



Installation Instructions

Key Epoxy Terrazzo

I. GENERAL INFORMATION

KEY EPOXY TERRAZZO is a 100% solids, two component epoxy resin system containing colored pigments and mixed with a wide selection of decorative aggregates. **KEY EPOXY TERRAZZO** is trowel applied to a 1/4"-3/8" nominal thickness to provide an attractive terrazzo finish. **KEY EPOXY TERRAZZO** provides outstanding durability and wear resulting in the lowest life cycle costing of any flooring system available.

II. SURFACE PREPARATION

Surface Preparation is the most critical portion of any successful resinous flooring system application. All substrates must be properly prepared to a minimum CSP-3 surface profile and tested for moisture as outlined in **KEY RESIN COMPANY'S TECHNICAL BULLETIN #1**. Specific attention should be paid to the following:

- A. Concrete placement
- B. Curing and finishing techniques of the concrete substrate
- C. Age of concrete
- D. Previous contamination of the substrate
- E. Present condition of the substrate

Also, the temperature and humidity conditions of the area to receive the flooring system should be checked. An optimum room temperature of 75°F with a minimum slab temperature of 50°F is required for proper cure of the resin flooring system. If moisture vapor emission rate exceeds 3 pounds (calcium chloride test) or 79% RH (relative humidity probe test), apply Key Epocon SL at 1/8" thickness. Required surface preparation for Key Epocon SL is shot-blasting only.

III. MATERIAL QUANTITIES

A. Guideline System Requirements for 1000 ft² (for 3/8" Mortar Base)

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|---|-------------|
| 1. Key #502 Low Modulus Primer (use RC Formula only) | 4 gallons |
| 2. Key Epoxy Terrazzo #108 | 120 gallons |
| 3. Key Epoxy Terrazzo Filler | 600 pounds |
| #0 Marble Chips or Glass | 1200 pounds |
| #1 Marble Chips or Glass | 1200 pounds |
| #2 Marble Chips or Glass | 1200 pounds |
| 4. Key Epoxy Terrazzo Grout #108 | 3 gallons |
| 5. Key #801 Acrylic Sealer or Key #807 Acrylic Sealer
(two coats may be necessary) | 3-6 gallons |
| 5.A Key #450 Urethane Topcoat (in place of Key #801 Acrylic Sealer) | 4 gallons |
| (or) Key #446 Water Based Urethane
(two coats will be necessary) | 6 gallons |
| (or) Key #470 Polyaspartic Sealer | 5-6 gallons |
- Other sealers may also be suitable, consult with Key Resin

B. Recommended Batch Quantities (for 3/8" topping)

1. 6 gallons *Key Epoxy Terrazzo #108*
2. 30 pounds *Key Epoxy Terrazzo Filler*
3. 60 pounds #0 Marble Chips or Glass
4. 60 pounds #1 Marble Chips or Glass
5. 60 pounds #2 Marble Chips or Glass

(Note: proportion #0, #1, #2 aggregates as specified by the architect/designer)

Estimated Batch Coverage: 50-55 ft² at 3/8"

IV. INSTALLATION

Crack Repair: Cracks greater than hairline width must be routed and filled with Key #730, Key #502 or other rigid epoxy followed with application of Key #580 Flexible Membrane (minimum 24" wide along the length of joint, or full substrate coverage) and optionally reinforced with fiberglass scrim cloth (recommended for large cracks). Scrim cloth should be bonded to the surface of the cured Key #580 using Key #502 or very carefully placed on the surface of tacky Key #580 without imedding full depth into the wet membrane. If Key Epocon SL System (Key Epocoat resin) is to be used, fill cracks with Key Epocoat resin. Refer to Key Epocon SL detailed installation instructions.

Strip Placement for Joints: National Terrazzo and Mosaic Association (NTMA) guidelines state that all substrate control joints, expansion joints and cold joints should be brought up through the terrazzo topping using divider strips. Placement of control joint/sawcut and expansion/isolation joint divider strips is recommended as follows: Place double divider strips terminated on the joint edges and fill the joint with Key Joint Filler #780 (control joint/sawcut) or urethane sealant (formulated for use in floor expansion/isolation joints) supplied by other manufacturers. Do not use prefabricated double divider strips filled with neoprene. Cold/Construction joints require double divider strips placed in contact with each other "back to back" or a single strip.

If owner/architect/designer chooses to delete control joint divider strips and overlay control joints with flooring system, use procedures outlined below. Excessive joint movement over time may lead to a loss of bond over these joints or cause cracks to form in terrazzo topping. If 100% substrate coverage of flexible membrane and/or Key Epocon SL is specified, it is recommended to bond the joint divider strips to the surface of the membrane or Key Epocon SL. Strips should be adhered 100% with epoxy (such as Key #730) rather than spot adhesion. Control joints that are to be overlaid with terrazzo should be filled with *rigid* epoxy such as Key #108, Key Epocoat, Key Crack Filler #730. Do not fill joint with Key Joint Filler #780 unless exposing the joint. Filled joint should be coated with flexible membrane (minimum 32 mils thickness, 24" width along the length of joint, or full substrate coverage) and reinforced with fiberglass scrim cloth. Scrim cloth should be bonded to the surface of the cured Key #580 or very carefully placed in the surface of wet Key #580 without imedding full depth in the wet membrane. Full membrane + full scrim cloth requirements may allow for application of Key #580 over the scrim cloth, consult with Key Resin for approval.

A. Priming

Key Resin Company recommends that Key Epoxy Terrazzo system be installed with a primer to insure maximum adhesion to the prepared substrate and to aid in placement of the terrazzo mortar. If moisture vapor control system is specified (Key Epocon SL), it should be installed first.

IMPORTANT: Required surface preparation for Key Epocon SL is shot-blasting only. If crack isolation membrane is specified (Key #580), it should be installed over the moisture vapor control system. Priming on top of Key #580 is optional unless exceeding 48 hour recoat window.

1. Mixing **Key #502 Low Modulus Epoxy Primer**

Important Note: Use ONLY Key #502 Regular Cure Hardener (RC) when bonding to Key #108 Epoxy Terrazzo Binder, do NOT use Cold Cure Hardener, or delamination may occur. Exception: OK to use if applying terrazzo mortar over tacky primer.

- a. Thoroughly mix each component prior to combining.
- b. Mix two (2) parts by volume of Part A (Resin) with one (1) part by volume of Part B (Hardener) for three minutes with a low speed electric drill mixing paddle.

- c. If thinning is desired, add no more than one pint of xylene per gallon of epoxy at time of mixing.
 - d. **Mix only the amount of material that will be immediately poured onto floor and used (spread and backrolled) in 30 minutes. Do not leave in pail for longer than 5 minutes.**
2. Application
 - a. Pour primer onto the prepared concrete.
 - b. Spread with either a flat trowel or squeegee to a coverage of 250 ft² per gallon.
 - c. Back roll with a short nap roller. Do not allow the primer to puddle. Primer need only wet the concrete surface.
 3. Allow Primer to sit for 30 minutes. Trowelled mortar may be applied to wet primer for up to five (5) hours after primer application. If primer is to be allowed to sit overnight or for prolonged periods, broadcast lightly with dry 30 mesh silica sand. **Important:** Maximum recoat time for smooth primer (regular cure formula) is approximately 12-14 hours, thorough sanding is required if exceeding this recoat time.

B. Epoxy Terrazzo

1. Mixing batches of **Key Epoxy Terrazzo** should be done in a barrel-type (5 cubic feet) concrete mixer with stationary internal blades. This type of mixer mixes the blend of chips and epoxy very well and is easy to empty and clean.
2. It is also recommended that a polyethylene film be placed under and in front of the mixer and where **Key Epoxy Terrazzo** will be stored to ease in clean up.
3. Mixing:
 - a. Thoroughly mix each component prior to combining.
 - b. Mix five (5) parts by volume of Part A (Resin) with one (1) part by volume of Part B (Hardener) for three minutes at a low speed in the barrel mixer.
 - c. Slowly add **Key Epoxy Terrazzo Filler** into the mixed **Key Epoxy Terrazzo** while mixing in the barrel mixer until filler is completely wet.
 - d. Continue mixing and add required marble chips. Marble chips should be dust free and dry in order to prevent affecting the ultimate color and handling characteristics of the terrazzo.
 - e. Continue mixing blend of chips and terrazzo for 3-4 minutes or until a lump free, even mix is obtained.

Note: **Key Epoxy Terrazzo MUST be mixed in a mechanical mixer. It is impossible to adequately mix the liquid components with the marble chips and fillers by hand. Insufficient mixing of Key Epoxy Terrazzo will result in a stiff, dry, and hard to trowel blend that does not have sufficient excess epoxy to ensure a good strong bond to the substrate.**

- f. After thorough mixing, transfer material to trowel area using a wheelbarrow or buckets.

Note: **A properly mixed batch of Key Epoxy Terrazzo should have a glistening wet appearance. A small amount of catalyzed resin could be added to the first batch if it is slightly dry due to absorption of the epoxy into the mixing vessels and tools.**

- g. A complete batch of **Key Epoxy Terrazzo** will cover approximately 50-55 ft² at ³/₈" thickness. Do not mix more material than can be applied in 40-50 minutes. Working life and cure time of **Key Epoxy Terrazzo** are affected by changes in temperature. Do not install **Key Epoxy Terrazzo** in temperatures below 50°F. **Do not change epoxy resin/hardener ratios for any reason.**
 - h. It is not necessary to clean out the mixer as long as mixing is continuous. Thoroughly clean mixer prior to all work breaks, the end of the workday, or changes in color of the terrazzo. Equipment should be cleaned with xylene or other clean-up solvent.
4. Application:
 - a. Place terrazzo mixture on primed surface. Spread material in a line or in small areas to assist trowel mechanic. Do not pile material in large volumes.
 - b. Spread with flat trowel using the largest marble chip as a proper thickness guide using trowel to level and align chips.
 - c. Finish trowel with a machine trowel to improve production and compaction of the terrazzo in installations where it is feasible. A 36-inch, four blade machine is the most common type.

A trowelling lubricant such as anhydrous isopropyl alcohol can be used to provide better trowelling characteristics. Wipe the trowel occasionally with trowelling lubricant or spray lubricant lightly on the surface of the floor as power trowelling is in progress. Anhydrous isopropyl alcohol is the preferred trowelling lubricant.

- d. Allow the terrazzo to cure at least 12-16 hours (at 70 degrees F slab temperature).

C. Cove Base

Key Epoxy Terrazzo Cove Base material can be prepared on the job site by mixing **Key Epoxy Terrazzo** with fumed silica (Cab-O-Sil) during the normal mixing of the material.

Recommended Batch Quantities

1. 1 gallon **Key Epoxy Terrazzo Part A (Resin)**
2. 1½ pints **Key Epoxy Terrazzo Part B (Hardener)**
3. ½-1 gallon **Key Cab-o-Sil or Aerosil**
4. 1½-2 quarts **Key Epoxy Terrazzo Filler**
5. 2-2¼ gallons (36#) Marble Chips or Glass

Note: *Marble chips or glass used for the installation of cove base should be the same blend of chips or glass in both color and size as used in the floor installation.*

Estimated Batch Coverage: 25 lineal feet of 4 inch base

1. **Priming:** All priming applications require the use of **Key #502 Primer/Low Modulus Binder**. If movement is anticipated, fiberglass tape should be used to reinforce the cove section and reduce the chances of cracking due to floor and wall movement. Follow mixing and installation guidelines for **Priming** outlined earlier in these instructions.
2. **Mixing:**
 - a. Stir each component of **Key Epoxy Terrazzo** prior to mixing cove base material.
 - b. Mix five (5) parts **Key Epoxy Terrazzo Part A (Resin)** with one (1) part **Key Epoxy Terrazzo Part B (Hardener)** by volume.
 - c. Continue to mix while slowly adding marble chips and **Key Epoxy Terrazzo Filler**. Mix until thoroughly blended.
3. **Application:**
 - a. It is recommended that strips be used as a divider between the cove and the rest of the terrazzo floor.
 - b. Trowel epoxy terrazzo cove material into place. A trowelling lubricant such as anhydrous isopropyl alcohol can be wiped onto the trowel to aid in smoothing the cove. Anhydrous isopropyl alcohol is recommended.
 - c. Allow to cure overnight. Grinding and sealing of cove material.

D. Grinding and Grouting

1. Use 24 to 56 grit carborundum stones or diamond plates for the initial grind. If 100% glass aggregate is specified, consider wet grinding (instead of dry grinding) using carborundum stones (plugs) instead of diamonds to avoid generating too much heat which may cause fractures in the glass. Also with 100% glass, consider using a lightweight grinder for the initial rough grind to reduce the "bounce" that can occur with a larger heavy grinder when it rides over the rough textured chips, causing increased risk of impact fractures. An intermediate grind with 80 grit stones or diamond plates may be used prior to grouting. Keep the machine moving at all times, first in parallel lines, then diagonally across the floor.
2. Clean the floor after grinding. **Be sure the floor is clean and dry before applying Key Epoxy Terrazzo Grout.**

Grouting terrazzo floors is necessary in order to fill small air voids that are opened when grinding. If not filled, these voids will pick up dirt and cause a maintenance problem.

Key Resin Company recommends grouting with the same color **Key Epoxy Terrazzo Grout** as was used in the trowelled application. Using the faster curing **Key Epoxy Terrazzo Grout Hardener** will allow for grinding in 6-8 hours (at 70 degrees F slab temperature).

3. **Mixing Key Epoxy Terrazzo Grout**
 - a. Thoroughly mix each component prior to combining.

- b. Mix five (5) parts by volume of Part A (Resin) with one (1) part by volume of Part B (Hardener) for three minutes with a low speed electric drill mixing paddle. Silica flour can be added to the mixed **Epoxy Terrazzo Grout** to form a suitable paste for grouting.
- c. **Do not mix more material than can be used in 30 minutes.**
- d. Apply **Key Epoxy Terrazzo Grout** using a straight edge trowel tightly to the surface and allow to cure overnight before polishing. Broadcasting **Key Epoxy Terrazzo Filler** over the grouted surface will help absorb excess grout from the surface during the polishing process.
- e. Final polishing should be done with a 120 grit or higher grit stone or diamonds. Because of the hardness of the epoxy, finer polishing stones will produce a superior finish.

E. Sealing

Key Epoxy Terrazzo floors should be sealed with a terrazzo sealer or other suitable finish system. **Caution:** Some finish systems require *unsealed* terrazzo to function as designed and to achieve the desired aesthetic effect, consult with Manufacturer of the finish system for requirements. Any sealer or finish system not supplied by Key Resin should be properly tested with a mock-up before use. **Key Resin Company** recommends using one of the following depending on project requirements: **Key Acrylic Sealer #801, Key #807 Water Based Acrylic Sealer, Key #450 Urethane Topcoat, Key #465 Urethane Topcoat, Key #467-HS Low Odor Urethane Topcoat, Key #446 Water Based Urethane Topcoat, Key #470 Polyaspartic Topcoat.**

1. Application of *Key Acrylic Sealer #801*
 - a. Mix contents of can before use.
 - b. Apply using a short nap roller at a coverage rate of approximately 300-500 ft² per gallon. Apply one or two coats as required to achieve desired finish. If applying second coat, allow first coat to dry completely before application of second coat.
 - c. Allow to cure overnight.
2. Application of *Key #450 Urethane Topcoat*
 - a. Mixing
 - i. Thoroughly mix each component prior to combining. Add 5-10% SU-93 Thinner as needed to improve flow and reduce roller marks.
 - ii. Mix two (2) parts by volume of Part A (Resin) with one (1) part by volume of Part B (Hardener) for three minutes with a low speed electric drill mixing paddle.
 - iii. **Do not mix more material than can be used in 45 minutes. Do not let mixed material sit in pail longer than 5-10 minutes.**
 - b. Application
 - i. Pour material onto floor in a line and spread with flat squeegee to a coverage of 250 ft²/gallon. This will yield 3 to 4 mils dry film thickness.
 - ii. Immediately back roll slowly with a short nap mohair roller to even the surface texture of the coating.
 - iii. Do not open to light traffic for 24 hours. Full chemical cure and maximum resistance are achieved in five (5) days.
3. Application of other optional sealers
Consult product data sheet or Key Resin Technical Service for proper instructions.

F. Maintenance

Refer to Technical Bulletins #3, #3-A, and NTMA Terrazzo Care & Maintenance Guide for general recommendations.

IMPORTANT Caution: Thoroughly test any maintenance finish system or densifiers not supplied or approved by Key Resin to ensure the desired performance and aesthetics are achieved. Silicate based densifiers in particular should be carefully tested, as they react only with marble chips and will result in a higher degree of polish of the marble chips versus the epoxy matrix, possibly causing a mottled effect.