

SECTION 09440
PLASTIC MATRIX TERRAZZO
060903

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Resinous matrix terrazzo floor
 - 2. **Precast base**
 - 3. **Precast stair treads and risers.**

- B. Related Sections:
 - 1. Section 03300 - Cast-in-Place Concrete: Concrete sub-floor with broom finish.
 - 2. Section 07900 - Joint Sealers: Joint between terrazzo base and wall surface.

1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. Concrete Specification Section 3300. Concrete sub floor to be level (maximum variation not to exceed ¼ inch in 10 feet) and to have a steel trowel finished surface. No curing agents or other additives should be used. The slab should have an efficient moisture barrier (minimum of 10 mils) under the concrete slab when placed directly on grade. Saw cutting of control joints must be done between 12 and 24 hours after placement of the structural concrete.

- B. Broom clean area to receive terrazzo of loose chips, laitance and all foreign matter.

- C. Sufficient water, heat, light and adequate electric with suitable outlets connected and distributed for use within 100 feet of any working space.

1.3 SUBMITTALS

- A. Section 01330 - Submittal Procedures: Submittal procedures.

- B. Shop Drawings: Show terrazzo fabrication and installation requirements including plans, elevations, sections, component detail, and attachments to other work.
 - 1. Show layout of divider and control joints.
 - 2. Show layout of border strips.
 - 3. Show large-scale details of terrazzo patterns.
 - 4. Show large-scale details of precast terrazzo, jointing and edge conditions. Include anchorage details.

- C. Product Data: Submit data for divider strips, control joint strips, and all accessories.

- D. Samples: Submit three samples, 6 x 6 inch in size, for each color identified, illustrating color, chip size and variation, chip gradation, matrix color and typical divider strip.

- E. Maintenance Literature: Submit two copies of maintenance recommendations of the National Terrazzo and Mosaic Association ("NTMA") or product maintenance literature from associate members of the NTMA.

- F. 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.
 - 3. Substrate Acceptance Letter: Prior to beginning work, submit a letter stating the moisture content of the concrete slab substrate and environmental and substrate conditions are acceptable.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01700 - Execution Requirements: Closeout procedures.
- B. Operation and Maintenance Data: Submit procedures for cleaning and maintaining floors based on normal and regular use conditions.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with the NTMA recommendations contained in "Terrazzo Information Guide".

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum five years documented experience.
 - 1. Manufacturers shall supply materials in accordance with the NTMA Standards.
 - 2. Manufacturers and suppliers to supply material certificates signed certifying that each material complies with requirements.
- B. Installer: Company specializing in performing Work of this section with minimum five years documented experience.
 - 1. Installer shall be a contractor member of the NTMA.
 - 2. Installer to include list of three comparable jobs in the preceding two years.

1.7 MOCKUP

- A. Section 01400 - Quality Requirements: Requirements for mockup.
- B. Construct finished mockup, 6 x 6 feet, including terrazzo flooring, divider strips, base and change of color at an area agreed to by Architect and contractor.
- C. Mockup, if acceptable to Architect, shall remain as part of final floor.

1.8 PRE-INSTALLATION MEETING

- A. Conduct a conference at the project site a minimum of one week prior to commencing work of this section, after mockup has been completed to comply with requirements of Division 1 Section "Project Meetings." Review methods and procedures related to installation including, but not limited to, the following:
 - 1. Inspect and discuss condition of substrate and other preparatory work performed by other trades.
 - 2. Review structural loading limitations.

3. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment and facilities needed to maintain progress schedule and to avoid delays.
4. Review dust-control procedures if required.
5. Review protection procedures for adjacent surfaces.
6. Provide for the treatment of the terrazzo for the duration of the construction period.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Section 01600 - Product Requirements: Product storage and handling requirements.
- B. Store resin materials in dry, secure area.
- C. Maintain minimum temperature of 55 degrees Fahrenheit and a maximum temperature of 85 degrees Fahrenheit.
- D. Keep products away from fire or open flame.
- E. All products are to be clearly labeled.

1.10 ENVIRONMENTAL REQUIREMENTS

- A. Section 01600 - Product Requirements.
- B. Do not install terrazzo when temperature is below 50 degrees Fahrenheit or above 90 degrees Fahrenheit.
- C. Maintain temperature within specified range before, during, and after installation of flooring.
- D. Provide ambient lighting level of 80 ft candles measured at floor surface.

PART 2 PRODUCTS

2.1 RESINOUS MATRIX TERRAZZO COMPONENTS

- A. Floors: Epoxy matrix, $\frac{1}{4}$ " or $\frac{3}{8}$ " thick.
- B. Base: Epoxy matrix, precast of the same terrazzo as selected floor, specify height in inches high, minimum thickness $\frac{3}{8}$ ", straight or cove type with bull nose or straight top profile.
- C. Stair Treads and Risers: Epoxy matrix, precast of same terrazzo to match floor, with one, two or three abrasive strips in white, black or color to match terrazzo, each $\frac{1}{2}$ " wide.
- D. Materials:
 1. Epoxy Matrix: Two component resin and epoxy hardener with mineral filler and color pigment, non-volatile, thermo-setting. 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 and 50% plus or minus 2 R.H. The product shall meet the following requirements:

<u>PROPERTY</u>	<u>TEST METHOD</u>	<u>REQUIREMENT</u>
Hardness	ASTM D2240 using Shore D Durometer	60-85
Tensile strength	ASTM D638 run at .2" min. Specimen made Using die listed in ASTM D412	3000 psi min.
Compressive Strength	ASTM D695, Specimen B cylinder	10,000 psi min.
Chemical Resistance	ASTM D1308, 7 days at room temperature by Immersion method has 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

2. Aggregate: **Marble or glass or mother of pearl or metal chips or "combination of" indicated in percentages** in screed sizes 0, 1 and 2 of standard gradation and uniform coloration.
3. Provide custom colors. The number of colors and patterns required are as indicated on the drawings.

2.2 ACCESSORIES

- A. Divider Strips: **16 gauge thick or 1/8 inch thick or 1/4 inch thick or "combination of" (indicate sizes required and location) thick aluminum or brass strip (indicate type of metal specified. Any patterns should be shown on drawings)**, with anchoring features.
- B. Expansion Control Joint Strips: 16 gauge, back-to-back **aluminum or brass strip (indicate type of metal)**, set at the edge of the concrete on each side of the control joint, with soft, flexible epoxy joint filler to match adjacent terrazzo floor between vertical edges of strips, with anchoring features; as recommended by manufacturer.
- C. **Base Cap, Base Divider Strip, and Separator Strip: Match divider strips.**
- D. Cleaner: Liquid type, pH of 7; as recommended by terrazzo manufacturer.
- E. Sealer: Colorless, non-yellowing, penetrating liquid type to completely seal matrix surface; not detrimental to terrazzo components, biodegradable and phosphate free.
- F. Sub floor Filler: Epoxy type.
- G. Primer: as recommended by epoxy resin manufacturer.
- H. Crack Isolation Membrane:
 1. Membrane shall be compatible with resin material and supplied by an NTMA member manufacturer.
 2. Provide an area of membrane equivalent to **0% to 100% (select percentage required)** of area in the building area specified to receive terrazzo flooring.

3. Provide a 100% solids epoxy membrane.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements: Coordination and project conditions.
- B. Verify substrate surfaces are ready to receive work.
- C. Do not begin terrazzo work until concrete substrate has cured 28 days, minimum, has dried to a relative humidity measurement of less than 80% and all defects that affect proper execution have been corrected. Any recognized remediation processes that must be performed to bring the concrete slab to its correct state in order to receive terrazzo is an additional scope of work not included in this specification.
- D. If relative humidity measurement is not less than 80% when it is time to install the terrazzo, then a moisture vapor barrier should be applied to cover 0% to 100% of the floor. (Additional cost is required for vapor barrier and should be requested during the bid process as an additional unit price cost or as an additive alternate.).

3.2 PREPARATION

- A. Clean substrates of foreign matter, including laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil and other contaminants.
- B. Prepare concrete and repair cracks and non-expansion joints greater than 1/16" wide.
- C. Apply primer.
- D. Install crack isolation membrane in strict accordance with manufacturer's printed, submitted and approved recommendations.

3.3 INSTALLATION

- A. Prepare substrate to receive epoxy terrazzo in accordance with manufacturer's recommendations. Any substrate that has received curing compounds or any coating to finished concrete shall receive shot-blast treatment prior to receiving primer and finish.
- B. Install control joints directly above control joints in sub floor. Install divider and control joint strips straight and level to locations indicated.
- C. Install non-slip inserts in floors where indicated.
- D. Place terrazzo mix over prepared substrate to thickness indicated.
- E. Close area to allow undisturbed curing.
- F. Finishing:
 1. Finish terrazzo to NTMA requirements.
 2. Produce terrazzo finish surface to match approved mock-up sample, with 70 percent marble chips exposed.

3. Grind terrazzo surfaces with power disc machine; sequence with coarse (24 grit or finer) to fine (80 grit or finer up to 800 grit. Select desired finish because the higher the grit the higher the polish) grit abrasive, using wet or dry method.
4. Apply grout mix to match mortar over ground surface to fill honeycomb exposed during grinding.
5. Remove grout coat by grinding, using fine (80 or finer) grit abrasive.
6. Apply non-coloring, non-yellowing penetrating sealer.

3.4 ERECTION TOLERANCES

- A. Section 01400 - Quality Requirements: Tolerances.
- B. Maximum Variation from Flat Surface: 1/4 inch in 10 feet.
- C. Maximum Variation from Level (Except Surfaces Sloping to Drain): 1/4 inch.

3.5 CLEANING

- A. Section 01700 - Execution Requirements: Final cleaning.
- B. Remove grinding dust from installation and adjacent areas.
- C. Scrub and clean terrazzo surfaces with cleaner according to NTMA written recommendations. Let dry.
- D. Immediately after terrazzo has dried, apply sealer according to NTMA and Manufacturers written instructions.
- E. Seal and polish surfaces.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 01700 - Execution Requirements: Protecting installed construction.
- B. The General Contractor shall protect the finished work from the time that the terrazzo contractor finishes the work. Do not permit anything other than pedestrian traffic over finished terrazzo surfaces.

END OF SECTION