SECTION 09 66 23 - RESINOUS MATRIX TERRAZZO FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Thin-set epoxy-resin terrazzo flooring and base.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. LEED Submittals:

1. Product Data for Credit MR 4.1 and Credit MR 4.2: For marble chips, aggregates, indicating percentages by weight of postindustrial recycled content.

   a. Include statement that indicates cost for each product having recycled content.

2. Product Data for Credit EQ 4.1: For adhesives, including printed statement of VOC content and chemical components.

C. Shop Drawings: Include terrazzo installation requirements. Include plans, elevations, sections, component details, and attachments to other work.

D. Samples: For each type, material, color, and pattern of terrazzo and accessory required showing the full range of color, texture, and pattern variations expected.

E. Installer certificates.

F. Qualification data.

G. Material certificates.

H. Maintenance data.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who is acceptable to terrazzo manufacturer to install manufacturer's products.

1. Engage an installer who is certified in writing by terrazzo manufacturer as qualified to install manufacturer's products.
2. Engage an installer who is a contractor member of NTMA.

B. NTMA Standards: Comply with NTMA's "Terrazzo Specifications and Design Guide" and with written recommendations for terrazzo type indicated unless more stringent requirements are specified.

C. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

D. Preinstallation Conference: Conduct conference at Project site.

1.4 PROJECT CONDITIONS

A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting terrazzo installation.

B. Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during terrazzo installation.

C. Close spaces to traffic during terrazzo application and for not less than 24 hours after application unless manufacturer recommends a longer period.

D. Control and collect dust produced by grinding operations. Protect adjacent construction from detrimental effects of grinding operations.

1. Provide dustproof partitions and temporary enclosures to limit dust migration and to isolate areas from noise.

PART 2 - PRODUCTS

2.1 EPOXY-RESIN TERRAZZO

A. Products: Subject to compliance with requirements, provide the following:

1. Crossfield Products Corp., Dex-O-Tex Division; Cheminert Terrazzo.
2. General Polymers Corporation; Terrazzo 1100.
3. Key Resin Company; Key Epoxy Terrazzo.

B. Materials:

1. Flexible Reinforcing Membrane: Manufacturer's resinous membrane for substrate crack preparation and reflective crack reduction.

a. Reinforcement: Fiberglass scrim.

2. Primer: Manufacturer's product recommended for substrate and use indicated.

3. Epoxy-Resin Matrix: Manufacturer's standard recommended for use indicated and in color required for mix indicated.

   a. Physical Properties without Marble Chips and Aggregates:

      1) Hardness: 60 to 85 per ASTM D 2240, Shore D.
      2) Minimum Tensile Strength: 3000 psi per ASTM D 638 for a 2-inch specimen made using a "C" die per ASTM D 412.
      3) Minimum Compressive Strength: 10,000 psi per ASTM D 695, Specimen B cylinder.
      4) Chemical Resistance: No deleterious effects by contaminants listed below after seven-day immersion at room temperature per ASTM D 1308.

         a) Distilled water.
         b) Mineral water.
         c) Isopropanol.
         d) Ethanol.
         e) 0.025 percent detergent solution.
         f) 1.0 percent soap solution.
         g) 10 percent sodium hydroxide.
         h) 10 percent hydrochloric acid.
         i) 30 percent sulfuric acid.
         j) 5 percent acetic acid.

   b. Physical Properties with Marble Chips and Aggregates: For resin blended with Georgia white marble, ground, grouted, and cured per requirements in NTMA's "Terrazzo Specifications and Design Guide," comply with the following:

      1) Flammability: Self-extinguishing, maximum extent of burning 0.25 inch per ASTM D 635.
      2) Thermal Coefficient of Linear Expansion: 0.0025 inch/inch per deg F for temperature range of minus 12 to plus 140 deg F per ASTM D 696.

4. Marble Chips and Aggregates: Complying with NTMA gradation standards for mix indicated and containing no deleterious or foreign matter.

   a. Abrasion and Impact Resistance: Less than 40 percent loss per ASTM C 131.
   b. 24-Hour Absorption Rate: Less than 0.75 percent.
   c. Dust Content: Less than 1.0 percent by weight.
   d. Postindustrial Recycled Content: <**Insert value**> percent.

5. Finishing Grout: Resin based.

C. Terrazzo: Comply with NTMA's "Terrazzo Specifications and Design Guide" and manufacturer's written instructions for matrix and marble-chip proportions and mixing.

   1. Formulated Mix Color and Pattern: As selected by Owner from NTMA standard-terrazzo plates.

D. Terrazzo: Comply with NTMA's "Terrazzo Specifications and Design Guide" and manufacturer's written instructions for matrix and marble-chip and aggregate proportions and mixing.

2.2 STRIP MATERIALS

A. Thin-Set Divider Strips: L-type angle or T-type, 1/4 inch deep.

1. Material: White-zinc alloy.
2. Top Width: 1/8 inch.

B. Control-Joint Strips: Separate, double L-type angles, positioned back to back, that match material, thickness, and color of divider strips and in depth required for topping thickness indicated.

C. Accessory Strips: Match divider strip width, material, and color unless otherwise indicated. Use the following types of accessory strips as required to provide a complete installation:

1. Base-bead strips for exposed top edge of terrazzo base.
2. Edge-bead strips for exposed edges of terrazzo.
3. Nosings for terrazzo stair treads and landings.

D. Abrasive Strips: 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: As indicated.
4. Color: As selected by Owner from manufacturer's full range.

2.3 MISCELLANEOUS ACCESSORIES

A. Strip Adhesive: Epoxy-resin adhesive recommended by adhesive manufacturer for this use and acceptable to terrazzo manufacturer.

1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Anchoring Devices:

1. Provide mechanical anchoring devices for strip materials as required for secure attachment to substrate.

C. Patching and Fill Material: Terrazzo manufacturer's resinous product approved and recommended by manufacturer for application indicated.

D. Joint Compound: Terrazzo manufacturer's resinous product approved and recommended by manufacturer for application indicated.

E. Cleaner: Chemically neutral cleaner with pH factor between 7 and 10 that is biodegradable, phosphate free, and recommended by sealer manufacturer for use on terrazzo type indicated.

F. Sealer: Slip- and stain-resistant penetrating-type sealer that is chemically neutral with pH factor between 7 and 10; does not affect color or physical properties of terrazzo; is recommended by sealer manufacturer; and complies with NTMA's "Terrazzo Specifications and Design Guide" for terrazzo type indicated.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrates of substances, including oil, grease, and curing compounds, that might impair terrazzo bond. Provide clean, dry, and neutral substrate for terrazzo application.

B. Concrete Slabs:

1. Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with terrazzo.

    a. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.
    b. Repair damaged and deteriorated concrete according to terrazzo manufacturer's written recommendations.
    c. Use patching and fill material to fill holes and depressions in substrates according to terrazzo manufacturer's written instructions.

2. Verify that concrete substrates are visibly dry and free of moisture.
3. Moisture Testing:
    a. Test for moisture content by method recommended in writing by terrazzo manufacturer. Proceed with installation only after substrates pass testing.

C. Protect other work from dust generated by grinding operations. Control dust to prevent air pollution and comply with environmental protection regulations.

1. Erect and maintain temporary enclosures and other suitable methods to limit dust migration and to ensure adequate ambient temperatures and ventilation conditions during installation.

D. Installation of terrazzo indicates acceptance of surfaces and conditions.

3.2 EPOXY-RESIN TERRAZZO INSTALLATION

A. General:

1. Comply with NTMA's written recommendations for terrazzo and accessory installation.

2. Place, rough grind, grout, cure grout, fine grind, and finish terrazzo according to manufacturer's written instructions and NTMA's "Terrazzo Specifications and Design Guide."
3. Installation Tolerance: Limit variation in terrazzo surface from level to 1/4 inch in 10 feet; noncumulative.
4. Ensure that matrix components and fluids from grinding operations do not stain terrazzo by reacting with divider and control-joint strips.
5. Delay fine grinding until heavy trade work is complete and construction traffic through area is restricted.

B. Thickness: 3/8 inch nominal.

C. Flexible Reinforcing Membrane:

1. Prepare and prefill substrate cracks with membrane material.
2. Install membrane to produce full substrate coverage in areas to receive terrazzo.
3. Reinforce membrane with fiberglass scrim.
4. Prepare membrane according to manufacturer's written instructions before applying substrate primer.

D. Primer: Apply to terrazzo substrates according to manufacturer's written instructions.

E. Strip Materials:

1. Divider and Control-Joint Strips:

a. Locate divider strips in locations indicated.
b. Install control-joint strips back to back directly above concrete-slab control joints.
c. Install control-joint strips with 1/4-inch gap between strips, and install sealant in gap.
d. Install strips in adhesive setting bed without voids below strips, or mechanically anchor strips as required to attach strips to substrate, as recommended by strip manufacturer.

2. Accessory Strips: Install accessory strips as required to provide a complete installation.
3. Abrasive Strips: Install with surface of abrasive strip positioned 1/32 inch higher than terrazzo surface.

F. Fine Grinding: Grind with stones 120 grit or finer until all grout is removed from surface. Repeat rough grinding, grout coat, and fine grinding if large voids exist after initial fine grinding. Produce surface with a minimum of 70 percent aggregate exposure.

G. Repair: Remove and replace terrazzo areas that evidence lack of bond with substrate. Cut out terrazzo areas in panels defined by strips and replace to match adjacent terrazzo, or repair panels according to NTMA's written recommendations, as approved by Owner.

3.3 CLEANING AND PROTECTION

A. Cleaning:

1. Remove grinding dust from installation and adjacent areas.
2. Wash surfaces with cleaner according to NTMA's written recommendations and manufacturer's written instructions; rinse surfaces with water and allow to dry thoroughly.

B. Sealing:

1. Seal surfaces according to NTMA's written recommendations.
2. Apply sealer according to sealer manufacturer's written instructions.

C. Protection: Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure that terrazzo is without damage or deterioration at time of Substantial Completion.

END OF SECTION 09 66 23