

## **EPOXY-RESIN TERRAZZO FLOORING**

### **GENERAL INFORMATION**

- 1.1 Epoxy-resin thin-set terrazzo flooring installed on concrete subfloors.
- 1.2 Comply with the recommendations of the National Terrazzo and Mosaic Association (NTMA): Design and Technical Data Book.

### **DESIGN REQUIREMENTS**

- 2.1 Specify submission of a minimum of three samples, minimum 6" x 6" for each color and type of terrazzo.
- 2.2 Specify submission of two, 6" minimum lengths of each type and kind of divider strips.
- 2.3 Specify submission of two copies of maintenance recommendations of NTMA or maintenance product members of NTMA.
- 2.4 Specify that suppliers shall furnish certification attesting that materials meet specification requirements.
- 2.5 Specify that suppliers furnish properly labeled Material and Safety Data Sheets which comply with current state and federal requirements.
- 2.6 Specify terrazzo type (select color and design from NTMA information guide or color plates, clearly stipulating any deviation. Where applicable specify that epoxy flooring shall match precast terrazzo flooring.
- 2.7 Marble chips: Specify acceptable chip sizes/range.
- 2.8 Stop and divider strips: Specify gauge white alloy of zinc, or (subject to review and acceptance of manufacturer) brass.
- 2.9 Where substrate cracking is anticipated and/or evident or where a waterproofing membrane is required specify a flexible epoxy membrane compatible with subsequent flooring materials, and acceptable to manufacturer of terrazzo products/system. Facilities shall be notified if significant work to the substrate is required or if the proposed product is subject to.....

DESIGN REQUIREMENTS

- 2.10 Where moisture vapor transmission level exceeds manufacturer’s recommendations specify installation of a moisture vapor transmission control system acceptable to manufacturer of terrazzo products/system.
- 2.11 Specify that terrazzo cleaner have a Ph factor between 7 and 10, where applicable, and that it be biodegradable and phosphate free.
- 2.12 Specify that terrazzo sealer have a Ph factor between 7 and 10, where applicable, that it shall not discolor or “amber,” that it shall have a flash point of 80 degrees Fahrenheit (min.) per ASTM D-56, where applicable, and that it shall be U/L listed as “slip resistant.”
- 2.13 Specify that terrazzo be mixed in accordance with manufacturer’s instructions, to meet specified design, property and tolerance requirements.
  - a. Performance Requirements (epoxy resin mixed according to manufacturer’s recommendations and tested without aggregate added after curing for 7 days at 75 degrees +/- 2 degrees Fahrenheit and 50% +/- 2% RH, shall meet the following requirements):

<u>Property</u>	<u>Test Method</u>	<u>Requirement</u>
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 have no deleterious effects.  The following contaminants used:  Distilled Water ..... 1% Soap Solution  Mineral Water ..... 10% Sodium Hydroxide  Isopropanol.....10% Hydrochloric Acid  Ethanol ..... 30% Sulfuric Acid	

.025 Detergent Solution .....5% Acetic Acid

Epoxy Resin shall be mixed according to manufacturers recommendations and blended with 3 volumes of Georgia White marble blended 60% #1 chip and 40% #0 chip, ground and grouted with epoxy resin according to 3.02 C-2-Finishing to a nominal 1/4" 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:

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.

Thermal Coefficient of Linear Expansion: when tested in accordance with ASTM-D-696, the Epoxy terrazzo will comply with the following value:  $25 \times 10^{-6}$  inches per inch per degrees to 140 degrees Fahrenheit maximum. Temperature range -12 degrees to 140 degrees Fahrenheit.

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.

Marble Chips: Size shall conform to NTMA gradation standards. When tested in accordance with ASTM C 131-89 Abrasion and impact resistance, shall not exceed 40% loss. 24-hour absorption rate shall not exceed 0.75 percent. Chips shall contain no deleterious or foreign matter. Dust content shall be less than 1 percent by weight.

## CONSTRUCTION REQUIREMENTS

- 3.1 Contractor shall examine areas to receive terrazzo for defects in existing work that affect proper execution of Epoxy Terrazzo such as cracks in substrate that will be transmitted through topping to surface and deviations beyond allowable tolerance for concrete slab work. Start epoxy terrazzo work only when all defects have been corrected.
- 3.2 Fire and Toxicity Hazard: There shall be no undue fire hazard before or after setting. Fumes from volatile ingredients shall not be more toxic than those resulting from use of ordinary paint.
- 3.3 Coordinate furnishing and setting of floor drains, and other items in contact with epoxy terrazzo.

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- 3.4 Concrete subfloors shall be level (maximum variation shall not exceed ¼" in 10-feet) and to have a steel trowel finished surface. No curing agent or other additives which could prevent bonding shall be used. Slab-on-grade shall be placed on an efficient moisture barrier.
- 3.5 Areas to receive terrazzo flooring shall be broom cleaned and free of loose chips, laitance and all foreign matter.
- 3.6 Contractor shall provide sufficient water, temporary heat and light, and adequate electric power with suitable outlets within 100-feet of work area.
- 3.7 Ambient temperature shall be maintained in accordance with terrazzo manufacturer's recommendations, but no less than 50 degrees Fahrenheit.
- 3.8 Materials furnished shall meet NTMA specifications.
- 3.9 Materials shall be delivered in a manner to prevent damage to containers and/or bags.
- 3.10 Materials shall be stored in a clean, dry and heated (if necessary) location (50 – 90 degrees Fahrenheit).
- 3.11 Contractor shall maintain uniformity between batches, and install terrazzo as soon as it is prepared.
- 3.12 Subfloor shall be prepared and primed in accordance with manufacturer's recommendations. Control joints directly above control joints in subfloor. Install divider strips as shown on drawings, in one-piece-for length wherever possible (do not piece out work with undersize lengths). Anchor strips and inserts securely with adhesive and/or mechanical fasteners, per terrazzo manufacturer's recommendations. Place terrazzo mixture in panels formed by divider strips. Trowel mixture to top of strips.
- 3.13 Grind terrazzo in accordance with manufacturer's recommendations, rough grinding with 24 or finer grit stones or with comparable diamond plates. Follow rough grind with 80 or finer grit stones.
- 3.14 Grouting: Cleanse terrazzo with clean water and rinse, remove excess rinse water and hand apply grout using identical color as used in topping, filling all voids. Cure grout (grout may be left on terrazzo until heavy/messy project work is complete.)
- 3.15 Fine grinding: Grind with 80 or finer grit stones until all grout is removed from surface. Upon completion terrazzo shall show a minimum of 70% of marble chips.

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- 3.16 **Cleaning and Sealing:** Wash all surfaces with a neutral cleaner, rinse with clean water and allow surface to dry. Apply sealer in accordance with manufacturer's directions. Avoid heavy surface deposits.
- 3.17 **Allowable Tolerances:** Install terrazzo within the following tolerances:
- Surfaces: Vary from required plane 1/8" (max.) in 10'-0", measured by a 10-foot straight edge; free from dishing, scratches, pits, and stains.
- Topping: Uniform and free from bald spots; show at least 70% to 75% chips; within color and design range shown by approved samples.
- Strips: True to line and flush with adjoining surfaces; with hairline joints free from offset.
- 3.18 **Correct work that is cracked, pitted, stained, soiled, nonconforming, or damaged.** Remove and replace work that cannot be satisfactorily corrected in place.
- 3.19 **Protection:** Protect completed work from stains, abrasion, and other damage.
- 3.20.1 **Installer shall be a contractor member of NTMA and shall perform all work in accordance with NTMA standards.**
- 3.20.2 **Contractor shall provide a one-year guarantee from the date of substantial completion or acceptance by Facilities.**

**REFERENCE**

- 4.1 The applicable CSI Specification Section is 09 66 23