

GUIDE SPECIFICATIONS – section 9400
EPOXY THINSET TERRAZZO (Without A Crack Suppression Membrane)
REVISED MAY 2003

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Section includes thin-set epoxy terrazzo flooring (and cove base) as shown on the drawings.
- B. General provisions of Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's specifications, design data and installation instructions.
- B. Samples:
 - 1. Submit ___ samples, 6" x 6" x 3/8" for each color and type of terrazzo specified.
 - 2. Submit ___ samples, each 6" in length of each type and kind of divider strips specified.
- C. Certificates: Submit manufacturer certification that the products furnished meet specification requirements and NTMA standards.
- D. Shop Drawings: Showing layout of divider strips and control joint strips, base and border strips, and typical installation details and terrazzo color pattern.
- E. Material Certification: Supplier's/manufacturer's written certification that terrazzo materials provided meet or exceed specified NTMA properties.
- F. Contract Closeout Submittals: Submit 2 copies of (NTMA) written instructions for recommended periodic maintenance of each type of terrazzo.

1.3 QUALITY ASSURANCE

- A. NTMA Standards: Comply with specified provisions and recommendations of National Terrazzo and Mosaic Association, Inc. (NTMA).
- B. Installer Qualifications: Engage an experienced Installer who is a member of the NTMA and has in the past 5 years completed terrazzo installations similar in material and extent to that indicated for Project.
- C. Manufacturer's Instructions: In addition to specified requirements, comply with resin manufacturer's instructions and recommendations for substrate preparation, materials storage, mixing and application, finishing, and curing.
- D. Store materials in a clean, dry, heated location (minimum 50 degrees Fahrenheit).

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1.4 WARRANTY

- A. NTMA Member Applicator 1 (or two) year installation guarantee.
- B. Epoxy resin manufacturer 1 (or two) year product guarantee.

PART 2 - PRODUCTS

2.1 EPOXY TERRAZZO MATERIALS

- A. Epoxy Resin Primer, as recommended by Epoxy Resin supplier.
- B. Epoxy Resin: Mixed according to manufacturer's recommendation and tested without aggregate added. All specimens cured for 7 days at 75 degrees plus or minus 2 degrees Fahrenheit and 50% plus or minus 2% R.H. The products shall meet the following requirements.

Property	Test Method	Requirement
Hardness	ASTM D-2240 using Shore D Durometer	60-85
Tensile Strength	ASTM D-638 run at .2 min. Specimen made using "C" die listed in ASTM D-412	3,000 PSI min.
Compressive Strength	ASTM D-695, Specimen B cylinder	10,000 PSI min.
Chemical Resistance	ASTM D-1308 - 7 days at room temperature by immersion method must have no deleterious effects using the following contaminants: Distilled Water Mineral Oil Isopropanol Ethanol .025 Detergent Solution	1% Soap Solution 10% Sodium Hydroxide 10% Hydrochloric Acid 30% Sulfuric Acid 5% Acetic Acid

Manufacturer that meets or exceeds these requirements: Key Resin Epoxy Terrazzo

- C. Epoxy Resin mixed according to manufacturers recommendations and blended with marble chips, ground and grouted with epoxy resin according to 3.02 C - 2 , finishing to a nominal 3/8" thickness. All specimens cured 7 days at 75 degrees plus or minus 2 degrees Fahrenheit and 50% plus or minus 2% R.H. The finished epoxy terrazzo shall meet the following requirements:
 - 1. Flammability: When tested in accordance with ASTM D-635, the Epoxy terrazzo shall comply with the following value: Self-extinguishing, extent of burning 0.25 inches maximum.

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2. Thermal Coefficient of Linear Expansion: When tested in accordance with ASTM D-696, the Epoxy terrazzo will comply with the following value: 25×10^{-6} inches degrees Fahrenheit maximum. Temperature range - 12 degrees to 140 degrees Fahrenheit.
3. Bond Strength: When tested in accordance with Field Test Method for surface soundness and adhesion as described in ACI Committee No. 403 Bulletin Title No. 59-43 (Pages 1139-1141) the Epoxy terrazzo shall comply with the following value: 100% concrete failure minimum, with 300 PSI minimum tensile strength.

E. Marble Chips:

1. Size to conform with NTMA graduation standards. The marble size shall be NTMA #0 and/or #1 and/or #2.
2. Hardness according to ASTM C-241 Ha-10 minimum.
3. Chips shall contain no deleterious or foreign matter.
4. Dust content less than 1% by weight.

2.2 TERRAZZO ACCESSORIES

A. Divider Strips:

1. Stop and divider "L" strips; white alloy of zinc (or brass or plastic or aluminum), with a depth of 3/8 inch and a topping width of - (choose 16 gauge, 1/8" HT, _" HT, _" HT or whatever larger width is required).
2. Expansion joints: double "L" strips 16 gauge, white alloy of zinc material, 3/8 inch depth laid back-to-back _" apart with a flexible sealant insert.

B. Colorants:

1. Epoxy/urethane color-stable pigments.

C. Terrazzo Cleaner:

1. Ph factor between 7 and 10, where applicable.
2. Biodegradable and phosphate free.
3. Flash Point: ASTM D-56, 80 degrees Fahrenheit minimum.

D. Anti-Fracture Membrane:

1. Elastomeric crack-bridging membrane, 12 inches wide, self-adhering. Flex Guard or approved equal.

E. Sealer & Finisher

1. Penetrating solvent acrylic sealer, which shall not discolor or amber (Key Acrylic Sealer or approved equal).
2. Hard Surface Seal (FORTIFY by SC Johnson or approved equal)
3. Synthetic polymer finisher (VECTRA by SC Johnson or approved equal).

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PART 3 - EXECUTION

3.1 PREPARATION

- A. Examine concrete substrate to ensure that surface levelness tolerances are within tolerance ranges required by NTMA for type of terrazzo application specified.
 - 1. Concrete subfloor shall be level (maximum variation not to exceed $\frac{1}{8}$ " in 10'-0") and shall have a steel trowel finished surface. No curing agents or other additives which could prevent bonding should be used.
 - 2. Saw-cutting of control joints must be done (by Others) between 12 – 24 hours after placement of structural concrete.
 - 3. Notify General Contractor of unsatisfactory levelness tolerances. Do not begin installation until unsatisfactory tolerances have been corrected and are ready to receive terrazzo. Terrazzo is not intended to level the substrate and will only follow the contour of the concrete slab.
 - 4. General Contractor will modify or replace concrete not properly placed resulting in excessive honeycombing, cracking, or other defects. Any materials used to correct slab non-conformity must be compatible with the terrazzo system and must be approved by the Terrazzo Installer.

- B. Clean and prepare substrate to comply with NTMA specifications for type of terrazzo application indicated. Clean substrate of loose chips and foreign matter.
 - 1. Shot or bead blast concrete substrate using a BLASTRAC machine.
 - 2. After cleaning, rout cracks of 1/16" width or greater to create a "v" shape opening. Insert concrete pins to hold the cracks open. Pour self-leveling 100% solids epoxy filler into the cracks.
 - 3. After epoxy has cured, apply anti-fracture membrane (Flex Guard) to treated cracks.
 - 4. Fill holes in the floor with an epoxy filler as needed.

3.2 INSTALLATION, GENERAL

- A. For Epoxy terrazzo, comply with resin manufacturer's recommendations for priming, proportioning mixes, installing strips, and placing, curing, grinding, and finishing.

- B. Terrazzo selection: Matrix color(s) and aggregate (sprinkle) blend(s) to be selected by Architect.

- C. Install divider strips with construction adhesive as shown on drawings, directly above control joints in the sub-floor and where necessary to prevent irregular cracking.

- D. Install expansion strip directly over cold joints in the sub-floor by placing 16 ga angle-type divider strips back-to-back with $\frac{1}{8}$ " wide flexible filler between strips, flush with finish floor.

- E. Placing Terrazzo:
 - 1. Prime sub-floor with epoxy resin primer.
 - 2. Place terrazzo mixture in panels formed by divider strips.
 - 3. Trowel mixture to top of strips.

- F. Curing:
 - 1. Allow terrazzo to cure min. 24 hours before grinding.

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G. Finishing:

1. Rough Grinding:
 - a. Grind with 24-grit or finer stones or with comparable diamond plugs.
 - b. Follow initial grind with 80-grit or finer stones.
2. Grouting:
 - a. Clean terrazzo with clean water, rinse and allow to dry.
 - b. Apply grout using identical color as used in topping (epoxy colored matrix), take care to fill all voids.
 - c. Allow grout to cure min. 24 hours.
3. Fine Grinding:
 - a. Grind with 80-grit or finer stones until all grout is removed from surface.
 - b. Upon completion, terrazzo shall show a minimum of 70% of marble chips.

H. Cleaning and Sealing:

1. Wash all surfaces with a neutral cleaner.
2. Rinse with clean water and allow surfaces to dry.
3. Apply sealer in accordance with manufacturer's recommendations.

3.3 CLEANING, FINISHING AND PROTECTING

- A. Clean terrazzo after installation and initial sealing operations are completed, complying with sealer manufacturer's instructions.
- B. Apply 2 coats acrylic hard surface seal to comply with manufacturers recommendations.
- C. Apply 2 coats deep gloss acrylic liquid finisher to comply with manufacturer's instructions and buff to desired sheen.
- D. Protection.
 1. Upon completion, the work shall be ready for final inspection and acceptance by the Owner, or his Agent.
 2. The General Contractor shall protect the finished floor from damage and wear from the time that the terrazzo installer completes the work.

4.1 FINAL CLEANING

- A. Clean terrazzo as recommended by manufacturer of sealer and finisher and machine buff terrazzo floor as required when building is ready for occupancy (optional).