

Installation Instructions: Grouted Tile

Mapei Grout

1 GENERAL

ReadyRazzo® Tiles are recommended for indoor use only and must be installed by professional flooring installers, experienced with installing commercial resilient floorcovering products. Installers must have sufficient professional liability insurance coverage (aka: Errors and Omissions Insurance) for the project.

Training programs such as the International Standards & Training Alliance (INSTALL) The International Certified Floorcovering Installers Association (CFI), and Flooring American University are recommended. If this is the first time installing ReadyRazzo® Tiles, or if it has been more than one calendar year since a successful installation of 500 SF or more, please call Summit International Flooring at 877-496-3566 to review the installation parameters.

These have been developed to offer the best opportunity for proper and successful flooring installations and any deviation may result in failure. Installation instructions, all Safety Data Sheets (SDS), and label instructions must be read, fully understood, and followed. For all situations that are not covered in this document, please contact Summit International Flooring immediately before moving forward with the installation.

Unless stated otherwise, follow the specific requirements of ASTM F710 – *Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring*. Please visit www.astm.org for copies of any ASTM document.

The General Contractor (or Owner) must provide a structurally sound subfloor; new concrete slabs must conform to ASTM C33/C33M — *Standard Specification for Concrete Aggregate*. When concrete slabs have or are suspected of having Alkali Silica Reaction (ASR) present, do not proceed and contact Summit International Flooring. All on and below grade concrete subfloors require a confirmed effective vapor retarder. The vapor retarder must have a low permeance (≤ 0.1), having a minimum thickness of 10 mils, or it must meet ASTM E1745 requirements — *Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs*. Confirm it was placed directly underneath the concrete, above the granular fill. If this is not possible, use a topically applied moisture mitigation system that conforms to ASTM F3010 – *Standard Practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings*. It must be applied following the manufacturers written instructions.

Note: Typically, these will require a leveling compound applied over the membrane to provide an absorptive (porous) substrate. Chemical adhesive removers must not be used. Do not install where hydrostatic pressure can occur. Also, the concrete subfloors must not be subject to shrinking, curling, cracking or moving in any way. Summit International Flooring accepts no liability for a failure or complaint due to slab movement of any kind.

ReadyRazzo® Tiles may be installed on radiant heated slabs, providing the maximum temperature of the surface of the slab does not exceed 85°F under any condition of use. The radiant heating system must be lowered or turned off for at least 48 hours before installation of the flooring material to allow proper adhesion of the adhesive to the subfloor. The room temperature must be maintained at a minimum of 65°F for 48 hours prior, during and at least 72 hours after installation. Then the temperature of the radiant heating system can be increased gradually so that the substrate and the flooring material can adapt to the temperature change together. A rapid change could result in thermal shock and de-bonding.

2 INSTALLATION TOOLS CHECKLIST

Make sure that the Tools Checklist has been reviewed in advance of any Training and/or Installation and all required equipment has been obtained ahead of time. **Note:** The complete Tool List would be specific to the type of installation and the finish selected for the project. Below is intended to be the minimum requirements for any type of installation.

- Personal Protection Equipment (PPE): Dust mask, gloves, safety glasses, booties, suit, etc.
- Mop and bucket, with wringer
- Wet/dry vacuum. Dry vacuum must meet HEPA requirements under Table 1 for Osha Silica Standards.
- White cotton rags and mineral spirits
- Wet saw or dry saw with appropriate Hepa Vacuum.
- Metabo or comparable variable speed hand-polisher for polishing edges
- Angle grinder with wet blade cutting kit or dry cutting kit attached with Hepa vacuum.
- Continuous-rim diamond blade
- 100 lb. floor roller
- 1/16 inch square notch adhesive trowels
- Mobile workbench (folding)
- 10 ft. and 8 ft. straight edges
- Heat gun
- Hand roller and wall roller
- Razor scraper & blades
- Hammer, knife and blade
- Cap snips
- Suction cups to lift tile
- Color coordinated silicone caulk
- Caulking gun
- Extension cords
- Micro-fiber flat mops
- Polyethylene sheets
- Fox tail / rat tail brush
- Large trash bags
- Stand-up squeegee
- Lint-free, microfiber roller
- 1/16 of an inch tile spacers

3 MOISTURE TESTING AND ADHESIVE

Moisture testing is mandatory following the protocol of ASTM F2170 – *Standard Test Method for Determining Relative Humidity in Concrete Slabs using in situ Probes*, regardless of grade level or whether the concrete is freshly poured or classified as an older slab. It is the responsibility of the general contractor/ end user to have the concrete subfloor tested for moisture. It is the responsibility of the flooring contractor to request the moisture test results prior to installing the flooring or they may wish to perform the testing themselves. The Wagner Rapid RH 4.0 System for testing RH provides certified results when following testing instructions for proper depth of concrete substrate. If test results are questioned it is also recommended that an International Concrete Repair Institute (ICRI) tier 2 certified technician performs the moisture testing. If for any reason you are unable to drill into the subfloor, contact Summit International Flooring for guidance/assistance.

The test results must not exceed the maximum acceptable relative humidity for the adhesive. If test results exceed the maximum relative humidity, the installation must not proceed until either the subfloor dries to an acceptable level or an effective mitigation system is installed that conforms to *ASTM F3010* following the manufacturers written instructions.

Test methodology, results, and photographs must be documented and provided to the flooring contractor, general contractor, owner and/or architect. Providing the *ASTM F2170* test results are acceptable, the installation may proceed.

Acceptable Adhesive: Always follow the manufacturer's instructions and SDS.

Mapei Ultra Bond Eco 373 or Eco MS4

ASTM F 2170 ≤ 90% RH

Coverage is 125 to 185 SF / gallon

1/16 x 1/16 x 1/16 square notch trowel

Note: pH testing is required. Do not install if pH is 12 or greater. If a calcium chloride test (ASTM 1869) is performed do not install when the moisture vapor emission rate exceeds 8 pounds per 24 hours.

4 HANDLING AND STORAGE

If packaging is damaged, take photos and mark shipping documents as such before signing for the shipment. Contact shipper and/or Summit International Flooring and report the damage. Handle ReadyRazzo® Tiles with care as tiles can be broken if not handled properly. If material is distorted or otherwise damaged during storage or transportation, do not install it.

Great care is taken to properly label and inspect materials for defects at all phases of manufacturing and handling by Summit International Flooring. However, in the rare case where the wrong product or material with visible defects is shipped, these products must not be installed. Careful inspection of the product before installing is the responsibility of the flooring contractor. Installation of the product denotes acceptance of the product. Summit International Flooring will not honor any warranty complaints for materials installed in the wrong color, with visible defects or other damage.

Upon receipt of the flooring at the project, immediately remove from the pallet in the properly conditioned area. Do not stack pallets. ReadyRazzo® Tiles are a flexible product that conforms to the substrate beneath it, therefore it requires special attention to handling and storage. Stack the ReadyRazzo® Tiles, walking side facing up, in 3" high stacks (maximum), on a hard and smooth substrate, keeping the tiles both flat and parallel in the pre-acclimatized area for a minimum period of 72 hours.

Protect all materials and maintenance products from extremes of temperature during storage, like ones that might be experienced in a trailer, storage container, etc. In the event that material must be stored on pallets for more than 45 days prior to commencement of installation, the tiles might need to be returned to the manufacturing facility for reconditioning. Please contact Summit International Flooring for guidance in these cases.

5 SITE CONDITIONS

Areas must be enclosed, weather tight, and properly conditioned at a constant ($\pm 5^{\circ}\text{F}$) service temperature that is between 60°F and 80°F with an ambient relative humidity between 35% - 65% for a minimum of 72 hours prior to commencement of installation, during the installation, and 96 hours after the installation.

The substrate surface must be at least 5°F above dew point. Example: If the ambient conditions are 70°F and 65% RH, the dew point is then 57°F and you must not proceed unless the surface temperature is at a minimum of 62°F . Dew point calculators are available online.

Note: If a system other than a permanent HVAC system is utilized, it must provide constant temperature and humidity control at specified levels for the specified time frame. Never force dry adhesives or patching compounds by using fans.

Areas of the flooring subjected to direct sunlight - through doors and windows, for example - must be covered using blinds, curtains, cardboard, or similar materials for 24 hours before, during, and for a period of 72 hours after the installation to allow the adhesive to cure.

6 SUBSTRATE PREPARATION

When cleaning the substrate, use only dustless vacuum cleaners to remove all dirt and debris.

6.1 Concrete Subfloors:

All subfloors must be absorptive, permanently dry, clean, smooth and structurally sound per *ASTM F710 — Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring*. Concrete subfloors must be free of dust, solvents, paint, wax, varnish, oil, grease, asphalt, old adhesives, and other extraneous materials that may interfere with the bond or void the warranty of the flooring. These must be completely removed by mechanical means only. Dustless diamond grinding is one method to remove contaminants and bond breakers, as it also helps to smooth the concrete. Any dry grinding must meet requirements under Table 1 for Osha Silica Standards.

It is the responsibility of the installing party to determine the suitability and porosity of the subfloor being covered. To determine if a subfloor is absorptive, perform the water droplet test.

- **Water Droplet Test:** When using Mapei Ultra Bond ECO 373 or ECO MS4 adhesive it is mandatory that the substrate be absorptive (porous) as detailed within ASTM F710. To determine this (after preparation), perform a water droplet test by applying a ~ dime size droplet of potable water using a clean straw or similar to the prepared surface. The water must absorb into the substrate within 15 minutes to be considered absorptive (porous).
 - **Note:** All leveling or patching compounds must be a minimum of 1/8" deep to both level properly and be considered absorptive.

If the concrete is non-absorptive, polished or burnished, then mechanical preparation is required to open up the surface and make it absorptive. This can be achieved by shot-blasting, diamond grinding or using a DiamoBrush concrete prep plus tool, 100 or 25 grit on a rotary sanding machine with a suitable dust control system in place.

- **Warnings:** All local, state and federal regulations must be followed. Do not sand, dry sweep, dry scrape, drill, saw, shot-blast or mechanically chip or pulverize existing resilient flooring, backing, lining felt, asphalt "cutback" adhesive or other adhesive. These products may contain asbestos fibers and/or crystalline silica. Avoid creating dust. Inhalation of such dust is a cancer and respiratory tract hazard. Unless positively certain that the product is a non-asbestos containing material, presume it contains asbestos. Regulations may require that the material be tested to determine asbestos content. Various local, state, and federal government agencies have regulations governing the removal of in-place asbestos-containing material. If you contemplate the removal of a resilient floor covering structure that contains (or is presumed to contain) asbestos, all applicable regulations must be reviewed and complied with. Do not use any chemical adhesive removers. The RFCI's (Resilient Floor Covering Institute) "Recommended Work Practices for Removal of Resilient Floor Coverings" is a defined set of instructions that addresses the task of removing all resilient floor-covering structures, including adhesive and adhesive residues. For more information, contact RFCI directly at www.rfci.com or 706-882-3833.
 - **Note:** Occupational Safety and Health Administration (OSHA) has amended its existing standards for occupational exposure to respirable crystalline silica. OSHA has determined that people exposed to respirable crystalline silica at the previous permissible exposure limits face a significant risk of material impairment to their health. For more information visit <https://www.osha.gov/silica/>.

ReadyRazzy® Tiles are a flexible product that conforms to the substrate beneath it, therefore it requires special attention to substrate preparation or the irregularities will mirror through the finished flooring. The requirement is the substrate must be both smooth (ridge-free) and with a minimum

flatness tolerance of $\leq 1/8"$ over 10 feet. Irregularities in the substrate must be repaired using only commercial grade self-leveling or patching compound that has a minimum compressive strength ≥ 3000 psi. All leveling compounds must be a minimum of $1/8"$ deep and be fully warranted by the manufacturer for the use of the project, including the moisture conditions, priming etc., following the manufacturers written instructions. When dry, sand the surface smooth using a 36 grit sanding disc, screen or similar on a single disc rotary machine with a suitable dust control and clean the floor.

No expansion joint or moving joint can be covered over or filled. Use a suitable industry standard expansion joint assembly system as required. Permanently dormant control joints and cracks must be properly cleaned out to remove all dirt and debris or contaminants and filled to a smooth finish using a suitable commercial grade self-leveling or patching compound, following the manufacturers written instructions.

- **Adhesive and Grout Test:** Perform an adhesive test away from your start lines (to be removed later). Apply ~ one SF of Mapei Ultrabond Eco 373 or ECO MS4 Adhesive using the notched trowel on the properly prepared substrate and record the "working time". On porous substrate, ReadyRazzo® Tiles can be installed into semi-wet adhesive. It is important to monitor and record how long it takes for the adhesive to dry. This will determine how large an area to spread and lay ReadyRazzo® Tiles before spreading more adhesive. The goal is to prevent unnecessary waiting and achieve an installation rhythm. As per the training protocol, the end of the working time should begin as the adhesive becomes "Dry-to-the-touch". The time will vary depending on site and substrate conditions. From the time that adhesive condition is reached the working time is two (2) hours and the flooring must be installed and rolled within that time frame. When installing, it is the flooring contractor's responsibility to take into consideration the conditions and the available working time and make adjustments for the size of each section to be installed. It is also recommended that a grout test be done to determine if any staining will occur. Mapei Flexcolor CQ is designed with colored quartz aggregate to prevent staining and substituting any other manufacturer's unsanded grout can risk the chance of staining the natural aggregates used in ReadyRazzo® Tiles. This test is recommended anytime that natural stone is grouted by all grout manufacturers.

6.2 OTHER SUBSTRATES

For all other types of substrate, it is mandatory to contact Summit International Flooring at 877-496-3566 for consultation, scheduling a possible site review, and project-specific instructions regarding the subfloor preparation before installation.

7 LAYOUT

The material layout should be decided by the architect, designer or end user. Summit International Flooring generally recommends that the tiles (2' X 2') are installed point to point. Panels (2' X 4') should not be installed butt joined.

Measure and mark starting lines using a string line, straight edge/pencil, and the 3:4:5 method. Take care in planning so as to avoid having small cuts at the perimeter.

ReadyRazzo® Tiles are a natural product and each tile is individually cast - no two tiles are exactly the same. For this reason, it is necessary to dry lay the floor tile in sequenced courses prior to installation to inspect and ensure that the visual properties will flow smoothly from one tile to the next. The installer must dry lay the tiles, step back and review the appearance of the installation before proceeding. Tiles should be turned, rotated, or used as perimeter cuts if necessary in order to achieve a more uniform look. It is advisable for the specifier and/or end user to be present for approval at this time.

8 INSTALLATION

After the substrate is prepared properly, the area must also be kept free of any other trades or traffic (protect if necessary) and remain clean. When cleaning the substrate, use only dustless vacuum cleaners to remove all dirt and debris.

As required, cut tiles using a wet or dry saw or angle grinder with a wet or dry blade cutting kit and continuous rim diamond blade. The advantage to dry cutting is not introducing water into the installation area and not having to dry cuts before installing them. **Note:** Do not use a conventional tile cutter.

8.1 Sanitary Cove Base (Flash Coving) Installation:

If required, the Sanitary Cove Base must be installed before proceeding with flooring tile installation. Inspect all walls to receive Sanitary Cove base to ensure there is sufficient and flat dry substrate to adhere the cove so it will not move. Do not proceed with the installation if repairs are needed to the wall substrate.

Bullnose wall base or wall tiles are installed after the floor tiles are installed.

Dry fit the ReadyRazzo® sanitary cove base by starting at a door frame or inside corner then proceed in sequence around the entire perimeter including all inside and outside corners and straight sections. All should be match-marked and cut. Cut each end of the sanitary cove piece with the appropriate straight or angle cut, using a chop saw with a finish wood blade and the appropriate dust control. Each piece will be butt tightly to its adjacent piece as it is fixed in position at the base of the wall.

Maintain a consistent 1/16" gap between all sanitary cove bases and the door frames. All cut markings should be made in pencil.

Note: A hot air gun may be used to flex the base pieces to conform to site conditions. Once cooled, ReadyRazzo® sanitary cove base will retain the flexed shape when adhered.

Adhere the sections one at a time into position using either Mapei Ultra Bond ECO 373, or use Mapei Type 1 Professional Tile Adhesive (note the drying time for Mapei Type 1 tile adhesive is longer than Mapei ECO 373 or ECO MS4). Apply a thin amount of adhesive to each cut end of the sanitary cove piece, push each end against the previously fixed piece to eliminate any gap between the sanitary cove ends.

Clean-up: Immediately remove any excess caulking or adhesive using a clean cloth and mineral spirits. Firmly press and roll back towards the prior section with a hand roller to ensure proper positioning and bonding.

8.2 Tile Installation:

Mapei grout installations: It is customary to start from the center of the room using your start lines. The recommended method is to complete one row at a time. In corridors and small spaces, it may be simpler to work lengthwise from one end, using the start line as a guide. Install the tiles tightly against the spacers to maintain the 1/16 of an inch grout line. A 1/16" gap should also be left around all door frames, etc.

Prior to installing the tile in each row, dry lay a 3 tile wide row of tiles the length of the row. Checking each tile for visual acuity to the adjacent tile. After checking the tiles, neatly stack the tiles in the same position and place the stack where you will begin the row near the center of the room.

Apply Mapei Ultra Bond ECO 373 or ECO MS4 adhesive with a 1/16 x 1/16 x 1/16 square notched trowel evenly, without the formation of puddles or voids. Do not make any sharp turns with the adhesive trowel as this practice can result in uneven adhesive, drying, and bond failure.

After the proper "Modified wet set" has been tested and achieved place the tile into the adhesive bed, using the proper 1/16" spacers. Immediately after placement into the adhesive bed, slowly roll in both directions after each row is finished using a three part 100 lb roller to roll the row of tile slowly in each direction, north to south and east to west. Keep rolling the previously installed rows along with the current row until each row of tile has been rolled three times in each direction.

After the tile have set up in the adhesive and no longer move when walked on apply the Mapei Flexcolor CQ grout as instructed by Mapei and remove the excess with a wet sponge. Mapei has an excellent video on their web site showing how to perform this task.

8.3 Walls Tiles/Bullnose Cove Base Tiles

After installing the floor tile, wall tile or cove base tile can be installed on top of the floor tile or on top of the sanitary cove if required. Carry all floor joints through to the wall or cove base tile. All joints or spaces between tiles should be filled with a silicone caulk color matched to the color of the resin in the tile.

Adhere each piece to the wall using either Mapei Type 1 Professional Tile adhesive, appropriate double-sided contact tape (Siga or similar) applied to the back of the cove base, or use Mapei Ultra Bond ECO 373 or ECO MS4 using a 1/16 x 1/16 x 1/16 square notched trowel on the wall and the flat side of a trowel to apply a thin layer to the back of each individual piece. Once the Adhesive has achieved the proper "modified wet set" fix the pieces to the wall and roll them in both directions using a soft vinyl roller. If the wall has deviations then it may be necessary to apply heat with a heat gun to allow the tile to relax enough to adhere to the wall. Use your vinyl roller after applying the heat to fully fix the tile to the wall.

When placed into the correct position, roll the tiles firmly into place using an extendable wall roller. This must also be re-rolled at least twice more every 30 minutes.

9 CLEANING PRIOR TO FINISHING

Remove all surface soil, debris, sand and grit by sweeping, dust mopping or vacuuming. Scrub floor with a neutral detergent, such as Hillyard Super Shine All or equivalent, following the instructions and dilution rates per the label. Apply with a mop and bucket using as little solution as possible. Do not saturate the floor. Do not let dirty mop water get into the seams between the tile.

Scrub with a single disc scrubbing machine or an automatic scrubber using a scrubbing pad (either red or white depending on soil load). Then remove the slurry with the vacuum attachment or a wet-vacuum, rinse thoroughly with clean water and allow floor to completely dry.

10 PRIMING/SEALING AND FINISHING

Project-specific priming/sealing and finishing procedural documentation is administered by the product and technical training specialist at the time of order, depending on what has been selected by the architect/owner. Please refer to this information for the proper protocol and next steps.

To minimize the chance of damage, proper glides must be used on chairs and other furniture that may slide directly across the floor. They must have glides that are a minimum of 1" in diameter. Heavy objects such as equipment, appliances, fixtures and heavy furniture must not be moved directly across the floor. Using protective boards will reduce the chance of damage.

Direct sunlight can cause UV damage (fading or bleaching) to most interior finishes so Low E glass should be selected that will reduce the UV transmission to less than 1%. If glass without sufficient UV protection has already been installed, apply 3M™ protection film (or similar) on the windows to reduce the UV transmission to less than 1%. Please contact the film manufacturer for specific recommendations and application instructions.

Note: These instructions supersede any verbal or written instructions from Summit International Flooring representatives, and must be followed for the warranty to be in effect.