

# GUIDE SPECIFICATION FOR USE OF EPOXY TERRAZZO ACCENT FEATURES IN SAND CUSHION TERRAZZO

(Revised 6/97 Supersedes all previous specifications for Epoxy Sand Cushion Terrazzo)

*NOTE: THIS SPECIFICATION ENABLES DESIGNERS TO INTRODUCE ACCENT FEATURES IN A CEMENTITIOUS SAND CUSHION FLOOR THAT ARE ONLY POSSIBLE WITH EPOXY TERRAZZO (I.E. BRIGHT COLORS OR SYNTHETIC CHIPS.)*

## SECTION 09

### EPOXY SAND CUSHION TERRAZZO

Minimum of 2-1/2 inches thick (3/8 inch minimum Epoxy terrazzo topping, 2-1/8 inch nominal underbed includes sand dusting on concrete substrate.) See Architectural Details.

## PART 1 - GENERAL

### 1.01 RELATED WORK SPECIFIED IN OTHER SECTIONS

*NOTE: DELETE NON-APPLICABLE ITEMS.*

- A. Furnishing and installation of metal lathe and scratch coat,  
Section \_\_\_\_\_
- B. Attachment of metal stairs, any welding and/or reinforcing,  
Section \_\_\_\_\_
- C. Furnishing and setting floor drains,  
Section \_\_\_\_\_
- D. Furnishing and setting surface hardware,  
Section \_\_\_\_\_
- E. Setting of metal base beads and wood grounds,  
Section \_\_\_\_\_

*NOTE: DELETE WHERE JURISDICTION PERMITS TERRAZZO CONTRACTOR TO INSTALL.*

- F. Concrete subfloor,  
Section \_\_\_\_\_

*NOTE: SUBFLOOR SHALL NOT VARY MORE THAN 1/4 INCH FROM TRUE PLANE IN 10 FOOT SPAN WITH FLOAT FINISH.*

- G. Broom clean area to receive terrazzo of loose chips and all foreign matter.
- H. Sufficient water, temporary heat and light, and adequate electric power with suitable outlets connected and distributed for use within 100 feet of any work space.

*NOTE: AMBIENT TEMPERATURES SHALL BE MAINTAINED AT A MINIMUM OF 50 DEGREES FAHRENHEIT.*

### 1.02 QUALITY ASSURANCE

- A. Acceptable Suppliers:
  - 1. Suppliers shall provide materials in accordance with the NTMA standards.
- B. Acceptable Installer:
  - 1. Installer shall be a contractor member of NTMA.
  - 2. If installer is not a contractor member of NTMA, installer shall submit a list of completed projects of similar magnitude and complexity.
  - 3. All work is to be installed in accordance with NTMA standards.

### 1.03 SUBMITTAL

- A. Samples:
  - 1. Submit a maximum of three samples, sizes 6 inches x 6 inches for each color and type of terrazzo specified.
  - 2. Submit two, 6-inch lengths of each type and kind of divider strip as specified.
- B. Maintenance Literature:
  - 1. Submit two copies of NTMA maintenance recommendations.
- C. Certification:
  - 1. Suppliers shall furnish certification attesting that materials meet specification requirements.
  - 2. Suppliers shall furnish properly labeled material and Material Safety Data Sheets which comply with current state and federal requirements.

### 1.04 DELIVERY, STORAGE, AND HANDLING

- A. Delivery of Materials:
  - 1. Deliver materials in a manner to prevent damage to containers and/or bags.
- B. Storage of Epoxy Materials:
  - 1. Store materials in a clean, dry, heated location (50-80 degrees F) furnished by others.

### 1.05 GUARANTEE

One year from date of completion of terrazzo installation.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. Primer: 100% Solids as recommended by Epoxy Resin Supplier.
- B. Epoxy resin mixed according to manufacturers 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 product shall meet the following requirements:
  - 1. Store materials in a clean, dry, heated location (50-80 degrees F) furnished by others.

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 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

C. Epoxy Resin 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: (The marble chip formula is for test specimen only.)

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.
2. Thermal Coefficient of Linear Expansion: When tested in accordance with ASTM-D-696, the Epoxy terrazzo will comply with the following value: 25 x 10<sup>-6</sup> inches per inch per degree 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.

*NOTE: THIS TEST IS INTENDED TO EVALUATE THE BOND TO THE CONCRETE SUBFLOOR. A 100% CONCRETE FAILURE INDICATES A GOOD BOND.*

D. Portland Cement: ASTM C 150, Color grey for underbed.

E. Sand: Clean, washed, locally available sand.

F. Marble Chips:

1. Size: To conform with NTMA gradation standards.

Note: See Product Information

2. Abrasion and Impact resistance when testing in accordance with ASTM C 131-89 shall not exceed 40% loss.
3. 24-hour absorption rate not to exceed 0.75%.
4. Chips shall contain no deleterious or foreign matter.
5. Dust content less than 1% by weight.

G. Strips:

1. Divider Strips: \_\_\_\_\_ (gauge)  
\_\_\_\_\_ (material)  
with a depth of 1-1/4 inches for a topping thickness of \_\_\_\_\_ (1/4 or 3/8 inch.)

*NOTE: (SEE DIVIDER STRIPS.) SELECT GAUGE, MATERIAL, DEPTH AND TOPPING THICKNESS. GAUGE: 18, 16, OR 14 B & S GAUGE OR 1/8, 1/4, OR 3/8 INCH HEAVY TOP. MATERIAL: WHITE ALLOY OF ZINC, BRASS, OR PLASTIC. TOPPING: 1/4 OR 3/8 INCH. EMPLOYMENT OF THE NORMAL SINGLE DIVIDER STRIPS, REGARDLESS OF GAUGE, INSERTED IN THE SAND CUSHION UNDERBED UP TO FIVE FOOT OR LESS ON CENTERS, PROVIDE AMPLE CONTROL OF THE ANTICIPATED SHRINKAGE THAT WILL TAKE PLACE WHEN THE TERRAZZO WORK IS INSTALLED IN ACCORDANCE TO THESE SPECIFICATIONS AS EACH DIVIDER PICKS UP A MINUTE AMOUNT OF THE CONTRACTION. PROPERLY INSTALLED CONSTRUCTION JOINTS IN THE STRUCTURAL SLAB HAVE NO BEARING ON THE PLACEMENT OF DIVIDER STRIPS IN A SAND CUSHION SYSTEMS DUE TO THE USE OF AN ISOLATION MEMBRANE. DESIGNED EXPANSION PLATES ARE THE RESPONSIBILITY OF OTHERS TO DESIGN, FURNISH AND PROPERLY INSTALL IN THE EVENT THAT THEY ARE REQUIRED.*

H. Reinforcement: ASTM A 185 16 or 18 gauge galvanized welded wire mesh.

I. Isolation Membrane: ASTM D 2103 Type 13300, 4 mil. polyethylene sheeting or ASTM D 226, 15 pound unperforated roofing felt.

J. Terrazzo Cleaner:

1. Ph factor between 7 and 10, where applicable.
2. Biodegradable and phosphate free.

K. Sealer:

1. Ph factor between 7 and 10, where applicable.
2. Shall not discolor or amber.
3. Penetrating type specially prepared for use on terrazzo.
4. Flash Point: ASTM D 56, 80 degrees Fahrenheit minimum, where applicable.
5. U/L listed as "Slip Resistant".

## 2.02 MIXES

A. Epoxy Terrazzo Selection:

1. NTMA Plate#

*NOTE: SELECT COLOR AND DESIGN FROM NTMA INFORMATION GUIDE OR COLOR PLATES. ANY DEVIATION FROM NTMA PLATES MUST BE CLEARLY STIPULATED.*

B. Proportions:

1. Underbed: One part Portland cement to Three parts sand and sufficient water to provide workability at as low a slump as possible.
2. Epoxy Terrazzo Topping: In accordance with resin supplier's recommendations.

### **PART 3 - EXECUTION**

#### **3.01 INSPECTION**

- A. Examine areas to receive terrazzo for:
  1. Defects in existing work that affect proper execution of terrazzo work.
  2. Deviations beyond allowable tolerances for the concrete slab work.
- B. Start work only when all defects have been corrected by others.

#### **3.02 INSTALLATION**

- A. Underbed:
  1. Cover entire surface to receive terrazzo with dusting of sand.
  2. Install isolation membrane overlapping ends and edges a minimum of 3 inches.
  3. Install welded wire reinforcement:
    - a: Overlap wire at edges and ends at least 2 squares.
  4. Place underbed mix.
  5. Screed underbed to elevation \_\_\_\_\_ inch below finished floor elevation or slope. (3/8 depending on terrazzo topping.)
  6. Install divider strips as shown on drawings in semi-plastic underbed and trowel firmly along edges.
  7. Cure underbed. Test for sufficient cure prior to placing terrazzo. (Mat test or similar.)
- B. Placing Terrazzo:
  1. Prime subfloor in accordance with manufacturer's recommendations.
  2. Place terrazzo mixture in panels formed by divider strips. Trowel mixture to top of strips.
- C. Finishing:
  1. Rough Grinding:
    - a. Grind with 24 or finer grit stones or with comparable diamond plates.
    - b. Follow initial grind with 80 or finer grit stones.
  2. Grouting:
    - a. Cleanse terrazzo with clean water, rinse, and allow to dry.
    - b. Apply manufacturer's Epoxy grout.
  3. Cure Grout.

*NOTE: GROUT MAY BE LEFT ON TERRAZZO UNTIL ALL HEAVY AND MESSY WORK IN PROJECT IS COMPLETED.*

  4. Fine Grinding:
    - a. Grind with 80 or finer grit stones until all grout is removed from surface.
    - b. Upon completion, terrazzo shall show a minimum of 70% of marble chips.
- D. Cleaning and Sealing:
  1. Wash all surfaces with a neutral cleaner.
  2. Rinse with clean water and allow surface to dry.
  3. Apply sealer in accordance with manufacturer's directions.
- E. 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 from the time that the terrazzo contractor completes the work.