

Limestone & Marble Tile

PRODUCT and INSTALLATION SPECIFICATIONS

This specification covers the installation of Limestone and Marble natural stone tiles for interior dry areas on both horizontal and vertical applications.

Note: *Limestone and Marble are natural stone products. Due to their natural characteristics it is important that the proper installation materials and methods are used for their installation. Palazzo Tile and Stone recommends that quality installation products are used from a single source manufacturer for installing these products. The manufacturer of the installation products must provide a minimum 10-Year Labor and Material installation warranty for the intended tile application. All installation materials should be used according to the manufacturers' instructions.*

MATERIALS

The thin-set adhesive should either be an ANSI A118.4 or ANSI A118.15 Modified Dry-Set Cement Mortar or its rapid setting version, if needed. Use an ANSI A118.3 Epoxy adhesive for *moisture sensitive stones* or resin/fiberglass backed stone.

Moisture Sensitive Stones - All stones can be moisture sensitive to some degree. Stones of the same type quarried and supplied at different times can vary to some degree in their physical properties and appearances. To avoid various potential problems the consumer should have the stone tested to ensure it will be suitable for their intended use.

Slip Resistance Surfaces – All tile surfaces can be slippery to some degree under various circumstances and conditions. The more texture a tile surface has the more slip resistant it will be, but the more texture it has the more difficult it will be to clean and keep clean. To ensure a safe walking surface keep the tile surface clean, dry, and provide walk-off mats at exterior entrances. The tile surface should achieve a minimum Dynamic Coefficient of Friction (DCOF) rating of 0.42, per ANSI A137.1-9.6 DCOF Acutest, for level interior spaces expected to be walked upon when wet.

SUBSTRATE

It is recommended to install Limestone and Marble (tile) over a clean and sound concrete substrate, which is flat, with a steel trowel and fine broom finish. The concrete substrate should readily absorb water and be free of contaminants; including curing compounds, which may prevent a good bond. Deflection of a concrete substrate should not exceed L/360 for horizontal surfaces or more than L/600 for vertical applications. For wood subfloors deflection is not to exceed L/720. Floor configurations shall be in conformance with the IRC for residential applications, and IBC for commercial applications. Mortar bed applications must comply with ANSI A108.1. Tiles installed using a wet-set mortar method, must only use dry-pack mortars that are fully compacted, and reinforced for unbonded mortar beds. Substrates should be free of cracks. Use the installation material manufacturer's membrane for crack isolation and waterproofing protection.

PREPARATION

Prior to installation the installer shall examine the areas to be covered, and notify the general contractor or owner representative of any visually obvious defects or conditions that will prevent a satisfactory tile installation. Installation work shall not proceed until satisfactory conditions are provided. Before starting, the surface to be tiled shall be cleaned/scarified to remove curing compounds, sealers, soil, mortar, or any type of contaminate that would interfere with bonding. All rough, uneven or "out-of-plumb" surfaces shall be made flat, "plumb and true" to within 1/8" in 10' (3mm in 3m) and 1/16" in 24" (1.6mm in 600mm). High spots should be ground down and low spots should be filled. If necessary use a cementitious self-leveling underlayment to bring floor into tolerance for flatness.

MOVEMENT JOINTS

Locate, design, and install movement joints per TCNA EJ171-(Current Year) Industry recommendations. Existing joints in subsurface must be carried through tile work. Movement joints should be installed at all "changes of plane" in the tile work and where tile abuts restraining surfaces, at every 20' to 25' for interiors and 8' to 12' for all exteriors and interior areas exposed to direct sunlight or moisture, in each direction.

WATERPROOFING AND CRACK ISOLATION MEMBRANES

A waterproof membrane should always be applied over the substrate prior to installing the stone to minimize the risk of efflorescence and spalling. Additional waterproofing protection is required in all wet applications and exterior areas. Where necessary, a crack isolation membrane should be used to either isolate existing cracks in the substrate or to provide protection against future substrate cracking. When using Limestone or Marble in showers get approval by installation product's manufacturer. Use only membranes as supplied by the installation manufacturer for single source responsibility that is part of their labor and material warranty. For stone to be used successfully in wet areas, it must be installed in a manner so there are no voids behind the tile for water to collect, and surface and sub-surface water must be able to readily drain away from the stone. Surfaces and sub-surfaces in wet areas must have a slope to drain between ¼" per foot to ½" per foot. Exterior applications must have a waterproof membrane beneath the tile.

INSTALLATION OF TILE

Install stone tiles per installation product manufacturer's instructions and to meet industry standards per ANSI A108, TCNA Handbook for Ceramic, Glass, and Stone Tile Installation, and Marble Institute of America Dimension Stone Design Manual Standards. It is necessary to contact the manufacturer of installation products to qualify which products to use for the intended application. The thin-set adhesive should be an **ANSI A118.4 or ANSI A118.15 Modified Dry-Set Cement Mortar, or a Rapid Setting Modified Dry-Set Cement Mortar** if accelerated curing is required. White thin-set should be used for light color tiles and when using light color grouts. For concerns with dimensional stability the rapid thin-set selected for installing this stone must achieve a **"Class A rating,"** when tested according to the **Modified British Standards (BS) EN 14617-12 Dimensional Stability Test within the first 24 hours.** *Use an epoxy adhesive if necessary.*

Clean the back of the tile and the substrate during the installation process. The thin-set adhesive must be applied to the cleaned substrate surface to be tiled and to the back of the tile with the flat side of trowel using a firm scraping motion to key the thin-set into the surface to be covered. While the thin-set applications are still tacky, back-butter the tile with more thin-set by troweling so the thin-set ridges are parallel to the short side of the tile, and parallel to each other, to ensure substantially 100% thin-set coverage and full contact between the tile and substrate (no thicker than 1/4" after compressed).

Only apply as much thin-set to the substrate that can be covered with tile without the thin-set skinning over. Set the tile into the setting bed of thin-set, and beat and slide it into place perpendicular to the direction of the trowel ridges to ensure full contact. Tiles should be installed to be in-plane to the surface of adjacent tiles to avoid excessive tile lippage. It is recommended that grout joint widths are at least 1/8" wide and never butted together. Tiles should be aligned to achieve uniform grout joints. Thin-set should be allowed to set until firm before grouting. Excess thin-set must be cleaned from the tile surface and grout joints while the thin-set is still fresh.

MOCKUP APPROVAL

A mockup of the actual tile being installed shall be prepared for approval by owner or owners' representative prior to start of the tile installation. The mockup can be the initial part of the tile installation to be left as part of the installation upon approval. The approved mockup will establish the standard of what is acceptable by the owner for the respective installation. Installation is considered acceptance.

GROUTING

If necessary, prior to grouting apply an appropriate breathable stone sealer or grout release to the tile to facilitate cleaning and for protection against staining from setting materials and contrasting color grouts. Grout joints should be packed full and free of all voids and pits. Excess grout should be cleaned from the surface as the work progresses, while grout is fresh and before it hardens. No acids should be used for cleaning. Prior to grouting, test an area to make sure the surface does not scratch or stain during grouting. Follow manufacturers' recommendation for the use of sanded or unsanded grout, which is determined by the width of the grout joint. For wider grout joints use a grout bag to fill joints and strike joints after they have become finger-print hard.

SEALING

After the stone is installed, grouted, properly cured, and clean, seal the stone with an appropriate high quality breathable stone sealer to minimize water absorption, efflorescence, and potential staining. If necessary, apply an anti-graffiti coating that is compatible with the stone. Follow sealer manufacturers' installation instructions and reseal the tile as necessary to provide adequate protection from staining and spalling.

PROTECTION

The tile installer shall take precautions to protect the finished work from damage by other trades and traffic. Do not allow construction traffic on fresh tile or grout joints. Allow the grout to cure for a minimum of 7 days before aggressive use or steam cleaning.

MAINTENANCE

Regular dust mopping or sweeping to remove grit and dirt from the surface is recommended, or use an appropriate mechanical method. Keep the tile surface clean and use walk-off mats at door entrances to minimize wear on tile and to provide protection against slipping during wet conditions. For cleaning, as needed, use a neutral cleaner to scrub tile and grout. For floors it is recommended to use a wet and dry vacuum for picking up dirty water after cleaning and rinsing. As necessary reseal the tile to maintain protection against staining and spalling. If drops of water do not bead up on tile surface and/or if stone absorbs water causing it to darken in those spots, then it is time to reseal the tile. Proper maintenance of a stone tile installation will extend the beauty and functional life of the tile, as well as keep it a safe area for public use. For exterior applications, don't allow sprinklers to over spray onto the tile surface.

Palazzo Tile and Stone will only consider processing claims on their stone products that have been properly installed meeting industry standards and that qualify for a 10-Year Labor & Material warranty as provided by the tile installation products' manufacturer.