



Quartz Tile Installation Guide

As changes occur in our installation systems, we will publish a new edition.
For the most up-to-date information, go to:

www.rikett.net

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1. BEFORE STARTING THE JOB - MOISTURE TESTING

CONCRETE MOISTURE AND pH TESTING

Before beginning the installation: Test all concrete slabs for moisture and alkali regardless of the slab's age or grade level. New concrete slabs must be properly cured and dried before installation of our RQT. *Drying time before slabs are ready for moisture testing will vary depending on atmospheric conditions and mix design.*

Conduct all concrete moisture tests following procedures outlined in **ASTM F 2170-16b** (Relative Humidity *in situ* Probe Test Method). For additional information about this procedure, contact the American Society of Testing and Materials (ASTM) at (610) 832-9585 or www.astm.org.

Rikett America requires that the concrete substrate must pass the internal Relative Humidity Test before a successful installation should proceed and can be accomplished.

Note: It is the floor covering installer's responsibility to ensure that these tests have been conducted and that the test results are acceptable before starting the installation.

CONCRETE MOISTURE & pH REQUIREMENTS

<u>Type of Test</u>	<u>Maximum Result</u>
F 2170 Relative Humidity <i>in situ</i> Probe Test	RH must not exceed 90%
pH readings	Must not exceed 11
ASTM F1869 Calcium Chloride Test	up to 8 lbs. MVER



Wagner Rapid RH[®] 4.0 Test Kit

Photo courtesy of Wagner



pH Testing Kit

Photo courtesy of Vaprecision

ASTM F 2170-16b RELATIVE HUMIDITY CONCRETE MOISTURE TESTING USING *IN SITU* PROBES

- Perform the required concrete moisture testing *only after the building is fully-enclosed and the HVAC system is fully-operational for at least one week.*
- Perform three (3) RH tests for the first 1,000 feet and at least one (1) additional RH test for each additional 1,000 square feet.
- Select your test probe locations to provide information about moisture in areas of potential high moisture. For slabs on-grade and below-grade, include a test location within 3 feet of each exterior wall.
- Follow the procedures as described in **Test Method F 2170-16b**. Failure to follow the detailed procedures in F2170 can lead to a moisture-related installation failure.
- Field testing has found that the **Wagner Rapid RH[®] 4.0 System** provides consistent RH results. For more information, visit the Wagner website at www.rapidrh.com.

pH Testing – Concrete floors must be tested for alkalinity prior to the installation of our RQT. To test for pH at the surface of a concrete slab, use wide range pH paper, its associated pH chart, and distilled or de-ionized water. Place several drops of water on a clean concrete surface, forming a puddle 1 inch in diameter. Allow the puddle to set for 1 minute, and then dip the pH paper in the water. Remove immediately and compare to the chart to determine the pH reading.¹ Readings in excess of 11.0 will cause acrylic adhesive bond failure.

Document All Test Results – Moisture and pH test results need to be documented by the person conducting the testing and submitted to the general contractor/architect/building owner at the time of testing. This is important, as moisture and/or excess pH conditions that occur after the floor covering installation is completed are not the responsibility of the installer or Rikett

2. MATERIAL HANDLING AND STORAGE – RQTs is composed of more than 70% natural quartz. It is extremely tough, durable and easy to maintain. The high quartz content provides exceptional durability and superior wear resistance.

- Store all cartons of tile flat and squarely on top of one another. Do not lie on edge.
- Store all flooring products, adhesives, and maintenance products in a dry, temperature-controlled interior area at **65 – 80°F**. Avoid temperature extremes.
- Acclimate all materials to job site conditions. Deliver the material to the job site **at least 48 hours** prior to installation.

3. JOB SITE CONDITIONS

- Visit the jobsite to confirm site conditions & floor measurements.
- The jobsite needs to be well-lighted so that the installers can properly prepare the substrate and install the floor.
- Allow other finishing trades, especially the overhead trades, to complete their work before beginning the flooring installation. During spackling and painting, cover the substrate to prevent contamination or staining. Such stains can cause adhesion failures and product discoloration.
- Close working spaces to traffic for 12 hours before installation and at least 12 hours after installation. This will minimize the chance of damaging the new floor.
- The building's heating and air conditioning system needs to be in full operation for at least one week prior to moisture testing and floor installation.
- Portable heaters are not acceptable.
- Kerosene heaters should never be used where floor covering products will be installed. They heat the air, not the substrate. They also leave a residue on the substrate.
- **Ambient Jobsite Conditions** - For 48 hours before installation, during the installation, and for 48 hours after installation, keep the temperature of the flooring material, the adhesive, the space to receive flooring, and the subfloor between **65°-80°F or the conditions expected during normal occupancy**. Thereafter, the minimum temperature needs to be **55°F**. Be sure the adhesive and the flooring acclimate to the job site conditions by delivering all materials to the job at least two days prior to installation.

4. SUBSTRATE PREPARATION

RQT can be installed on wood substrates and concrete substrates that are

- On grade
- Above grade
- Below grade

Wood substrates: Use **APA approved** underlayment type plywood such as APA Underlayment EXT. Wood subfloors should be -

- Double layer construction
- Minimum one-inch total thickness
- Minimum 18 inches of well-ventilated air space beneath the wood substrate
- All crawl spaces must be insulated with a vapor retarder
- The top layer of the wood substrate must be completely free of knots or other voids in its surface
- Caution - Do not install over 'sleeper' floors or plywood floors that have been installed directly over a concrete slab.

- **Unacceptable wood surfaces include**, but are not limited to, Luan, plywood with knots, underlayments made of pine or other soft woods, particle board, chipboard, flake board, oriented strand board (OSB), Masonite™ or other hardboard underlayments, hardwood flooring, textured or cushioned flooring, or other uneven or unstable substrates.
- Cover unacceptable wood surfaces using a 1/4-inch or thicker wood panel underlayment system such as TECPLY® (www.tecply.com). Follow the panel underlayment manufacturer's written instructions for spacing, nailing, and seam treatment for underlayment panels.

Concrete Substrates **Responsibility for the concrete warranty** - Regardless of the type of concrete or cement-like material that is used as a substrate, in the event of any underlayment failure, the responsibility for warranty guarantees rests with the concrete or cement-like manufacturer and not with the manufacturer of the resilient flooring.

Concrete Slab Construction New and existing concrete substrates must meet the requirements of the latest edition of **ASTM F710 *Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring***. **ASTM F 710 and its appendix** contain guidelines regarding concrete slab construction, and specific information regarding lightweight concrete, water- cement ratio, curing procedures, alkalinity, moisture retarders, flatness and levelness, and additional reference documents.

Minimum Concrete Substrate Requirements: To ensure a successful RQT installation, concrete substrates must be structurally sound to receive resilient flooring material and must meet these minimum requirements:

- A minimum compressive strength of 3000 psi
- A concrete mix water/cement ratio of less than 0.45
- A minimum density of 115 lb./cubic foot

Lightweight concrete (concrete with a density of less than 115 lb/cubic foot) may not be a suitable substrate for RQT. Lightweight concrete suffers from fundamental problems that include, but are not limited to:

- Low compressive strength
- Surface porosity and breakdown
- High moisture content
- Excessively long drying times
- Surface indentation due to its low compressive strength

ASTM F 710 clearly states: *Lightweight concrete, less than 115 lb./cubic foot, may have such low strength that it is unsuitable for covering with resilient flooring...* In addition, floors

containing lightweight aggregate or excess water and those that are allowed to dry from only one side, such as concrete on metal deck construction, may need a much longer drying time.¹

Contact Rikett America Technical Support at **855-745-3887 XT 2** before installing our Quartz Tile on lightweight concrete.

Flatness and Levelness – Concrete substrates need to be smooth to prevent irregularities and roughness from telegraphing through the new RQT. The surface of the concrete needs to be *flat within the equivalent of 3/16 inch in 10 feet and within the equivalent of 1/32 inch in 12 inches*. For more information on flatness and levelness, consult **ASTM F710-11** Section 4.6 and X 1.7.

Concrete Surface Preparation - ASTM F710-11 *Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring* states: *All substrates to receive resilient flooring shall be permanently dry, clean, smooth, and structurally sound. They shall be free of dust, solvent, paint, wax, oil, grease, residual adhesive, adhesive removers, curing, sealing, hardening, or parting compounds, alkaline salts, excessive carbonation or laticence, mold, mildew, and other foreign materials that might prevent adhesive bond.¹*

Concrete floors must be structurally sound and -

- Permanently dry
- Clean
- Smooth
- Free of dust, sealers, paint, wax, oil, grease, residual adhesives, adhesive removers, coatings, finishes, dirt, film-forming curing compounds, silicate penetrating curing compounds, sealing, hardening, or parting compounds and any other substances that will interfere with the adhesion of the new Quartz Flooring or with the rate of moisture dissipation through the top surface of the slab.
- Use only non-chemical methods, such as bead blasting or abrasive cleaning, to remove all bond breakers from the surface of the concrete. Removal procedures need to be completed at least 48 hours before any concrete testing is begun.
- Do a **bond test** on any floor where foreign substances have been removed. Install several tiles in random areas according to the installation instructions described in this guide. Allow the adhesive to set for 24 hours. If the tile and adhesive are easily removed from the substrate, the slab is still contaminated. Additional preparation will need to be done. A second bond test will be needed.

WARNING: *Exceptionally porous, soft, or dusty concrete surfaces may have such low strength that they are not suitable for installation of resilient floor coverings. It may be necessary to mechanically remove the top layer of concrete in such cases. Such surfaces may need to be primed and covered with a latex patching or underlayment compound.*

Consult with a manufacturer of patching or underlayment compounds or someone with expertise in concrete problems.²

Note: Rikett America does not recommend installation of its RQT over gypsum concrete.

Moisture Vapor Retarder – For all RQT installations on grade or below grade, there must be a permanent, effective moisture vapor retarder installed directly below the slab. The retarder must be at least 0.010 inches thick with a permeance of 0.1 y (perms). This retarder is typically incorrectly called a moisture vapor barrier. Provided it has not been ripped or torn, this vapor retarder will reduce the potential severity of water vapor penetration into the concrete slab from groundwater sources.

Alternate approved substrate – RQT can be successfully installed over well-bonded Quartz Tile, VCT, VAT or solid vinyl tile. To ensure a successful installation, the tile must be -

- Single-layer of Quartz Tile, VCT, VAT, or solid vinyl tile only
- Free of all waxes and floor finishes
- Free of all dirt and debris
- Fully dry
- Securely bonded to the substrate
- Flat with no raised areas

The performance of the finished floor is directly dependent upon the condition and continued bond of the existing floor tile. Any irregularities in the existing flooring (such as bumps, depressions or tile joints) will telegraph through the new floor. If the tile's surface is not sufficiently smooth, it may be preferable to remove the tile before beginning the installation.

Other Substrates - Cement terrazzo or metal may be suitable for RQT. Check with your patching/leveling compound manufacturer for guidelines on preparing these substrates. For metal substrates, remove all dirt, rust, oil or other contaminants. Contact Rikett Technical Support at 855-Rikett 7, (855-745-3887) XT 2, before installing our Quartz Tile on metal.

Unacceptable Substrates - Epoxy terrazzo, rubber, cork, and asphalt tiles are not acceptable substrates on which to install our RQT. To successfully install our RQT, remove these using mechanical means.

Patching or Underlayment Compounds - Use a **Portland-based** patching material or underlayment compound to fill all surface cracks, grooves, depressions, control joints or other non-moving joints, and other surface irregularities. Choose a product that is moisture,

mildew, and alkali resistant with a minimum of 3000 PSI compressive strength after 28 days. **Note:** We do not recommend gypsum-based products.

Expansion joints - *Joints such as expansion joints, isolation joints, or other moving joints in concrete shall not be filled with patching compound or covered with resilient flooring.¹ Use an expansion joint covering system.*

Removal of Existing Resilient Floor Coverings - If you decide to remove an existing floor please be aware that existing floors and adhesives may contain asbestos fibers that cannot be easily identified except by laboratory testing. Improper removal of asbestos containing materials (including, but not limited to, vinyl asbestos tile, asphalt tile, felt backed sheet goods, asphalt 'cutback' adhesives and other flooring materials) can create asbestos dust, a known health hazard.

ASBESTOS WARNING! *Do not sand, dry sweep, dry scrape, drill, saw, bead blast, or mechanically chip or pulverize existing resilient flooring, backing, lining felt, asphaltic '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. Smoking by individuals exposed to asbestos fibers greatly increases the risk of serious bodily harm. Unless positively certain that the product is a non-asbestos-containing material, you must presume it contains asbestos. Regulations may require that the material be tested to determine asbestos content.² A pamphlet from the **Resilient Floor Covering Institute** entitled **Recommended Work Practices for Removal of Resilient Floor Coverings** provides a defined set of instructions for removing all resilient floor-covering structures.*

NOTICE: *Various federal, state and local 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, you must review and comply with all applicable regulations.*

Note: RQT CONTAINS NO ASBESTOS!

Installing on Substrates Contaminated with Adhesive Residue

Asphaltic Adhesive Residue - Do not install RQT directly over adhesive residue or paint. Do not skim coat over old adhesive using patching compound. Where existing asphaltic (black) adhesive is present, remove all adhesive residues off the subfloor. No adhesive residue or adhesive trowel ridges should remain. REFER TO THE ASBESTOS WARNING ABOVE.

Water-based Adhesive Residue - This adhesive residue must be thoroughly removed prior to applying a patching or underlayment compound. This includes old carpet and VCT adhesive. Do not skim coat over water based adhesive residue using patching compound.

Chemical Adhesive Removers – Rikett does not recommend the use of chemical adhesive removers. There are chemical adhesive removal products effective in removing cutback or emulsion adhesives that comply with OSHA requirements. However, these products leave a residue within the subfloor that interferes with the bonding of the new floor's adhesive. Concrete subfloors contaminated by chemical adhesive removal products will require mechanically abrasion to remove 100% of the residues.

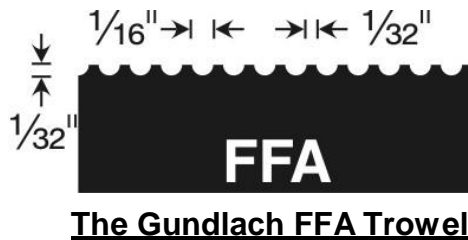
Radiant heated floors – RQT may be installed over a radiant heated floor as long as the slab temperature does not exceed 85°F under any condition of use.

5. ADHESIVES

Rikett has invested much time and research in testing the best adhesives for use with its RQT. We recommend only three adhesives to install our tile on concrete and wood substrates:

- 1) **Mapei Ultrabond ECO® 360** Hard Setting Adhesive – www.mapei.us
- 2) **Spray-Lock® 9500** as an alternate to trowel adhesives – www.spraylock.com.
- 3) **Aquaflex Water-Proof Adhesive System** from Formulators – www.formulators.com

Use of Alternate Adhesives - Should RQT be installed with adhesives other than **Mapei ECO 360, Spray-Lock 9500** or **Aquaflex** all adhesive related performance problems are the responsibility of the manufacturer of the alternate adhesive used. Potential problems include, but are not limited to: *indentation, shrinkage, shifting, bubbling, edge swelling, adhesive oozing, moisture related failures, etc.*



***Spreading adhesive with the wrong trowel is the cause of many installation failures!
If you don't have the FFA Trowel, don't start the installation!***

The Gundlach FFA Trowel is the correct trowel for applying **Mapei Ultrabond ECO 360** adhesive. The trowel acts as a measuring device. The FFA Blade is a fine notch (1/16"x 1/32"x 1/32") professional trowel that is available either with a wooden handle or as part of the Versablade System.

- Periodically check your trowel for wear.
- Do not re-notch the Gundlach trowel blade by hand.
- Replace the trowel every 1,000-2,000 s/f.
- Clean old adhesive from your tools using warm water and detergent or mineral spirits.

Adhesive

Specifics -

- 4-gallon container – coverage is approximately **500 - 700 square feet** per 4 gal. container when using the Gundlach FFA Trowel (1/16" x 1/32" x 1/32" notch)
- Minimum set up time 20 – 35 minutes; dependent on temperature, humidity & airflow
- Adhesive open (working) time - **1 ½ to 2 hours**
- Shelf life: Mapei ECO 360 – Two (2) years. (Shelf Life is defined as from the date of adhesive manufacturing, not the date of purchase)

Instructions for spreading the adhesive -

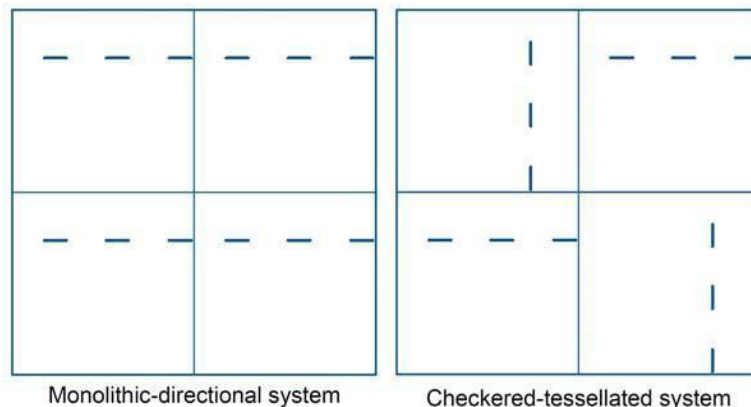
- Spread the adhesive using the Gundlach FFA trowel blade
- Spread evenly. Avoid leaving any puddles of adhesive.
- After spreading, allow the adhesive to dry to the touch before laying tile into the adhesive bed. Minimum set up time is 30 minutes.
- Adhesive is ready when a fingertip touched to the adhesive bed shows only the ridges from the trowel notching.
- If installing over an existing tile floor, the adhesive will require more set up time.
- Roll the tile within an hour after placing the flooring into the adhesive bed.
- Roll the floor in both directions, with a 100 lb. Three-section roller. Overlap the previous rolled area by 1/2 of the width of the roller.

Rikett America currently does not market nor is it an authorized reseller of any adhesive system. Consequently, Rikett America does not provide the warranty coverage for adhesive systems. Support for product performance claims and warranty coverage for **all approved adhesive systems** is provided solely by the adhesive manufacturers.

6. RQT INSTALLATION

RQT features a unique visual directional shading effect created by its manufacturing process. RQT must be installed with the directional markings on the tile back aligned in the same direction. Check the diagram on the tile cartons for correct orientation.

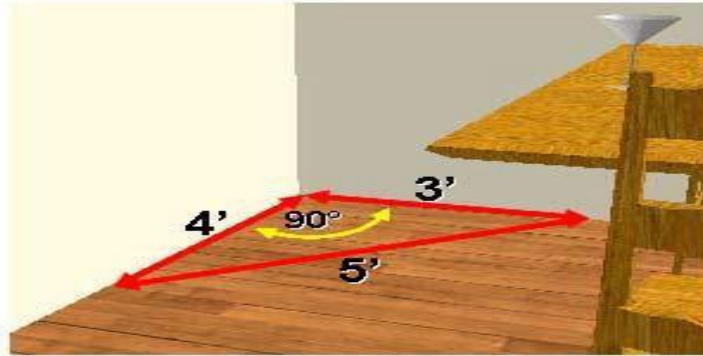
Back of Tiles



- Sweep and/or vacuum the substrate before spreading adhesive.
- Use one wall as a guide. Place the tiles with the lines on the tile back running

parallel toward the wall.

- Drop two chalk lines to square the room. Use the 3-4-5 squaring method.
- **3-4-5 squaring rule** - At the intersection of the two chalk lines, measure along one line and place a mark at 3 feet. On the opposite side of the intersection, measure and place a mark at 4 feet. Measure the distance from the two marks. If the intersection is square, the distance will be 5 feet. Adjust the chalk lines as needed so that the border tiles are the same size on each side of the area. Be sure to also consider the tiles in the doorways or additional design criteria when adjusting the lines. Dry lay several tiles to determine the best layout.



3-4-5 right
angle

*Diagram courtesy of
Wiki-How*

- Spread the adhesive in one quadrant at a time to control runoff.
- Once the adhesive is fully set, lay tiles following the standard point-to-point installation method. Use a pyramid layout beginning at the intersection of the two chalk lines.
- Allow 3/16-inch expansion space at the perimeter and around all stationary objects.
- Do not mix tiles from different batches, boxes or pallets. Install batches in numerical sequence according to batch number on the carton label. Start by laying all tiles from one carton. Then start a new carton. Install tiles from the last produced tiles sequentially to the first produced tiles, using batch numbers on the carton labels as a guide, to insure proper shade distribution.
- Roll the tile into the adhesive bed within 1 hour. Roll in both directions using a 3-section, 100 lb. roller, overlapping each pass by $\frac{1}{2}$ of the width of the roller. Roll a second time in a direction at 90 degrees from the direction of the first roll.

7. PRODUCT SIZE AND PACKAGING INFORMATION

Standard Tile Size:

- A. 24 inch x 24 inch** (609.6 mm x 609.6 mm) x **2.0 mm**, (0.080 in) thickness
60.0 ft.² per carton (15 tiles per carton) 48.06 lbs. per carton.
2,760 ft.² per pallet (46 cartons and 690 tiles per pallet) 2810 lbs. per pallet

Special Order Tile Size:

B. 12 inch x 12 inch (304.8 mm x 304.8 mm) x **2.0 mm** (0.080 in) thickness
40.0 ft.² per carton (40 tiles per carton) 32.03 lbs. per carton.
2,880 ft.² per pallet (72 cartons and 2,880 tiles per pallet) 2,356 lbs. per pallet

C. 12 inch x 24 inch (304.8 mm x 609.6 mm) x **2.0 mm** (0.080 in) thickness
60.0 ft.² per carton (30 tiles per carton) 48.06 lbs. per carton.
2,760 ft.² per pallet (46 cartons and 1,380 tiles per pallet) 2810 lbs. per pallet

Note: Other thicknesses are available as a special order

A. Thicknesses: 1.5mm, 2.5mm, 3.0mm 3.2mm (1/8 in.)

8. AFTER INSTALLATION

- A. The flooring installer should protect the finished floor from abuse by other trades and traffic by covering it completely with heavy commercial grade Kraft paper.
- B. Light foot traffic can be permitted 12 hours after installation.
- C. Keep all heavy traffic, equipment and rolling loads off of the floor for 48 hours.
- D. At all times, luan boards, plywood or equivalent should be used as required to protect the new floor from all heavy traffic, equipment and rolling loads.
- E. Inspect the floor for any damaged or misaligned tiles and replace them.
- F. Do not slide or drag pallets or heavy equipment across the new floor.
- G. While the adhesive is still wet: Clean all tools and adhesive spills with a white cloth dampened with water and mild detergent.
- H. When the adhesive is set: Clean all tools and adhesive spills with a white cloth dampened with mineral spirits. Follow with a water rinse.

Initial Maintenance

The new floor may be swept and lightly damp mopped. **Do not heavy wet wash for 72 hours.** After 72 hours follow the maintenance procedures found at www.rikett.net or call Technical Support at **855-Rikett 7 (855-745-3887)**.

Referenced Documents

This publication includes direct copyrighted quotes from accepted industry practices as follows:

1. Adapted, with permission, from ASTM **F 710, Standard Practice for Preparing Concrete Floors To Receive Resilient Flooring**, copyright American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428. Complete copies of these standards may be purchased from ASTM, phone (610) 832-9585, fax: 610-832-9555, e-mail service@astm.org, website www.astm.org

2. From **Recommended Work Practices for Removal of Resilient Floor Coverings**

by the Resilient Floor Covering Institute (RFCI) 401 East Jefferson Street, Suite 102, Rockville, MD 20850. phone: (301) 340 8580

3. Adapted, with permission, from **ASTM F 2170, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using *in situ* Probes**, copyright American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428. Complete copies of these standards may be purchased from ASTM, phone (610) 832-9585, fax: 610-832-9555, e-mail service@astm.org, website www.astm.org.

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