

SECTION 094300 – TERRAZZO REPAIR

PART 1 - GENERAL

1.1 SUMMARY

- A. Materials used in terrazzo floor repairs.
- B. Materials used for injection of delaminated terrazzo flooring.
- C. Divider strips.

1.2 SUBMITTALS

- A. Product Data: Provide data for divider strips, control joint strips, expansion joints, and sealer
- B. Shop Drawings: Indicate divider strip and control joint layout, and details of adjacent components.
- C. Qualification Data: For testing agency.
- D. Terrazzo, marble and injection material supplier shall provide specific recommendations for mixing, application and curing; including any precautions of special handling instructions required to comply with the occupational Safety and Health Act.
- E. Cleaning and Maintenance Data: Include procedures for stain removal, stripping, and sealing.

1.3 QUALITY ASSURANCE

- A. Terrazzo and Injection material applicator shall furnish certification attesting that materials meet specification requirements.
- B. Terrazzo and injection materials applicator shall furnish properly labeled material and Material Safety Data Sheets, which comply with current state and federal requirements.
- C. Applicator Qualifications: Company specializing in performing the type of work specified in this section with minimum 5 years of documented experience performing this exact type of work.
 - 1. The chemical injection and terrazzo floor repair must be performed by a contractor who can show two projects of comparable scope and complexity completed within the last two years.
 - 2. Contractor must have completed satisfactory at least 10,000 lineal feet of cosmetic crack repair on terrazzo flooring.
 - 3. Contractor must have completed satisfactory at least 10,000 square feet of chemical injection to hollow plane/delaminated terrazzo flooring.
 - 4. Contractor must have completed a similar project in complexity and scope valued at least \$50,000.00 in the last 3 years.

5. Contractor must have skilled superintendents having not less than two years satisfactory experience, and mechanics having not less than six months satisfactory experience in the repair as specified in this section. One skilled mechanic can supervise a maximum ratio of two unskilled mechanics.
6. It is expected that the contractor will furnish adequate labor, material and equipment such that the work will progress without any undue and unnecessary interruption.

1.4 MOCK-UP

- A. Upon request, the Contractor shall demonstrate, to the satisfaction of the institution, his ability to perform the work by repairing a minimum of one linear foot of cosmetic crack repair and two square feet of hollow plane/delamination injection, employing the methods outlined.
- B. Contractor's ability to perform the work shall be confirmed by:
 1. Visual inspection of crack resulting in a nearly indistinguishable repair as determined by the institution.
 2. Hollow plane/delamination injection shall be sounded out or a test core drilled and inspected at the direction of the institution.
- C. Costs associated with test core will be the institution's responsibility.
- D. Locate where directed.
- E. Mock-up may remain as part of work.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store resin materials in a dry. Secure area.
- B. Maintain minimum temperature of 55 degrees F.
- C. Keep products away from fore or open flame.
- D. All material shall be delivered to project site in original manufacturer's sealed containers including type of material, batch number, date of manufacture and pertinent labels intact and legible.
- E. All manufacturer's specific instructions and prudent safety practices for storage and handling shall be followed.
 1. The Contractor shall be responsible for materials furnished by him and he shall replace, at his own expense, such materials that are found defective in manufacturing or that have become damaged in transit, handling and storage.

1.6 FIELD CONDITIONS

- A. Do not install terrazzo when temperature is below 50 degrees F or above 90 degrees F.
- B. Maintain temperature within specified range 24 hours before, during, and 72 hours after installation of flooring.
- C. Provide ambient lighting level of 50 ft candles, measured at floor surface.
- D. The Contractor shall visit the job site prior to commencement of project to evaluate substrate and working conditions, and to evaluate the quantity and severity of cracking, and the amount and severity of delamination.
- E. The Contractor shall meet with the institution to discuss substrate, cracking, and delamination/hollow plane in terrazzo flooring.
- F. Permanent lighting will be in place and working during repairs. Any additional lighting requirements are the responsibility of the Contractor.
- G. The minimum slab temperature will be above 60 degree F during the repairs. The substrate temperature will be at least 5 degrees F above the dew point during repairs.

PART 2 - RODUCTS

2.1 MANUFACTURERS

- A. Materials for Terrazzo Matrix:
 - 1. Basis of Design: Terrazzo Marble and Supply Co., Inc.; Product Terroxy Resin System's Terroxy Joint Filler and/or Terroxy Resin Matrix: www.tmsupply.com.
 - 2. Key Resin Company: www.keyresin.com.
 - 3. Sherwin-Williams Company: General Polymers Brand: www.generalpolymers.com.
 - 4. Substitution: See Division 1 – Product Requirements.

2.2 MATERIALS

- A. Injection Materials
 - 1. The injection chemicals resin shall be two-component urethane as manufactured by injection materials supplier, which has been formulated for the application requirements.
- B. Crack Repair Materials
 - 1. The materials for the repair of cracks or patches shall be formulated for the application requirements.

2.3 ACCESSORIES

- A. Divider Strips: 1/8 inch thick zinc exposed top strip, zinc coated steel concealed bottom strip, with anchoring features.
- B. Control Joint Strips: 1/8 inch nominal width zinc exposed top strips, zinc coated steel concealed bottom strips, 1/8 inch wide neoprene filler strip between vertical strips, with anchoring features.
- C. Divider and Control Joint Strip Height: To suit thickness of terrazzo topping, with allowance for grinding.
- D. Base Cap, Base Divider Strip, and Separator Strip: Match divider strips.
- E. Sealer: Colorless, non-yellowing, penetrating liquid type to completely seal matrix surface; not detrimental to terrazzo components.
- F. Primer: Manufacturer's standard.
- G. complying with ASTM B 800 and ASTM B 801.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify the sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive terrazzo.
- B. Verify that wall surfaces are smooth and flat within tolerances specified for that type of work, are dust-free, and are ready to receive terrazzo (if applicable i.e. if cove moldings are being used).
- C. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of materials to sub-floor surfaces.
- D. Verify the concrete sub-floor surfaces are ready for terrazzo installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by terrazzo materials manufacturer.
- E. Verify that required floor-mounted utilities are in current location.

3.2 PREPARATION

- A. Clean substrate of foreign matter.
- B. The Contractor shall furnish all hand and power tools as required for preparing the edges of cracks in terrazzo flooring to be assured of correct bond.

- C. The Contractor shall provide all hand tools, power tools or equipment required to repair the cracks, core sample patches or damaged areas in terrazzo flooring to be assured of correct bond and profile.
- D. Surfaces adjacent to areas of injection shall be cleaned of dirt, dust or any foreign matter, which may be detrimental to establishing a bond or contamination of the injection material.
- E. The entry ports shall be located along the cracks and over the hollow plane void and placed in such a manner as to assure that when the adhesive material shows at the adjacent port, it has completely filled the void. Plug first entry port and proceed to adjacent port. Continue injecting and plugging until completed. Spacing shall be determined by the tightness of the void.
- F. The Contractor shall contain all dust, debris or any matter created during the preparation by use of tool shrouds with a vacuum system or as required to contain dust. The Contractor is responsible to vacuum, sweep and keep work area clean during and after each stage of work. The Contractor is required to follow good housekeeping practices.
- G. The Contractor shall exercise care during surface preparation and system installation to protect surrounding substrates and surfaces, as well as in-place equipment.
- H. Apply primer in accordance with manufacturer's instructions.

3.3 INJECTION EQUIPMENT

- A. The Contractor shall provide and submit to the institution written instructions from the manufacturer of the proportioning dispenser as to the procedure recommended to monitor and assure its proportioning accuracy to the unit. These recommendations are to be diligently carried out by the Contractor and the institution shall be kept advised as to when, so they can observe the procedures.
- B. All injection equipment must be from a nationally recognized manufacturer.
- C. The overall quality of the work shall be judged by the Contractor's ability to achieve 80% to 90% filling of the voids. In case of a question as to quality of work, the institution will have core samples taken from the completed work and assess the completeness of void penetration.
- D. Specific Equipment Requirements On Injection Equipment:
 - 1. Ratio Tolerance:
 - a. The injection equipment shall be capable of maintaining the volume ratio of the specified adhesive components during uninterrupted flow within a tolerance of $\pm 5\%$.
 - 2. Pressure Control:
 - a. The injection equipment shall have an automatic pressure control device that allows operation at any pre-set pressure within its operating range.

3.4 INSTALLATION - ACCESSORIES

- A. Install divider and control joint strips straight and level to locations indicated.
- B. Install base and border divider and control joint strips to match floor pattern.

3.5 APPLICATION – TERRAZZO REPAIR

- A. Place terrazzo mix over prepared substrate to thickness indicated.
- B. Surfaces adjacent to areas of injection shall be cleaned of dirt, dust or any foreign matter, which may be detrimental to establishing a bond or contamination of the injection material.
- C. The entry ports shall be located along the cracks and over the hollow plane void and placed in such a manner as to assure that when the adhesive material shows at the adjacent port, it has completely filled the void. Plug first entry port and proceed to adjacent port. Continue injecting and plugging until completed. Spacing shall be determined by the tightness of the void.
- D. The Contractor shall contain all dust, debris or any matter created during the preparation by use of tool shrouds or vacuum system as required to contain dust. The Contractor is responsible to vacuum, sweep and keep work area clean during and after each stage of work. The Contractor is required to follow good housekeeping practices.
- E. The Contractor shall exercise care during surface preparation and system installation to protect surrounding substrates and surfaces, as well as in-place equipment.
- F. Care must be taken as not to enlarge existing repair area.
- G. The Contractor shall exercise care during surface preparation and system installation to protect surrounding substrates and surfaces, as well as in-place equipment.

3.6 APPLICATION – TERRAZZO PATCHING

- A. Blend the Epoxy Resin materials according to the manufacturer's instructions matching the color of existing terrazzo floor matrix.
- B. Force mixed resin into the void, making sure it is pressured into the crack as deep as possible.
- C. Marble chips can be added to the mixture while it is still wet to match existing terrazzo blend.
- D. Tool off surface and allow to cure.
- E. Allow patching material to cure in compliance with manufacturer's directions. Taking care to prevent contamination during stages of installation and prior to completion of the curing process.
- F. Inspect repair and touch up as required.

1. If marble chips were not used, prepare surface to match a minimum of two chip colors and fill. Tool into surface and allow to cure.
2. Inspect repair and touch-up as required.

3.7 CURING

- A. Cure terrazzo topping by sheet polyethylene curing method.
- B. Close area to allow undisturbed curing.

3.8 FINISHING

- A. Grind terrazzo surfaces with coarse to fine grit abrasive, using a wet or dry method.
- B. Apply Vitrification/Crystalizer and polish the terrazzo floor to a high shine.

END OF SECTION 094300