialized handling equipment is needed for moving the panels into place. There are also cutting tools that are specifically designed for cutting these large, thin panels.

Gauged porcelain tile and panels/slabs are supplied with either a bare porcelain back or a back-layered reinforced resin backing. It is recommended that only panels with a thickness greater than 5 mm are installed on concrete floors; they are not recommended for direct bonding to wood substrates. Professionals should contact the tile manufacturer for the service rating of their GTP before installation on floors.

Where and How to Install Gauged Panels/Slabs

Gauged porcelain tile and panels/slabs must be installed per ANSI A108.19 and the manufacturers' directions.

Per the standard, it is required to have trained, industry-certified and highly experienced installers attempt the installation of these materials. Trained installers will know how to use the specialized cutting equipment,

racks, trowels and other tools that make the installation of these tiles faster and easier. Breakage can be expensive, so it is best to have an expert with this material perform the installation.

Surface Preparation

One key to a successful installation of gauged porcelain panels and tiles is proper surface preparation. The surface must be flat and true and TCNA guidelines for surface tolerance of large format tile (one side longer than 15") are acceptable. Custom Building Products agrees with the TCNA position and recommends maximum allowable variation of no more than 1/8" in 10' and 1/16" in 2', with no abrupt irregularities greater than 1/32". The use of a self-leveling underlayment is ideal for preparing a floor to meet the required flatness for GTP.

Lippage is another concern, as the ANSI A108.19 guidelines only allow up to 1/32" lippage between adjacent tiles. Panels (1 m² and larger) require use of a mechanical lippage control system with a removable and replaceable cap for tooling/cleaning during installation. These mechanical clamps help to align the edges of the tile and in many cases reduce lippage to zero.

Surface Preparation

CUSTOM offers several products to assist in preparing the surface to an acceptable tolerance.

- **CustomFloat® Bedding Mortar and Quikrete Deck Mud** allows for thick bed wall and floor applications. After placement, just screed to a smooth flat 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 leveling floors to allowable variation in a short amount of time. It can be poured up to 1 1/2" thick.
- **LevelLite® Self-Leveling Underlayment** can be applied up to 2" thick and its recycled content can contribute points towards LEED certification.



INSTALLING GAUGED PORCELAIN TILE AND PANELS/SLABS

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

- **RedGuard® Waterproofing and Crack Prevention Membrane** can be applied to a dry film thickness of 15 mils for general waterproofing and crack isolation.
- **Crack Buster® Pro Crack Prevention Mat Underlayment** can be used under suitable GTP over approved substrates in residential applications only.

Gauged Porcelain Bonding

It is important to follow ANSI A108.19 and all TCNA recommendations for the installation of porcelain tile. To ensure that the tiles do not crack from point load or impact, it is mandatory that the mortar coverage is greater than 80% for interior walls, 85% for interior floors and 95% for exterior and wet area installations, with no voids greater than two square inches, ensuring that all corners and edges are fully (100%) supported with mortar. Use a specialty notched trowel that was designed to maximize the coverage with less effort, such as CUSTOM's **SuperiorBill® Premium Notch Trowel**.

Apply mortar to both the surface of the substrate and the back of the tile/panel. The trowel ridge lines should be applied to these surfaces so they are parallel to the short side of the panel/slab and to each other when pressed into place. This will prevent trapping air under the tile and creating a void.



To achieve continuous contact between the substrate and panels, a padded, high-speed orbital sander with a soft bonnet can be pressed against the GTP.

On walls, apply pressure and work from center outward to the tile edges. On floors, you can walk on the panel in a shuffling action from the center towards the perimeter of the panel to force air out from under the tile. Use the orbital sander to consolidate bonding mortar where tiles meet while mortar is wet in partnership with the mechanical lippage control system.

The tile or panel/slab should be checked regularly to assure full mortar coverage. Following proper installation methods per the GTP manufacturer and ANSI A108.19 is critical to a successful installation. The mortar installation instructions must be followed for cure time and allowable traffic.

Setting Materials are Determined by Backing Materials

CUSTOM recommends the following mortars for the installation of gauged porcelain panels.

Gauged porcelain tile and panels/slabs with a **bare porcelain backing** can be successfully installed with MegaLite® or ProLite® large format tile mortars. In addition to the manufacturers listed above, these manufacturers have gauged porcelain tile and panels/slabs with bare porcelain backing tested by CUSTOM.

- **Emser Tile Expanse™**
- **StonePeak PLANE Series**
- **Neolith® by TheSize**
- **Crossville Laminam®**
- **Emser Tile-EXPANSE™**
- **FIANDRE – MAXIMUM**
- **IRIS US - MAXFINE**
- **Transceramica**

Some of these materials have a **back-layered reinforcing resin and fabric mesh**. CUSTOM has found that back-layered gauged porcelain panel/slabs manufactured by the following companies have formulated the resin to allow installation with MegaLite® or ProLite® large format tile mortars.

- **Daltile SlimLite™ Porcelain Panels**
- **Crossville Laminam®**
- **Florida Tile THINNER**
- **Kerlite by COTTO D'ESTE**
- **TECHLAM® by LEVANTINA**



CUSTOM®

TechnicalBulletin

Technical Services 800-282-8786
 custombuildingproducts.com

INSTALLING GAUGED PORCELAIN TILE AND PANELS/SLABS

Other back-layered gauged porcelain tile and panel/slab should be installed with EBM-Lite™ Epoxy Bonding Mortar or evaluated in our lab for suitability with a cement based mortar. Check with the tile manufacturer or CUSTOM Technical Services for updates to our installation recommendations.

Recommended CUSTOM Dry Set Mortars

- **MegaLite® Ultimate Crack Prevention Large Format Tile Mortar** is a high-strength bonding mortar with exceptional non-sag characteristics. MegaLite's long working time makes it the product of choice for applications in hot, dry or windy conditions.
- **ProLite® Premium Large Format Tile & Stone Mortar** is ideal for installation on walls. Its non-sag formula supports large tiles without mechanical fasteners.
 - **EBM-Lite™ Epoxy Bonding Mortar or CEG-Lite™ 100% Solids Commercial Epoxy Grout** is highly recommended when installing back-layered reinforced resin gauged porcelain tile/panel.



Grouting

Grouting should proceed per ANSI A108.10 or A108.6. ANSI A108.19 recommends that the width of the grout joints be no less than 1/16". Check with the GTP manufacturer for the appropriate grout joint width for your project. Since these tiles are so thin, it is important that the still-wet mortar is completely removed from the grout joint. The grout joints should be struck clean to the substrate during installation to maximize the joint depth. Mortar left in the grout joint will reduce the grout thickness to less than 1/8" thick and can result in grout cracking. It is important that these small joints are completely filled to maintain a durable grouted joint.

Recommended CUSTOM Dry Set Mortars

The following grouts are recommended for use with the gauged porcelain tile and panel/slab.

- **Fusion Pro® Single Component Grout®** is ready to use, easy to spread and clean, and offers unsurpassed stain resistance. Fusion Pro is guaranteed stain-proof and color perfect.
- **Prism® Ultimate Performance Cement Grout** is a fast-setting, high-strength grout that reduces efflorescence and grout shading for joints greater than 1/16".
- **CEG-Lite™ 100% Solids Commercial Epoxy Grout** produces the strongest joint and is preferred for floor applications. Epoxy grout should be used where stain and chemical resistance is critical.

Consider the use of **Aqua Mix® Grout Release** or sealer to avoid potential grout "picture framing" if only spreading grout at the edges of very large tiles such as these panels. Polished porcelain panels should be tested for micro-pore structure especially when using a contrasting grout color. Micro-pores can be commonly found in all tiles, with polished porcelain they can be more prevalent, and it can hold stains and grouting material making it difficult to impossible to remove. Grouting materials are designed to embed and bond in small spaces such as narrow grout joints and can also bond in micro-pore structures. Using an appropriate sealer such as **Aqua Mix® Sealer's Choice Gold** helps to eliminate embedment in the micro-pore structures and time consuming remediation efforts.

It is important to observe all building codes and TCNA requirements for tile installation. It is vital that all movement joints are no less than 1/8" wide, properly placed and filled with the appropriate soft jointing material, such as CUSTOM **Commercial 100% Silicone Sealant**. See TCNA EJ171 for proper placement and additional movement joint information. It is the responsibility of the design profession or engineer to determine the location of movement joints. When tiles are 10 feet long, proper soft joint placement may be at every grout joint. In these cases, you may want to consider grouting the entire installation with silicone sealant for a uniform appearance.

INSTALLING GAUGED PORCELAIN TILE AND PANELS/SLABS

For further information on the handling of these gauged porcelain panels/slabs, consult the tile manufacturer's website and contact CUSTOM Technical Services.

The information in this bulletin is presented in good faith, but no warranty, express or implied, is given nor is freedom from any patent in as much as any assistance furnished by CUSTOM with reference to the safe use and disposal of its products provided without charge. Custom Building Products assumes no obligation or liability therefore, except to the extent that any such assistance shall be given in good faith.

TB60 10/18R



CUSTOM[®]

Technical Bulletin

Technical Services 800-282-8786
custombuildingproducts.com