# INSTALLING GAUGED PORCELAIN TILE and GAUGED PORCELAIN TILE PANELS/SLABS ANSI A137.3 & A108.19/20

TB60

## Formerly Thin Panels or Reduced Thickness Porcelain Tiles

### Defining Gauged or Thin Tiles

Gauged (thin) porcelain tiles and panels/slabs appeal to architects and designers because of their modern aesthetic. They are being installed in a variety of interior and exterior applications, particularly in the remodeling of existing tile installations. Because these tiles are 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 greater than one square meter, otherwise they are considered tile.

These gauged panels comply with ANSI A137.3 standard. Because of the large size of these gauged panels/slabs, the installer is cautioned that special handling and installation 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 the larger panels.

Gauged porcelain tile and panel/slab are supplied with bare porcelain back or a back-layered reinforced resin backing. Per the ANSI A108.19 installation standard, it is recommended that only the tile or panel/slab 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 gauged tile or panel/slab before installation on floors.

### Where and How to Install Gauged Tile / Panels

Gauged porcelain tile and panels/slabs must be installed per ANSI A108.19 for Interior applications and ANSI A108.20 for Exterior applications and the tile/panel manufacturers' directions.

It is strongly advised to have only industry certified or experienced contractors install gauged porcelain tiles and panels/slabs. Trained installers will know how to use the specialized cutting equipment, racks, trowels and other tools that make the installation of these tiles successful. Breakage can be expensive, so it is best to have an expert with this material perform the installation.

One key to a successful installation of gauged porcelain tile and panels/slabs is the preparation of the surface. The surface must be flat and true. TCNA guidelines for surface tolerance of large format tile (one side greater 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 thin tile.

Lippage is another concern, as the ANSI A108.19/20 guidelines allow up to 1/32" lippage between adjacent tiles. Panels [1m² and larger] require use of a mechanical lippage control system with a removable/replaceable cap to allow 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 multiple product options to assist in preparing the surface to an acceptable tolerance.

- **Wall Float and Mud Bed Materials**
  - **CustomFloat® Bedding Mortar**
  - **SpeedSlope®**
  - **Quikrete Deck Mud**
- **Trowel Applied Patching materials**
  - **Skim Coat & Patch Cement Underlayment**
  - **SILK® /CustomTECH™**
- **Self-Leveling Underlayment Materials**
  - **LevelQuik® RS Rapid Setting**
  - **LevelLite® - Lightweight Self-Leveling Underlayment**
  - **TechLevel 150 SLU /CustomTECH™**
  - **TechLevel XP1 SLU /CustomTECH™**
  - **TechLevel WSF /CustomTECH™**

* See individual product technical data sheets for proper application recommendations and limitations.

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**
- **Crack Buster Pro ®** Sound Reduction Membrane - can be used under suitable gauged porcelain tile panels over approved substrates in "Residential" applications only.

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### Gauged Porcelain Bonding

It is important to follow ANSI A108.19, ANSI A108.20 and 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 80% for interior walls and 85% for interior floors, with no voids greater than two square inches, ensuring that all corners and edges are fully (100%) supported with mortar. ANSI A108.19/20 Requires the use of a trowel that promotes ridge collapse when installing GPTP / Gauged Porcelain Tile Panels. With a unique specialty notched trowel design, CUSTOM's **SuperiorBilt® Premium Notch Trowel** will meet these requirements and help the contractor maximize the coverage with less effort.

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 mortar contact between the substrate and panels, a padded, high-speed orbital sander with a soft bonnet can be pressed against the gauged tile or panel/slab. On walls, apply pressure and work from center outward to the tile edges to release trapped air between panel and substrate [similar to rolling air out from under vinyl]. 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 cannot be checked regularly to assure full mortar coverage, following proper installation method per the panel/tile manufacture and ANSI A108.19 is critical to the successful installation of the panel. 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 tile and panel/slab.

Some gauged porcelain tile and panels/slabs have a ***back-layered reinforcing resin*** and fabric mesh. CUSTOM has found that back-layered gauged porcelain tile and panel/slabs manufactured by the following companies have formulated the resin and reinforcing mesh to allow installation with MegaLite® Ultimate Crack Prevention Large Format Tile Mortar.

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

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

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

- **Crossville Laminam®**
- **Emser Tile-EXPANSE™**
- **FIANDRE – MAXIMUM**
- **IRIS US - MAXFINE**
- **StonePeak-PLANE Series**
- **Transceramica**
- **NEOLITH®**
- **DEKTON®**

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**Recommended CUSTOM Improved Modified Dry Set Cement 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 reinforced heavy resin gauged porcelain tiles/panels.

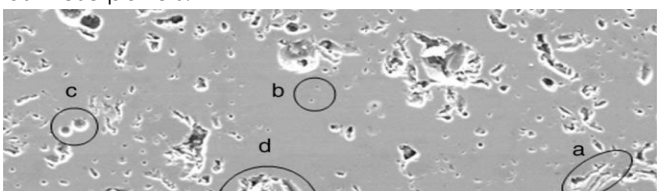
**Grouting**

Grouting should proceed per ANSI A108.10, A108.6 ANSI A108.19 and/or ANSI A108.20 requirements, which state the width of the grout joints be no less than 1/16". Check with the gauged tile or panel/slab manufacturer and your installer 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 tooled or struck clean all the way down 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 the tile/panel's edge maintain a full and durable grouted joint.

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® Color Consistent 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 an **Aqua Mix® Grout Release** or sealer to help 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 color of grout. Micro-pores can be commonly found in all tiles, with polished porcelain they can be more prevalent, while this condition does not generally affect the tile's performance it can hold stains and grouting material in the small structure 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 using silicone sealant for the entire installation in place of grout materials.

For further information consult the tile/panel manufacturer website and contact CUSTOM Technical Services. **TB60 7/20R**

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