

## INSTALLATION – CONCRETE FLOOR TILES



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*Thanks for purchasing ARTO concrete tiles, handmade in Southern California since 1966. ARTO concrete tiles are delivered unfinished and must be sealed to protect the finish and minimize staining.*

### PRODUCTS

- Artillo Tiles
- Roman Tiles
- Thin Brick Veneer

### GENERAL TIPS

- **Concrete tiles are porous and must be sealed** for best performance.
- **Cover pallets or store indoors** to protect from the elements.
- **Tiles can be presealed** to prevent staining and for easy clean up during installation
- **Water intrusion can damage tiles and the installation.** Waterproofing membranes are strongly recommended for exterior installations and mandatory for wet areas.
- **Concrete tiles should never be used in waterline or submerged applications.**
- **Do not use acids, alkalis, or other harsh chemicals** to clean tiles before, during, and after installation.

### SUBSTRATE PREPARATION

- The substrate is the surface to which your ARTO tile will be stuck.
- **Concrete slabs**
  - Must be clean, dry, and free of contaminants.

- Surface should be roughened, not shiny or polished.
- Concrete slabs can be bead blasted for a rougher surface or to remove contaminants.
- Test for moisture vapor emissions if slab appear wet or is newly poured<sup>1</sup>
- **Wooden subfloors**
  - Must be structurally stable to hold weight of whole tile assembly
    - Tile plus mortar, grout, membranes, etc.
  - Calculate deflection to confirm suitability
  - Excessive deflection can lead to cracking and debonding.
  - Direct bonding to wood substrates is not recommended. Use one of three methods:
    - Cement backer boards
    - Uncoupling membrane
    - Prefloated 1 ¼” to 2” mortar bed on cleavage membrane
- **Movement joints**
  - Must be included per the TCNA Handbook<sup>2</sup> and are mandatory for walls and floors.
    - Interior: 20’ to 25’ in each direction
    - Exterior: 8’ to 12’ in each direction
    - Interior: 8’ to 12” in each direction (areas exposed to sun or moisture)
  - Do not tile over movement joints
  - Soft joints are required at perimeters, columns, and transitions to different materials.

## MORTAR

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<sup>1</sup> Excessive vapor transmission from concrete slabs can lead to bond failures. Moisture emission tests range from the simple, qualitative polyethylene sheet test (ASTM D4263) to moisture meters to complex and expensive nuclear density testing. Calcium chloride testing (ASTM F1869) is most commonly used but can only detect moisture close to the slab surface and is sensitive to temperature and humidity variations. Relative humidity probes (ASTM F2170) are becoming more popular because they can detect moisture throughout the slab and can predict future moisture conditions.

<sup>2</sup> Section EJ171 of the TCNA Handbook provides more details and extended discussion.

- **Large format mortar is recommended for most concrete tiles<sup>3</sup>.** Thin set mortar may be used for thin brick veneer or smaller tiles.
- **Do not apply mortar thicker than recommended** in order to repair substrates, level tiles, create transitions, or for any other purpose.
- Mix mortar and clean cool water using a variable speed electric drill or mixer with a birdcage mixing attachment.
- Stir occasionally with trowel to keep fluffy. Do not retemper (add water) to already mixed mortar.
- **Use ½” square or ¾” rounded notched trowel to spread mortar** on the substrate using the flat side of the trowel
- **Form grooves in one direction under each tile** using the notched side of the trowel.
- Using the flat side of the trowel, **spread mortar on the back of each tile to achieve 100% mortar coverage.**
- **Place tiles by moving them perpendicular to the mortar ridges** so that the ridges collapse and all voids are filled.

## GROUTING

- **Make sure grout selected is appropriate** for grout joint width.
- Tiles can be presealed to ease grout clean up.
- **Clean grout promptly** with wet sponge to avoid staining.
- **Using a grout bag is recommended** to fill the joints rather than floating or smearing grout.
- Fill grout bag and twist until slack is taken up. Roll the bag tighter to maintain constant pressure.
- Squeeze bag in order to completely fill each joint slightly higher than the tile surface.
- **When grout begins to set up, tool the joint** to compact the grout.
- **Clean excess grout before it hardens** on the tile surface.
- **Do not use too much water when cleaning** as it can weaken grout and cause cracking

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<sup>3</sup> Large format mortar is recommended for tiles weighing more than 5 pounds per square foot or with any edge 15” or greater.

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- Damp curing by misting the grout joints two or three times daily is strongly recommended. This will help minimize grout shrinkage and cracking.
- **Allow grout to cure for 72 hours** before allowing foot traffic.

## SEALING

- **Seal tiles with penetrating or topical sealer** depending on application and desired appearance.
  - Penetrating – matte, “invisible” finish that protects below surface
  - Topical – glossy or satin, coats surface to create barrier
- **Make sure sealer selected is appropriate** for installation type and location.
  - Topical sealer may be too slippery for pool deck, penetrating sealer may not provide enough stain protection for kitchen floor.
- **Apply sealer per the sealer manufacturer’s instructions.**
- Two coats of sealer are typically needed.
- Make sure to allow sealer the recommended time to cure in between coats and before allowing traffic.
- **Water should initially bead up on surface when tiles are sealed.**
- **Stains should be cleaned promptly**, sealer does not waterproof tile and stains will eventually penetrate or etch sealer.
- Floor polish, wax, or other finishes can be used indoors to protect sealed tiles but will need to be reapplied regularly.

## CLEANING

- **Clean regularly with warm water and pH-neutral cleanser.**
- **Do not use acids, alkalis, or other harsh chemicals** for regular cleaning.
- A mild acid or alkali cleanser may be used for spot cleaning. Make sure to test first on a small, unobtrusive area to ensure desired results.

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- **Do not use chemical or mechanical abrasives** including stiff bristle and wire brushes, sandpaper, or power washing.