



TECHNICAL BULLETIN #128

Regarding: Installation of Thin Large Format Porcelain Tiles.

Thin large format porcelain tiles continue to increase in sales, that growth has raised concern and questions about the installation. This is understandable, since initially the thin large format tiles were being promoted for walls and overlay of existing tile floors. However, we continue to be asked about other applications. It is understandable that the thinner porcelain tiles continue in growth with freight cost so high, a manufacturer can ship a lot more pieces of tile at an 1/8" (3mm) thickness verses the more conventional 3/8" (9mm) tiles, we are familiar with. The growth in this type of tile is moving very fast. Because ANSI and ISO Standards require consensus among producers, users and other general interest parties, it is to be expected that it will take time before there are Standards for these new products. So at this point there is no ANSI or ISO Standards for the manufacturing of the thin large tile, or installation methods. Consult with the tile manufacturer and follow any recommendations they have on their thin large format tiles.

These thin large format tiles have some unique characteristics, like the ability to be bent, conforming to slight curves in vertical substrates. Another less preferred characteristic is a lower breaking strength. The lower breaking strength requires some manufacturer's to apply a reinforcing mesh to the back adhered with epoxy or other resin type adhesives. Like stone tiles, the mesh is not the concern; the adhesive used to adhere the mesh may require additional testing for our R & D to determine the best solution for your installation. The lower breaking strength also requires that the thin tile be installed with better adhesive coverage requirements than the thicker tiles. Better coverage and a flatter substrate will also help in minimizing lippage. Providing better coverage will require very tight substrate tolerances.

All substrates should be plumb and true, substrate deviation should not exceed 1/8" in 10' or 1/16 in 3'. Substrate preparation should be completed following ANSI A108 AN-2 "General Requirements for Sub-surfaces. Patching, leveling or areas requiring a mortar bed should be prepared using Mer-Krete's Underlayments.

For interior or exterior leveling:
MerKrete Underlay C (1/8" to 3" pours)

For interior only, horizontal self leveling
MerKrete Underlay SLU (feather edge to 3/4" pours)
MerKrete Underlay SLU Gold (1/8" to 3" pours)

For interior crack isolation
MerKrete Fracture Guard membranes

For interior or exterior waterproofing / crack isolation
MerKrete HydroGuard SP1 membrane

The mortar is probably the most critical due to the low absorption and need for increased coverage. Follow typical recommendations and methods from the TCNA and ANSI Handbook but coverage must be increased to no less than 95% between the tile and substrate and all edges of the tile must be supported. For resin backed tile, without additional testing, the only safe recommendation is MerKrete's ProEpoxy. We have found other premium mortars like MerKrete's 855 XXL, 856 XLF and 735 Premiumflex may work well but we cannot be responsible for resin backed failures not tested by our lab prior to installation.

1. Apply mortar to the substrate with the flat side of the trowel, with enough pressure to firmly work into the surface.
2. With a notched trowel, immediately follow with a heavier coat of material using the appropriate trowel and enough mortar to provide 100% coverage to the back of the tile. Back-buttering of the thin tiles larger than 15" on one side is required. Do not spread more mortar than can be covered in 20 minutes or before the mortar skins over.
3. It is advised that during the installation, a tile be removed to insure the mortar has not skinned over and to check the tile and substrate mortar coverage. Comb the mortar using an appropriate notched trowel in one direction.
4. Place tiles in mortar, slide back and forth perpendicular to the ridges to insure proper coverage. Do not adjust tiles set in mortar after 15 minutes.
5. Allow the tile installation to set for 24 hours at 70°F, prior to grouting.

Mortar for interior tiles without mesh backing

Merkrete 856 XLF Thinset (horizontal surfaces only)
Merkrete 855 XXL Thinset / Medium Bed mortar
Merkrete 735 PremiumFlex Thinset

Mortar for exterior tiles without mesh backing

Merkrete 855 XXL Thinset / Medium Bed mortar
Merkrete 735 PremiumFlex Thinset

Mortar for interior or exterior tiles with mesh backing

Merkrete ProEpoxy

Grouting of thin tile requires that any mortar bleeding or protruding into the grout joint be removed. ANSI requires that 2/3 of the depth of the grout joint be open. Due to the lack of installation standards and the thinness of these tiles it is recommend that the joint be cleaned out to its full depth to adequately accept the grout. All Merkrete grouts are suitable for these installations. Merkrete formulated the ProGrout for many of the issues commonly seen with grouting of porcelain tile. It is an excellent choice for these installations due to the color control and fast setting properties.

Grout for interior or exterior

Merkrete ProGrout
Merkrete ProEpoxy
Merkrete Sanded ColorGrout
Merkrete Versatile

The above products are proven to work well on these installations. These are not the only Merkrete materials or methods that may be appropriate for the installation of thin large format porcelain tiles. For questions, contact Parex USA Technical Services. The installation of ceramic tile must be done following installation standards published in the current Tile Council of North America TCNA Handbook for Ceramic, Glass and Stone Installation, ANSI (American National Standards Institute) 108 specification and our data sheets. Movement (Expansion) joints should be provided to comply with TCNA method EJ 171. Follow all directions on Merkrete Data Sheets and containers. For the most current information, visit our website www.merkrete.com or call our Technical Service group at 800-226-2424.