

## SECTION 09 66 23.13

### POLYACRYLATE MODIFIED CEMENTITIOUS TERRAZZO FLOORING

THIS GUIDE SPECIFICATION HAS BEEN PREPARED BY THE NATIONAL TERRAZZO AND MOSAIC ASSOCIATION, INC., AND IS DISTRIBUTED FOR USE BY ITS MEMBERS AND DESIGN PROFESSIONALS. IT CONTAINS REQUIREMENTS RELATED TO THE USGBC'S LEED® CERTIFICATION PROGRAMS.

SPECIFIER'S NOTE: REVISE THIS SECTION BY DELETING AND INSERTING TEXT TO MEET PROJECT SPECIFIC REQUIREMENTS.

SPECIFIER'S NOTE: POLYACRYLATE MODIFIED CEMENTITIOUS TERRAZZO FLOORING INSTALLATIONS HAVE A NOMINAL THICKNESS OF 3/8 INCH (SEE ARCHITECTURAL DETAILS). THIS SPECIFICATION INCLUDES PRECAST TERRAZZO UNITS.

SPECIFIER'S NOTE: CONCRETE SUBFLOORS TO RECEIVE POLYACRYLATE MODIFIED CEMENTITIOUS TERRAZZO FLOORING SHALL NOT VARY MORE THAN 1/4 INCH FROM TRUE PLANE IN 10 FOOT SPAN. CONSIDERATION SHOULD BE GIVEN TO REQUIRING CONCRETE FLOORS TO HAVE FLOOR FLATNESS VALUE OF 25 AND FLOOR LEVELNESS OF 20.

SPECIFIER'S NOTE: SURFACE OF CONCRETE SLAB SHALL RECEIVE A FLOAT FINISH AND THEN BE ABRADED FOR PROPER BONDING BETWEEN CONCRETE SUBSTRATE AND POLYACRYLATE FLOORING. NO CURING AGENTS OR OTHER ADDITIVES WHICH COULD PREVENT BONDING SHOULD BE USED.

SPECIFIER'S NOTE: SAW CUTTING OF CONTROL JOINTS MUST BE DONE BETWEEN 12-24 HOURS AFTER PLACEMENT OF STRUCTURAL CONCRETE. CONTROL JOINTS AND EXPANSION JOINTS IN STRUCTURAL SLAB MUST BE HONORED WITH BACK-TO-BACK STRIPS THE WIDTH OF THE CUT/JOINT.

SPECIFIER'S NOTE: EXCESSIVE MOVEMENT OR CRACKS IN THE STRUCTURAL SLAB MAY TELEGRAPH THROUGH THE THIN SET TERRAZZO.

#### PART 1 - GENERAL

##### 1.01 SUMMARY

###### A. Section includes:

1. Polyacrylate-modified, cementitious terrazzo installation with divider and accessory strips.

SPECIFIER'S NOTE: DELETE FOLLOWING IF PRECAST TERRAZZO UNITS ARE NOT INCLUDED.

2. Precast terrazzo units.

SPECIFIER'S NOTE: DELETE NON-APPLICABLE ITEMS FROM THE FOLLOWING LIST.

###### B. Related Requirements:

1. Attach metal stairs including any welding and/or reinforcing, Section <Insert Section No. Here>.
2. Provide floor drains at portland cement terrazzo flooring, Section <Insert Section No. Here>.
3. Provide surface hardware at portland cement terrazzo flooring, Section <Insert Section No. Here>.
4. Set metal base beads or special architectural metal reveals, Section <Insert Section No. Here>.
5. Concrete subfloor, Section <Insert Section No. Here>

## 1.02 DEFINITIONS

- A. NTMA: National Terrazzo and Mosaic Association, Inc.

## 1.03 PREINSTALLATION MEETINGS

- A. Pre installation Conference: The General Contractor shall conduct a conference at Project site before Terrazzo Contractor begins installation.
1. The General Contractor shall invite Terrazzo Contractor, the Architect, and representatives of the Owner.
  2. Review methods and procedures related to terrazzo including, but not limited to, the following:
    - a. Inspect and discuss condition of substrate and other preparatory work performed by other trades.
    - b. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
    - c. Review terrazzo mixes and patterns.
    - d. Review custom terrazzo mixes, designs and patterns.
    - e. Coordination with the work of other trades.

## 1.04 ACTION SUBMITTALS

- A. Product Data: Terrazzo Contractor shall submit Product Data for each type of product required for installation including:

SPECIFIER'S NOTE: RETAIN ONLY THOSE ITEMS WHICH APPLY TO PROJECT IN THE FOLLOWING LISTING.

1. Strip materials
2. Sealer
3. Cement

- B. LEED Submittals: Terrazzo Contractor shall submit the following:

SPECIFIER'S NOTE: RETAIN ONLY THOSE SUBMITTALS WHICH APPLY TO PROJECT IN THE FOLLOWING LISTING.

1. Product Data for Credit MR 4: For products having recycled content, submit documentation indicating percentages by weight of postconsumer and preconsumer recycled content.
  - a. Include statement indicating cost for each product having recycled content.
2. Product Certificates for Credit MR 5: For products and materials required to comply with requirements for regional materials, submit documentation indicating location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material.
  - a. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.

SPECIFIER'S NOTE: "PRODUCT DATA FOR CREDIT IEQ 4.1" SUBPARAGRAPH BELOW APPLIES TO LEED-NC, LEED-CI, AND LEED-CS; COORDINATE WITH REQUIREMENTS FOR ADHESIVES.

3. Product Data for Credit IEQ 4.1: For adhesives, submit documentation including printed statement of VOC content.

SPECIFIER'S NOTE: "PRODUCT DATA FOR CREDIT IEQ 4.3" SUBPARAGRAPH BELOW APPLIES TO LEED-NC, LEED-CI, AND LEED-CS; COORDINATE WITH REQUIREMENTS FOR SEALERS.

4. Product Data for Credit IEQ 4.3: For sealers, submit documentation including printed statement of VOC content.

SPECIFIER'S NOTE: "LABORATORY TEST REPORTS FOR CREDIT IEQ 4" SUBPARAGRAPH BELOW APPLIES TO LEED FOR SCHOOLS.

5. Laboratory Test Reports for Credit IEQ 4: For flooring system including adhesives and sealers, submit documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

SPECIFIER'S NOTE: SHOP DRAWINGS MAY NOT BE REQUIRED FOR SMALL AREAS OR SIMPLE DESIGNS. DELETE FOLLOWING PARAGRAPH IF SHOP DRAWINGS ARE NOT REQUIRED.

- C. Shop Drawings: Terrazzo Contractor shall prepare and submit Shop Drawings that include plans, elevations, sections, component details, and attachments to other work. Include terrazzo installation requirements. Show layout of the following:

SPECIFIER'S NOTE: RETAIN ONLY THOSE ITEMS WHICH APPLY TO PROJECT IN THE FOLLOWING LISTING.

1. Divider strips.
2. Expansion joint strips.
3. Accessory strips.
4. Abrasive strips.
5. Stair treads, risers and landings.

6. Terrazzo patterns.
7. <Insert requirements>

SPECIFIER'S NOTE: KEEP PARAGRAPH BELOW FOR RELATIVELY SMALL AND SIMPLE PROJECTS WHERE TERRAZZO COLORS AND PATTERNS HAVE ALREADY BEEN SELECTED. DELETE PARAGRAPH IF KEEPING "SAMPLES FOR INITIAL SELECTION" OR "SAMPLES FOR VERIFICATION" PARAGRAPHS BELOW.

D. Samples:

1. Terrazzo Contractor shall prepare and submit a maximum of three samples, sizes **[6 by 6 inches] [12 by 12 inches]** for each color and type of terrazzo specified.

SPECIFIER'S NOTE: DELETE FOLLOWING PARAGRAPH IF PRECAST TERRAZZO IS NOT USED.

2. Terrazzo Contractor shall submit three samples, sizes **[6 by 6 inches] [12 by 12 inches]** for each color and type of precast terrazzo specified.

SPECIFIER'S NOTE: KEEP PARAGRAPH BELOW FOR PROJECTS WHERE TERRAZZO COLORS WILL BE SELECTED DURING CONSTRUCTION FROM NTMA "COLOR PALETTE BROCHURE." DELETE PARAGRAPH WHERE TERRAZZO COLORS HAVE BEEN SELECTED AND ARE INDICATED ON THE DRAWINGS AND SPECIFICATIONS.

E. Samples for Initial Selection: Terrazzo Contractor shall submit NTMA "Color Palette Brochure" showing full range of colors and patterns available for each terrazzo type.

SPECIFIER'S NOTE: KEEP PARAGRAPH BELOW FOR LARGER AND MORE COMPLEX PROJECT. DELETE PARAGRAPH WHERE TERRAZZO COLORS HAVE BEEN SELECTED AND ARE INDICATED ON THE DRAWINGS AND SPECIFICATIONS.

F. Samples for Verification: Terrazzo Contractor shall prepare and submit samples for each type, material, color, and pattern of terrazzo and accessory required showing the full range of color, texture, and pattern variations expected.

1. Terrazzo: **[6 by 6 inch] [12 by 12 inch]** samples
2. Accessories: 6 inch long Samples of each type and kind of exposed strip item required

SPECIFIER'S NOTE: DELETE FOLLOWING PARAGRAPH IF PRECAST TERRAZZO IS NOT USED.

3. Precast Terrazzo Units: Samples, sizes **[6 by 6 inches] [12 by 12 inches]** for each color and type of precast terrazzo specified.

### 1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data: Terrazzo Contractor shall submit two copies of qualification data for Installer.

1. Include list of projects indicating name and location of Project, name of Owner, name and contact information for General Contractor, and name and contact information for Architect.

2. Include letter from NTMA with the name of the Project and name of member, stating current member status.
- B. Material Certificates: For each type of aggregate required indicating compatibility with terrazzo mix, signed by Terrazzo Contractor.

#### **1.06 CLOSEOUT SUBMITTALS**

- A. Maintenance Literature: Terrazzo Contractor shall submit two copies of NTMA maintenance recommendations.

#### **1.07 QUALITY ASSURANCE**

- A. Acceptable Suppliers: A firm experienced in manufacturing products in accordance with NTMA standards and with a record of successful in-service performance, as well as sufficient production capacity to produce required materials.
- B. Acceptable Terrazzo Contractor: A Contractor Member of NTMA whose work has resulted in construction with a record of successful in-service performance.
1. Installer shall have completed terrazzo installations within the past 5 years of scale and complexity similar to the proposed installation.
- C. Terrazzo Standards: Terrazzo Contractor shall furnish materials and install terrazzo according to NTMA's "Terrazzo Specifications and Design Guide" and with written recommendations for terrazzo type indicated unless more stringent requirements are specified.
- D. Source Limitations for Aggregates: Terrazzo Contractor shall obtain each color, grade, type and variety of granular materials from sources with resources to provide materials of consistent quality in appearance and physical properties.

SPECIFIER'S NOTE: SIZE OF MOCKUP SHOULD BE DEPENDENT TO NUMBER OF COLORS AND PATTERNS. USUALLY A MOCKUP OF 50 TO 100 SQ. FT. SHOULD BE SUFFICIENT. DETAIL MOCKUP DESIRED ON DRAWINGS. KEEP REQUIREMENTS FOR MOCKUP FOR LARGER AND MORE COMPLEX PROJECTS.

- E. Mockups: Terrazzo Contractor shall construct mockup if required in bid or scope of work documents to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Build mockup as indicated on Drawings.
  2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### **1.08 DELIVERY, STORAGE AND HANDLING**

- A. Materials shall be delivered to Project site in supplier's original wrappings and containers, labeled with source or manufacturer's name, material or product brand name, and lot number if any.
- B. Materials shall be stored in their original, undamaged packages and containers.

**1.09 PROJECT CONDITIONS**

- A. General Contractor shall provide sufficient water, temporary heat and light, and adequate electric power with suitable outlets connected and distributed for use within 100 feet of any working space.
- B. General Contractor shall provide temporary enclosures and other suitable methods to protect adjacent spaces from damage during installation.
  - 1. Maintain ambient temperatures in the area to receive terrazzo at not less than 50 deg. F.
  - 2. Maintain adequate ventilation in the area to receive terrazzo.
- C. Terrazzo Contractor shall protect other adjacent work from water and dust generated by grinding operations.

**1.10 GUARANTEE**

- A. One year from date of completion of terrazzo installation.

**PART 2 - PRODUCTS****2.01 PERFORMANCE REQUIREMENTS**

- A. Recycled Content of Portland Cement Terrazzo Flooring Materials: Provide [**portland cement**] [**and**] [**aggregates**] with a postconsumer recycled content plus one-half of preconsumer recycled content not less than <Insert number> percent.
- B. Regional Materials: Provide [**portland cement**] [**marble chips**] [**aggregate**] [**and**] [**sand**] that has been extracted, harvested, or recovered, as well as manufactured within 500 miles of Project site.

SPECIFIER'S NOTE: RETAIN "LOW-EMITTING MATERIALS" PARAGRAPH BELOW IF REQUIRED FOR LEED FOR SCHOOLS CREDIT IEQ 4.

- C. Low-Emitting Materials: Flooring system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- D. Polyacrylate Terrazzo Installation: The Terrazzo Contractor shall provide polyacrylate terrazzo installation that complies with the following:
  - 1. Nominal Weight: 3.0 pounds per square foot in a thickness of 1/4 inch or 4.5 pounds for 3/8 inch thickness
  - 2. Indentation: Initial indentation of the Polyacrylate terrazzo shall be less than 7 percent and more than 1 percent when tested in accordance with MIL-D-3134F. Section 4.7.4.

SPECIFIER'S NOTE: 16 FT LBS IN FOLLOWING PARAGRAPH IS EQUIVALENT TO DROPPING A 2 POUND STEEL BALL FROM A HEIGHT OF EIGHT FEET.)

3. Resistance to Impact: Installed polyacrylate terrazzo flooring, bonded securely to concrete, shall show no visible signs of chipping, cracking, or loss of bond when tested with 16 ft/lbs.
  4. Resistance to Elevated Temperature: Installed polyacrylate terrazzo flooring, bonded securely to concrete, shall not flow or slip in any part more than 1/16 inch or soften when tested in accordance with MIL-D-3134, Section 4.7.5.
  5. Bond Strength: Polyacrylate terrazzo flooring, installed over damp, cured concrete and aged 28 days, shall have a minimum bond strength of 300 psi with failure in the concrete when tested according to ACI Committee No. 403
  6. Moisture Absorption: Installed polyacrylate terrazzo flooring shall not absorb more than 5 percent moisture based on its weight at normal atmospheric conditions when tested in accordance with MIL-D-3134F, Section 4.7.8.
  7. Resistance to Wear: Installed polyacrylate terrazzo flooring shall show wear not to exceed 0.150 inch when tested in accordance with MIL-D-3134F, Section 4.7.10.
  8. Tensile Strength: Installed polyacrylate terrazzo flooring shall have a minimum tensile strength of 700 psi after aging 28 days when tested in accordance with ASTM C 190.
  9. Flexural Strength: Installed polyacrylate terrazzo flooring shall have a minimum flexural strength of 2000 psi when tested according to ASTM C 348.
  10. Thermal Coefficient of Expansion of Matrix Material: Not greater than 10 by 10<sup>-6</sup> when tested according to ASTM C 157.
- E. Odor, Fire and Toxicity Hazards: Polyacrylate terrazzo materials, both before and after setting, shall not constitute an undue fire hazard, nor shall fumes from volatile substances contained in the material be more toxic than those resulting from the use of ordinary latex paint and free from objectionable odors under ordinary service conditions.
1. Flammability: Matrix material shall not support combustion when tested according to ASTM D 635.

## 2.02 MATERIALS

SPECIFIER'S NOTE: SELECT WHITE OR GRAY CEMENT. BOTH WHITE AND GRAY PORTLAND CEMENT MAY NOT BE UNIFORM IN COLOR AND MAY PRODUCE A VARIATION OF SHADE IN THE MATRIX.

- A. Portland Cement: ASTM C 150, Type 1, [**white**][**gray**].
- B. Polyacrylate Binder: Formulated to meet physical properties of MIL-D-3134F.

SPECIFIER'S NOTE: SELECT TYPES OF AGGREGATES TO BE INCLUDED IN TERRAZZO MIX.

- C. Aggregates: [**Marble,**] [**glass,**] [**synthetic chips,**] [**and**] [**metal**].
  1. Comply with NTMA gradation standards.
  2. Abrasion and Impact Resistance: Loss of 40 percent or less when tested according to ASTM C 131 (LA Abrasion).
  3. Aggregates shall contain no deleterious or foreign matter.

SPECIFIER'S NOTE: OTHER DECORATIVE MATERIALS THAT DO NOT COMPLY WITH REQUIREMENTS SPECIFIED ABOVE MAY BE USED AFTER CONSULTING WITH THE TERRAZZO CONTRACTOR FOR SPECIFIC USAGE GUIDELINES AND RECOMMENDATIONS.

## D. Divider Strips:

1. Material: **[White alloy of zinc][Brass]**.
2. Strip Thickness: 16 gauge.
3. Type: "L" strip: 3/8 inch by 1/2 inch.

SPECIFIER'S NOTE: DELETE FOLLOWING SUBPARAGRAPH IF HEAVY TOP DIVIDER STRIPS ARE NOT USED

4. Heavy Top Thickness: **[1/8 inch] [1/4 inch]**.

SPECIFIER'S NOTE: DELETE FOLLOWING IF ABRASIVE STRIPS ARE NOT INCLUDED.

E. Abrasive Strips: **[Three-line] [Two-line] [One-line] [Abrasive nosing strip and two-line]** <Insert requirements> abrasive inserts at nosing. Silicon carbide or aluminum oxide, or combination of both, in epoxy resin binder and set in channel

1. Width: 1/2 inch
2. Depth: As required by terrazzo thickness
3. Length: **[4 inches less than stair width] [As indicated]** <Insert dimension>.
4. Color: **[Black] [Darker than terrazzo, as selected by Architect]** <Insert requirements>

## F. Colorants: Alkali resistant color stable pigments

SPECIFIER'S NOTE: NOTE: REFER TO NTMA INFORMATION GUIDE FOR FURTHER INFORMATION.

SPECIFIER'S NOTE: RETAIN THE FOLLOWING ONLY FOR Poured-in-Place INSTALLATIONS OVER STEEL STAIRS.

## G. Steel Wire Lath: ASTM A 185, galvanized welded wire mesh, 2 by 2 by 16 ga.

SPECIFIER'S NOTE: CURING MAY NOT BE NECESSARY UNDER VERY HUMID CONDITIONS.

## H. Curing Materials: Water or polyethylene sheeting

## I. Bonding Agent: As recommended by polyacrylate resin supplier.

SPECIFIER'S NOTE: DELETE FOLLOWING PARAGRAPH IF PRECAST TERRAZZO UNITS ARE NOT REQUIRED..

**2.03 PRECAST TERRAZZO**

## A. Precast Terrazzo Base: Minimum 3/4-inch-thick, reinforced, portland cement terrazzo units cast in maximum lengths possible, but not less than 36 inches. Comply with manufacturer's written recommendations for fabricating precast terrazzo base units in sizes and profiles indicated.

1. Type: **[As indicated] [Coved with minimum 3/4-inch radius] [Straight] [Splayed]** <Insert requirements>.



SPECIFIER'S NOTE: RETAIN FIRST OPTION IN "TOP EDGE" SUBPARAGRAPH BELOW IF TOP EDGE IS CONCEALED.

2. Top Edge: [**Straight, unfinished**] [**Beveled with polished top surface**] [**Radius edge with polished top surface**] <Insert requirements>.
3. Outside Corner Units: With finished returned edges or mitered at outside corner.
4. Color, Pattern, and Finish: [**As selected by Architect from full range of industry colors**] [**Match Architect's sample**] [**Match adjacent poured-in-place terrazzo flooring border**] [**Match adjacent poured-in-place terrazzo flooring field**] [**As indicated**] <Insert requirements>.

SPECIFIER'S NOTE: RETAIN "PRECAST TERRAZZO UNITS" PARAGRAPH BELOW FOR PRECAST TERRAZZO STAIR TREADS, RISERS, OR LANDINGS. FOLLOWING ASSUMES THAT PRECAST UNITS ARE FULLY SUPPORTED. DETAIL PROFILE, ANCHORAGE, AND OTHER REQUIREMENTS ON DRAWINGS OR INSERT BELOW. COPY AND RE-EDIT IF MORE THAN ONE TYPE IS REQUIRED; INSERT A UNIQUE DESIGNATION FOR EACH TYPE AND INDICATE LOCATIONS ON DRAWINGS. PRECAST TERRAZZO STAIR UNITS ARE RECOMMENDED FOR INSTALLATION OVER CONCRETE, STEEL PLATE, OR STEEL PAN STAIRS.

- B. Precast Terrazzo Stair Units: Minimum [**2-inch-**] <Insert dimension> thick, reinforced, portland cement terrazzo stair units. Comply with manufacturer's written recommendations for fabricating precast terrazzo units in sizes and profiles indicated. Reinforce units as required by unit sizes, profiles, and thicknesses and as recommended by manufacturer. Finish exposed-to-view edges and reveals to match face finish. Ease exposed edges to 1/8-inch radius.

1. Provide the following types of precast stair units:
  - a. Stair treads.
  - b. Stair risers.
  - c. Stair landings.
  - d. <Insert item>.

SPECIFIER'S NOTE: COORDINATE "COLOR, PATTERN, AND FINISH" SUBPARAGRAPH BELOW WITH ANY PRECAST UNITS IN LIST ABOVE. RE-EDIT IF TREADS, RISERS, OR LANDING UNITS ARE DIFFERENT.

2. Color, Pattern, and Finish: [**As selected by Architect from full range of industry colors**] [**Match Architect's sample**] [**Match adjacent poured-in-place terrazzo flooring border**] [**Match adjacent poured-in-place terrazzo flooring field**] [**As indicated**] <Insert requirements>.

SPECIFIER'S NOTE: KEEP ONE OF THE FOLLOWING TYPES OF SETTING MATERIALS FOR INSTALLING PRECAST TERRAZZO OR KEEP BOTH IF SETTING MATERIAL IS TERRAZZO CONTRACTOR'S OPTION.

SPECIFIER'S NOTE: EPOXY IS RECOMMENDED FOR INSTALLATION OVER STEEL SUBSTRATES BUT CAN BE USED WITH OTHER SUBSTRATES. THIN SET MORTAR IS NOT RECOMMENDED FOR METAL SUBSTRATES,

- C. Setting Materials for Precast Terrazzo:

1. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4.

SPECIFIER'S NOTE: EPOXY IS RECOMMENDED FOR INSTALLATION OVER STEEL SUBSTRATES BUT CAN BE USED WITH OTHER SUBSTRATES. THIN SET LATEX-PORTLAND CEMENT MORTAR IS NOT RECOMMENDED FOR METAL SUBSTRATES.

2. Epoxy Adhesive: Two component, compatible with terrazzo units and substrate[.], **with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).**], **that complies with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."**]

## 2.04 MISCELLANEOUS ACCESSORIES

- A. Sealer: Terrazzo Contractor shall provide a non-ambering, clear sealer that is chemically neutral; does not impair terrazzo aesthetics or physical properties; is recommended by terrazzo matrix manufacturer. Sealers shall comply with the following:

1. Comply with requirements of authorities having jurisdiction.

SPECIFIER'S NOTE: RETAIN ONLY ONE OPTION IN THE FOLLOWING PARAGRAPH.

2. Surface Friction: Not less than **[0.5 (OSHA)] [0.6 (ADA)]** according to ASTM D 2047.
3. Water Based Sealer Properties: With pH factor between 7 and 10.

SPECIFIER'S NOTE: RETAIN ONLY PARAGRAPH ABOVE TO RESTRICT SEALERS TO THOSE THAT ARE WATER BASED. RETAIN PARAGRAPH BELOW IF SOLVENT BASED SEALERS ARE PERMITTED.

4. Solvent Based Sealer Properties: Flashpoint at 80 deg. F according to ASTM D 56.

SPECIFIER'S NOTE: RETAIN PARAGRAPH BELOW IF REQUIRED FOR LEED-NC, LEED-CI, OR LEED-CS CREDIT IEQ 4.3.

5. Sealers shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

## 2.05 MIXES

- A. Terrazzo Selection: Terrazzo Contractor shall provide standard terrazzo mix(es) according to the following:

SPECIFIER'S NOTE: USUALLY KEEP ONLY ONE OF THE FOLLOWING SUBPARAGRAPHS FOR SPECIFYING TERRAZZO MIX COLOR

SPECIFIER'S NOTE: RETAIN FOLLOWING IF SPECIFYING A COLOR FROM A NTMA PLATE NO.

1. NTMA Plate No. **<Insert standard terrazzo plate no.>**

SPECIFIER'S NOTE: RETAIN FOLLOWING IF COLOR WILL BE CHOSEN FROM A NTMA PLATE NO. AFTER CONTRACT IS AWARDED.

2. Mix Color: [As selected by Architect from NTMA standard-terrazzo plates]  
<Insert NTMA color plate designation>

SPECIFIER'S NOTE: RETAIN FOLLOWING IF A CUSTOM COLOR HAS BEEN CHOSEN AND A MIX WILL BE SPECIFIED. MODIFY AS REQUIRED FOR DESIRED MIX. PERCENTAGES MUST ADD UP TO 100 PERCENT. COPY IF ADDITIONAL MIX REQUIREMENTS ARE NEEDED. DO NOT KEEP THE FOLLOWING IF CHOOSING FROM NTMA'S STANDARD TERRAZZO PLATES.

3. Custom Mix Color and Pattern:

a. Color No. 1:

- 1) Cement Color: [White][Gray]
- 2) Chips: [No. 1][No. 2] <insert grade of chip><insert percentage> percent
- 3) Chips: [No. 1][No. 2] <insert grade of chip><insert percentage> percent
- 4) Chips: [No. 1][No. 2] <insert grade of chip><insert percentage> percent

b. Color No. 2:

- 1) Cement Color: [White][Gray]
- 2) Chips: [No. 1][No. 2] <insert grade of chip><insert percentage> percent
- 3) Chips: [No. 1][No. 2] <insert grade of chip><insert percentage> percent
- 4) Chips: [No. 1][No. 2] <insert grade of chip><insert percentage> percent

c. Color for Base:

- 1) Cement Color: [White][Gray].
- 2) Chips: [No. 1] <insert grade of chip> <insert percentage> percent
- 3) Chips: [No. 1] <insert grade of chip> <insert percentage> percent
- 4) Chips: [No. 1] <insert grade of chip> <insert percentage> percent

SPECIFIER'S NOTE: RETAIN FOLLOWING IF A CUSTOM COLOR HAS BEEN CHOSEN AND MATCHING AN APPROVED SAMPLE WILL BE REQUIRED OR IF TERRAZZO IS REQUIRED TO MATCH AN EXISTING INSTALLATION.

4. Custom Mix Color and Pattern: [Match Architect's sample] [Match existing]

B. Proportions for Polyacrylate Terrazzo Topping: Comply with resin supplier's recommendations.

C. Mixing of Terrazzo Topping: Charge and mix portland cement, aggregates, and polyacrylate resin in accordance with manufacturer's recommendations.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

A. The General Contractor and Architect shall examine substrates and areas, with Terrazzo Contractor present, for compliance with requirements for installation tolerances and other conditions affecting performance of the work.

1. Verify that concrete surfaces to receive bonded terrazzo flooring are sound, free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil and other contaminants incompatible with terrazzo flooring materials.

SPECIFIER'S NOTE: POLYACRYLATE TERRAZZO IS NOT INTENDED TO LEVEL SUBSTRATE AND WILL ONLY FOLLOW THE CONTOUR OF THE CONCRETE SLAB. SUBFLOOR SHALL NOT VARY MORE THAN 1/4 INCH FROM TRUE PLANE IN 10 FEET.

2. The General Contractor shall be responsible for correcting non-conforming concrete substrates using materials compatible with polyacrylate terrazzo flooring system and as approved by the Terrazzo Contractor.
- B. Terrazzo Contractor shall proceed with installation only after unsatisfactory conditions, including levelness tolerances, have been corrected.

### 3.02 PREPARATION

- A. General Contractor shall broom clean area to receive terrazzo to remove loose chips and all foreign matter.
- B. Terrazzo Contractor shall mechanically abrade concrete surface

### 3.03 POURED-IN-PLACE TERRAZZO INSTALLATION

- A. Strip Materials: Terrazzo Contractor shall install strip materials as follows:

1. Divider and Control-Joint Strips:
  - a. Locate divider strips in locations indicated.
  - b. Install control joint strips back to back in locations indicated.
  - c. Install strips in adhesive setting bed without voids below strips

SPECIFIER'S NOTE: RETAIN "ACCESSORY STRIPS" SUBPARAGRAPH BELOW FOR ACCESSORY STRIPS.

2. Accessory Strips: Install as required to provide a complete installation.
- B. Placing Terrazzo:
1. Place terrazzo mixture in panels formed by divider strips and trowel mixture to top of strips.
  2. Seeding of additional marble chips is optional.
  3. Roll and compact surface until all excess cement and water has been extracted.
  4. Trowel to a dense uniform flat surface disclosing lines of divider strips.

SPECIFIER'S NOTE: RETAIN "ABRASIVE STRIPS" SUBPARAGRAPH BELOW FOR ABRASIVE STRIPS. OPTION IS BASED ON NTMA RECOMMENDATIONS FOR PRECAST TERRAZZO STAIR TREADS.

5. Abrasive Strips: Install with surface of abrasive strip positioned 1/16 inch higher than terrazzo surface.

SPECIFIER'S NOTE: CURING MAY NOT BE NECESSARY UNDER VERY HUMID CONDITIONS.

- C. Curing: Terrazzo Contractor shall cure the terrazzo topping as follows:

1. After completing placement of terrazzo and composition has sufficiently set, cover with water or polyethylene sheeting.
2. Cure until topping develops sufficient strength to prevent lifting or pulling of terrazzo chips during grinding.

SPECIFIER'S NOTE: DELETE THE FOLLOWING PARAGRAPH AND ASSOCIATED SUBPARAGRAPHS IF Poured in Place Terrazzo Base is NOT USED.

SPECIFIER'S NOTE: EXACT MATCH BETWEEN BASE AND FLOOR IS USUALLY NOT POSSIBLE.

D. Poured in Place Terrazzo Base: Terrazzo Contractor shall provide mix color for terrazzo base to match **[approved sample] [approved mockup]**.

1. Terrazzo Contractor shall place and finish terrazzo base at the same time the terrazzo floor is being installed.

SPECIFIER'S NOTE: DELETE THE FOLLOWING PARAGRAPH AND ASSOCIATED SUBPARAGRAPH IF TERRAZZO STAIRS ARE NOT USED. Poured in Place Terrazzo is recommended for installation over concrete stairs or steel pan stairs.

E. Poured in Place Terrazzo Stairs: Terrazzo Contractor shall provide mix color for treads and risers to match **[main terrazzo field] [terrazzo border] [as indicated on Drawings]**.

1. Place and finish terrazzo stair treads and risers at the same time the terrazzo floor is being installed.

SPECIFIER'S NOTE: RETAIN THE FOLLOWING ONLY FOR Poured-in-placed installations over steel stairs.

2. Apply two sheet of steel wire lath to steel treads and risers. Offset each sheet so that wires are 2 inches o. c. Screw attach to steel substrates.

F. Finishing: Terrazzo Contractor shall finish the terrazzo topping as follows:

1. Rough Grinding: Grind with 24 or finer grit stones or with comparable diamond plates.
2. Grouting:
  - a. Cleanse floor with clean water and rinse.
  - b. Remove excess rinse water and machine or hand apply grout, taking care to fill voids.
3. Cure Grout: Cure until grout is ready for fine grinding.

SPECIFIER'S NOTE: GROUT MAY BE LEFT ON TERRAZZO UNTIL ALL HEAVY AND MESSY WORK ON PROJECT IS COMPLETED.

4. Fine Grinding/Polishing: Grind with **[80] [120]** grit stones or comparable diamond abrasives until all grout is removed from surface.

SPECIFIER'S NOTE: COMPLETED INSTALLATION SHOULD MATCH APPROVED SAMPLES OR MOCKUPS.

SPECIFIER'S NOTE: GRINDING AND POLISHING WITH FINER GRIT ABRASIVES MAY BE PERFORMED AFTER TERRAZZO INSTALLATION HAS BEEN ACCEPTED. CONSULT WITH TERRAZZO INSTALLER FOR OPTIONS.

- G. Terrazzo Cleaning: Terrazzo Contractor shall clean finished terrazzo as follows:
1. Remove grinding residue from terrazzo surface.
  2. Wash terrazzo surfaces immediately after final grinding of terrazzo flooring with water and allow surfaces to dry thoroughly.
- H. Sealing: Terrazzo Contractor shall seal terrazzo according to sealer manufacturer's written instructions.

SPECIFIER'S NOTE: DELETE THE FOLLOWING ARTICLE IF PRECAST TERRAZZO UNITS ARE NOT USED.

### 3.04 PRECAST TERRAZZO INSTALLATION

- A. Terrazzo Contractor shall install precast terrazzo units as follows:

SPECIFIER'S NOTE: DELETE THE FOLLOWING SUBPARAGRAPH IF PRECAST TERRAZZO BASE IS NOT USED. ANSI 108.05 IS THE STANDARD SPECIFICATION FOR SETTING TILE WITH LATEX-PORTLAND CEMENT THINSET MORTAR; ANSI 108.06 IS THE STANDARD SPECIFICATION FOR SETTING TILE WITH EPOXY.

1. Precast Terrazzo Base: Use **[latex-portland cement mortar]** **[or]** **[epoxy adhesive]** to install precast terrazzo base over substrates indicated according to **[ANSI 108.5]** **[or]** **[ANSI 108.6]**.

SPECIFIER'S NOTE: KEEP FOLLOWING SUBPARAGRAPH IF PRECAST STAIR UNITS ARE SET ON CONCRETE STAIRS AND LANDINGS OR CONCRETE FILLED TREADS AND LANDINGS. ANSI 108.05 IS THE STANDARD SPECIFICATION FOR SETTING TILE WITH LATEX-PORTLAND CEMENT THINSET MORTAR; ANSI 108.06 IS THE STANDARD SPECIFICATION FOR SETTING TILE WITH EPOXY.

2. Precast Terrazzo Stair Units: Use **[latex-portland cement mortar]** **[or]** **[epoxy adhesive]** to install **[treads,]** **[risers,]** **[and]** **[landings]** over concrete substrates according to **[ANSI 108.5]** **[or]** **[ANSI 108.6]**.

SPECIFIER'S NOTE: KEEP FOLLOWING SUBPARAGRAPH IF PRECAST STAIR UNITS ARE SET ON STEEL RISERS OR STEEL PLATE STAIRS AND LANDINGS.

3. Precast Terrazzo Stair Units: Use epoxy adhesive to install **[treads,]** **[risers,]** **[and]** **[landings]** over steel substrates according to ANSI 108.6.

### 3.05 REPAIR

- A. Terrazzo Contractor shall repair terrazzo areas that evidence lack of bond between topping and underbed according to NTMA's written recommendations.

**3.06 PROTECTION**

- A. After application of the sealer, the Work shall be ready for final inspection and acceptance by the Owner or his agent.
- B. The General Contractor shall protect the finished floor after the Terrazzo Contractor has completed final grinding and applied sealer to terrazzo surfaces.

**END OF SECTION**