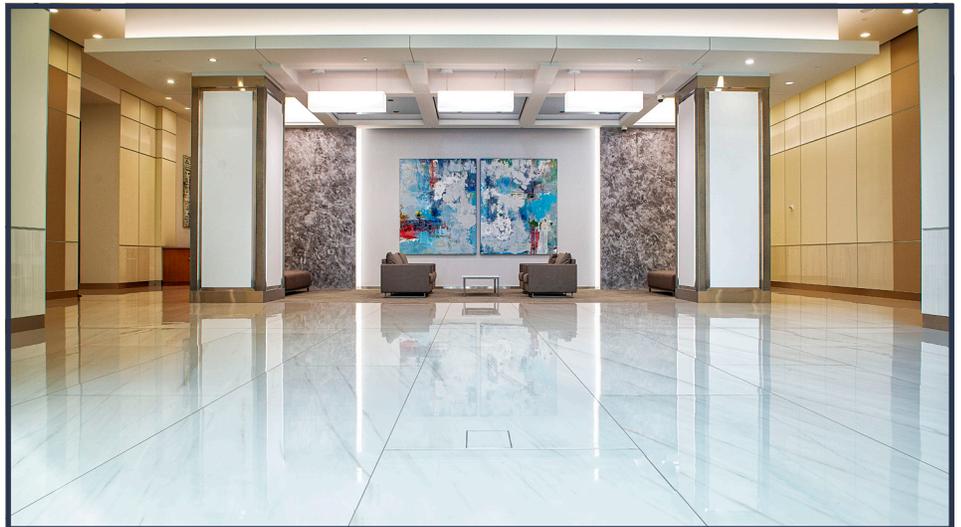


# Tile Over Tile Installations With Porcelain Tile Panels

**One of the biggest buzz phrases in the tile industry these days is porcelain tile panels. Why? Because designers and installers are learning more about the many benefits of porcelain tile panels, especially the ability for tile-over-tile installations.**

Introduced to the U.S. market about a decade ago, gauged porcelain tile panels have experienced consistent growth in popularity. Thanks to ongoing education and training, architects, interior designers, and installers have come to understand the material and its many and varied applications available due to the large sizing in feet instead of inches. From installations with minimal grout lines to tile over tile installations, the benefits of porcelain tile panels are as expansive as the colors and styles offered.

With downtime and maintenance as top concerns, especially in hospitality, healthcare, commercial, and multi-family projects, porcelain tile panels can quickly transform a tired space into something eye-catching and fresh that will stand the test of time. The larger size of the tile combined with the thinner profile results in the possibility of tile-over-tile installations.



## **Bank of America Plaza at Las Olas City Centre**

Searching for a product that would be large-scale and could be installed over the existing floor, the design team found that Crossville's gauged porcelain tile panels in Cava provided a stylish solution to an upscale office renovation.

**“Crossville's porcelain panels are huge, a single 1 x 3-meter (39" x 118") panel can cover more than 32 square feet, resulting in a seamless look thanks to fewer grout lines.”**

But the thickness, measured in mere millimeters, gives these tile panels the unique ability to be laid over existing tile or brick surfaces. This trait offers a big advantage for renovation projects as it

eliminates the need for demolition and removal of the old material, reduces the labor involved, keeps costs down, and minimizes construction waste. Another plus is that it gives businesses the ability to stay in business with less downtime. For these reasons, it's no surprise that this trend has really taken hold in commercial and residential projects.

Offered in two thicknesses for different applications, Crossville's thicker panels are at 5.6 mm, about a quarter of an inch, and these can be installed on walls and floors, while the 3 mm tile panels are intended for vertical use only. The advanced design and durability of the panels enable the aesthetic and functional use of porcelain tile in

previously impossible applications, such as tile over tile installations.

Crossville's large format panels can be installed over existing tile with just a little preparation. Depending on the material already installed, installers should review the floor height or wall thickness for limitations and ensure the existing tile is well-bonded. In some cases, the tile should be mechanically abraded or primed to insure a good bond. For tile over tile installations with large format tiles, the most critical components are substrate preparation, including setting procedures, materials selection, and layout.

Providing seamless installations on walls and floors, porcelain tile panels **OVER EXISTING MATERIALS** are ideal for commercial and residential applications.

From hospitality to healthcare and office to education, porcelain tile panels can be installed for skinning walls in large spaces, elevator areas, restaurants, restrooms, exterior cladding, and even tiling a radius (with the 3+mm panel). The residential applications are endless and create stunning installations from kitchen floor updates to shower walls and backsplashes to fireplace surrounds.

## Tile Over Tile Advantages with Porcelain Tile Panels

- For the business owner, being able to **STAY OPEN** with **LESS DOWNTIME** is critical.
- From a cost standpoint, **JOB COSTS DECREASE** without having to remove the old material, reducing the labor involved, and minimizing construction waste. With a 14% increase in construction costs in 2022, these labor and material savings could dramatically impact the project's bottom line.
- As an environmentally friendly option, tile over tile installations **REDUCE THE AMOUNT OF WASTE SENT TO LANDFILLS**. Construction waste is a tremendous problem throughout the United States at about 600 million tons in 2018.
- With various health benefits, tile over tile not only **MINIMIZES DIRT AND DUST** during installation but also **ELIMINATES SOUND CONTAMINATION**, especially important if a facility remains operational during the renovation. Downtime for a business not only includes lost production and lost revenue but also loss of reputation and recovery costs to get those customers back. Tile over tile installations **HELPS KEEP THE DOORS OPEN** during a renovation with as little disruption as possible.
- Designers continue to assess material specifications that ensure generally cleaner, safer physical environments. After installation, additional health benefits of porcelain tile panels include **EASY MAINTENANCE** as the panels do not require special cleaning products, which can cause other health irritations. With fewer grout joints, the installation will use up to 95% less grout, which means **LESS CHANCE FOR MOLD AND MILDEW**.

## Technical Aspects of Tile Over Tile Installations

These gauged porcelain tile panels are produced with innovative tile technology. By pressing without the traditional die-mold commonly used throughout the tile industry, then firing with highly controlled kilns at a temperature of approximately 2200 degrees F, this breakthrough process successfully eliminates tension within the tile panel creating a uniformly large flat piece that can be cut or trimmed with precise accuracy. Both 3+ mm and 5.6 mm thicknesses comply with the ANSI 137.3 product standard for gauged porcelain tile and gauged porcelain tile panels/slabs. All direct bonded installation systems are to utilize the ANSI A108.19 standard for interior installations or ANSI A108.20 for exterior vertical installations, applicable TCNA Handbook detail, and the installation guidelines detailed by Crossville.

“ Due to the unique material characteristics and unconventional installation techniques required of gauged porcelain tile panels, this work requires installers who are equipped with the proper tools and have acquired sufficient product knowledge, training, and installation experience through the completion of an Installer Qualification Program. ”

In addition to the many resources offered by Crossville, we regularly support workshops around the country. We make it a priority to provide contractors with the knowledge and know-how to successfully install this increasingly popular material.



**B**ecause of the tile panel size, two installers are required to handle the tile panels, always keeping them perpendicular to the floor while protecting the corners from impact. Grip gloves are required when lifting and moving the tile panels to ensure a positive hold and to protect hands against fiberglass backing and tile edges. To aid in handling the 1 m x 3 m panels, especially those weakened by drilled holes or openings, a frame with suction cups should be used. Installers should double-check the adhesion of the suction cups on the porcelain tile panels prior to lifting.

**W**hen inspecting substrates for tile over tile installations, all substrates are to comply with deflection requirements called for by the International Building Code, the International Residential Code, or any applicable local building codes. Floors may require self-leveling underlayments or recessed slabs designed to accept a properly prepared mortar bed.

**“** **Maximum substrate variation should not exceed 1/8” in 10’ (3mm in 3m) and 1/16” in 24” (1.5mm in 60 cm) when measured from surface high points with a straight edge.** **”**

**T**o ensure a good bond to the existing tile, installers need to follow certain procedures described in the TCNA Handbook in detail TR712 and TR713. Not all thin-sets (nor polymer-modified thin-sets) are capable of bonding directly to tile. Installers should consult the grout and mortar manufacturers’ instructions specified for their recommended thin-sets. Also, in some cases, depending on the tile already installed, the tile must be mechanically abraded or primed to ensure a good bond, and this is usually best determined with a “bond test.”

In addition to reviewing the substrate, existing joints in the substrate need to be carried through the porcelain tile panels. Movement joints are required where the tile panels meet restraining surfaces, such as perimeter walls, curbs, columns, corners, and at all changes in-plane in the tile work. Joints are to be clean and free of all contaminants and thin-set mortar.

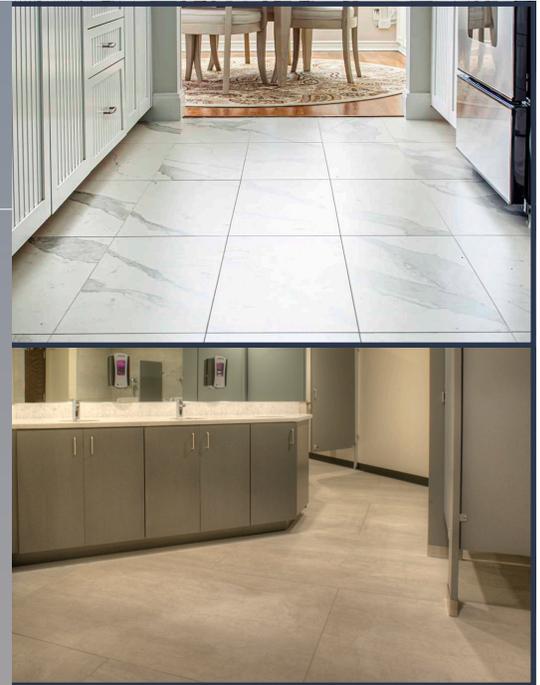


**I**n addition to working with qualified trained installers, suitable substrates for walls and floors must be reviewed, and substrates can include existing ceramic tile or other surfacing materials. Depending on the substrate, installers must also review if the surface is on grade, below grade, or above grade to determine if additional bonding preparation is required.

## Critical Points

With various installation requirements for tile over tile on floors and walls with porcelain tile panels, the following are some critical points:

- Installers should review the list of **NEEDED TOOLS THAT ARE DIFFERENT** from typical tile installations.
- Prior to applying mortar, make sure to **CLEAN THE BACK OF THE TILE** and the substrate to remove any dust or other contaminants.
- Coverage: use the mortar manufacturer's recommended mortar mix ratio, **DIRECTIONAL TROWELING** perpendicular to the long edge of the tile panel, and proper embedding techniques.
- Maximize edge coverage and minimize lippage: review various lippage control systems, and utilize a high-speed sander along the perimeter edge and between the lippage control straps.
- Using the tools and best practices to **MINIMIZE LIPPAGE BETWEEN TILES TO 1/64"** (0.4mm) or less will greatly increase the finished installation's ability to withstand the rolling loads used in most commercial applications.
- Using **GROUTING TECHNIQUES THAT ENSURE THE GROUT JOINT REMAINS FULL** and flush will also aid in the finished installation's ability to withstand edge impact. Particularly with epoxy grouts, use a new epoxy float with unworn sharp edges. Use steady pressure to overfill the joint and force epoxy grout into any remaining voids beneath the tile panel edge.



**A**fter the Crossville panels have been installed and the grout work is complete, the single most important step for future daily maintenance involves the complete removal of grout film/residue and construction dirt. Refer to the grout manufacturer's instructions for proper mixing, curing, and cleaning instructions. These are critical when working with epoxy grouts. In most cases, Crossville porcelain tile panels can be cleaned successfully by scrubbing the installation with hot water and a neutral detergent, followed by thorough rinsing.

**F**or tile over tile installations, Crossville provides seamless solutions from design to installation to maintenance. Since the introduction of porcelain tile panels, Crossville has made it a priority to provide contractors with the knowledge and know-how to successfully install this increasingly popular material. In addition to the support from the Crossville, Tenn., headquarters, Crossville regularly supports and sponsors workshops around the country.

Learn more about tile over tile installations at [crossvilleinc.com/tile-over-tile](https://crossvilleinc.com/tile-over-tile).