

**SECTION 09 66 23
TERRAZZO FLOORING**

PART 1 GENERAL

1.01 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; Current Edition.
- B. ANSI A136.1 - American National Standard Specifications for Organic Adhesives for Installation of Ceramic Tile; 2020.
- C. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2018.
- D. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2018.

1.02 GENERAL REQUIREMENTS

- A. The Contractor is referred to the Contract Documents which include the "Bid Document," the "Contract Drawings"; the "Specifications"; "General Conditions", "Special Conditions", "Special Notice to Contractors Summary Form" latest edition; the "Form of Proposal", "Amendments to General Conditions", and all amendments and addenda, all of which govern the Work of this Contract.

1.03 SCOPE OF WORK

- A. Work Included: The Work of this Section includes, but is not limited to the following:
 - 1. Remove existing terrazzo flooring where indicated.
 - 2. Provide precast terrazzo tiles and base where indicated.

1.04 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Include terrazzo installation requirements. Include plans, elevations, sections, component details, and attachments to other work. Show layout of the following:
 - 1. Divider strips of each type and thickness.
 - 2. Control-joint strips.
 - 3. Accessory strips.
 - 4. Terrazzo patterns.
 - 5. Terrazzo base units.
 - 6. Starting points and dimensions.
- C. Samples for Verification: For each type, material, color, and pattern of terrazzo and accessory required showing the full range of color, texture, and pattern variations expected. Label each terrazzo sample to identify manufacturer's matrix color and aggregate types, sizes, and proportions. Prepare samples of same thickness and from same material to be used for the Work in size indicated below:
 - 1. Terrazzo: 12-inch- square Samples.
 - a. 12 inch by 12 inch outside corner of wall base.
 - 2. Accessories: 6-inch- long Samples of each exposed strip item required.
- D. Installer Certificates: Signed by manufacturers certifying that installers comply with requirements.
- E. Qualification Data: For qualified Installer.
- F. Material Certificates: For each type of terrazzo material or product, from manufacturer.
- G. Testing reports: For concrete moisture tests.
- H. Maintenance Data: For terrazzo to include in maintenance manuals.

1.05 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. Source Limitations: Obtain primary terrazzo materials from one source from a single manufacturer. Provide secondary materials including patching and fill material, joint sealant, and repair materials of type and from source recommended by manufacturer of primary materials.
- C. 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.
- D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. At an area on the site approved by NYCHA, provide a mock-up tile installation for all tile installation types:
 - a. Make the mock-up(s) approximately 2'-0" x 2'-0" in dimension.
 - b. Provide one mock-up for each type, class, and color of installation required under this Section.
 - c. The mock-ups may be used as part of the Work, and may be included in the finished Work, when so approved by NYCHA.
 - d. Revise as necessary to secure NYCHA approval.
 2. The mock-ups, when approved by the NYCHA, will be used as datum for comparison with the remainder of the work of this Section for the purposes of acceptance or rejection
 3. If the mock-up panels are not permitted to be part of the finished Work, completely demolish and remove them from the job site upon completion and acceptance of the work of this Section.
- E. Preinstallation Conference: Conduct conference at Project site.
1. 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 special terrazzo designs and patterns.
 - d. Review dust-control procedures.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in supplier's original wrappings and containers, labeled with sources or manufacturer's name, material or product brand name, and lot number if any.
- B. Store materials in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

1.07 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. Field Measurements: Verify actual dimensions of construction contiguous with terrazzo by field measurements before fabrication.
- C. Provide permanent lighting during terrazzo installation.
- D. Close spaces to traffic during terrazzo application and for not less than 24 hours after application unless manufacturer recommends a longer period.

- E. 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.

1.08 WARRANTY

- A. Manufacturer and installer shall provide a 5 year warranty from the date of Substantial Completion for epoxy terrazzo flooring systems. Warranty shall provide for replacement of epoxy flooring that has failed during the warranty period. Failures include but are not limited to cracking, blistering or delaminating.

PART 2 PRODUCTS

2.01 PRE CAST TERRAZZO TILES AND BASE

- A. Bases of Design: Subject to compliance with requirements, provide approved manufacturer.
 - 1. Terrazzo Tile: Provide Daltile D175 Beige and Mexican Sand Spackle or equal flat tile complying with the following requirements:
 - a. Nominal Facial Dimensions: 2' by 2', or as shown on Drawings.
 - b. Nominal Thickness: 3/8", unless otherwise indicated.
 - c. Face: Plain with modified square edge.
 - 1) Provide sanitary cove base to match wall tile.
 - 2) Accent strip as shown on drawings.
 - 3) 2.03 TERRAZZO TILE
 - 4) A. Daltile D175 Mexican Sand Spackle unglazed ceramic mosaic thru-porcelain floor tile with abrasive grain integral to tile: Provide factory-mounted flat tile complying with the following requirements:
 - d. Composition: Porcelain.
 - e. Nominal Facial Dimensions: 2" x 2" square, or as shown on Drawings.
 - f. Nominal Thickness: 1/4", unless otherwise indicated.
 - g. Face: Abrasive grain for additional slip resistance.
 - h. Meeting ANSI Code for slip resistance (ADA compliance), minimum .6 static coefficient of friction.
 - 1) TRIM AND SPECIAL SHAPES
 - 2) Provide external and internal corners, trim shapes at openings, and all other trim and special shapes to match the tile specified herein, as required by field conditions and drawing details.
 - 3) SETTING BEDS AND GROUT
 - 4) Portland Cement: ASTM C150, Type I.
 - 5) Hydrated Lime: ASTM C207, Type S.
 - 6) Sand: ASTM C144, clean and graded natural sand.
 - 7) Latex Additive: As manufactured by Mapei, Laticrete, Boiard Products, H.B. Fuller or equal.
 - 8) Wall and Base Tile
 - i. Over drywall use ANSI A136.1-1967 Organic Adhesive for installation of Ceramic Tile, Type I. Shear strength shall be 50 psi minimum. Adhesive primer as recommended by adhesive manufacturer. Manufacturer shall certify, in writing, that adhesive and primer used are proper types for the intended tile types and application. Conform to TCA Detail W-202.
 - j. Over masonry and concrete use a mortar leveling coat followed by a Dry-Set Latex modified Portland Cement Bond Coat conforming to TCA Detail W-211.
 - k. Over cement board use a latex modified dry set Portland cement mortar conforming to TCA Detail W-244.
 - 1) Floor Tile - Thin Set: Set floor tile using latex modified dry set Portland cement bond coat conforming to TCA Detail F-113.
 - 2) Water: Clean, fresh and potable.

- 3) Tile Cleaner
- I. Product specifically acceptable to tile and grout manufacturer, as recommended by National Tile Promotion Federation, 112 North Alfred St., Alexandria, VA 22134 or Ceramic Tile Institute, 700 N. Virgil Ave., Los Angeles, CA 90029.

2.02 STRIP MATERIALS

- A. Thin-Set Divider Strips: L-type angle or T-type, 1/4 inch deep.
 1. Material: Match existing..
 2. Top Width: 1/8- inch.
 3. Pattern: Match existing.
- 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 types of accessory strips as required to provide a complete installation:

2.03 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 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- B. Anchoring Devices:
 1. Strips: 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.
- G. Subflooring: ¾ inch thick exterior grade plywood with extended glue line, refer to Division 6, Section 061000 Section "Rough Carpentry" and be free of all waxes, varnishes or other materials that will interfere with the adhesion of the terrazzo or cause telegraphing of patterns or stains.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates and areas where existing terrazzo was removed with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions, including levelness tolerances, have been corrected.

3.02 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. Existing or New 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. Wood Subfloor: Secure plywood with exterior grade glue and fasten in accordance with terrazzo manufacturer's instructions. Stagger and space joints to allow for plywood movement. Fill joints with epoxy filler and cover with epoxy resin. Prepare plywood to insure adhesion of terrazzo application.
- E. Installation of terrazzo indicates acceptance of surfaces and conditions.

3.03 PRECAST TERRAZZO INSTALLATION {ARCHITECT VERIFY}

- A. Install precast terrazzo units using method recommended NTMA and manufacturer unless otherwise indicated.
- B. Installation Tolerance: Set units with alignment level and true to dimensions, varying 1/8-inch maximum in length, height, or width; noncumulative.
- C. Do not install units that are chipped, cracked, discolored, or not properly finished.
- D. Seal joints between units with joint compound matching precast terrazzo matrix or joint sealant.

3.04 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 the NYCHA representative, that ensure that terrazzo is without damage or deterioration at time of Substantial Completion.

END OF SECTION 09 66 23