

SECTION 09 30 99

RESTORATION OF MARBLE, TERRAZZO AND TILE FLOORING

PART 1 - GENERAL - For additional information, refer to Volume II, Section C, Historic Guidelines and Criteria

1.01 DESCRIPTION

- A. This Section describes the requirements for building restoration and cleaning work, including the following:
1. Stone Flooring:
 - a. Maintain and repair as required plywood protection over all existing stone floors installed during the soft demolition phase.
 - b. Resurface stone floors utilizing a 300-400 grit and seal with water and oil repellent sealer.
 - c. Repair stone floors with polyester resin as required. Repairs include holes drilled thru stone, damage where demolished partitions were removed, and chips/cracks.
 2. Terrazzo Flooring:
 - a. Maintain and repair as required plywood protection over all existing terrazzo floors installed during the soft demolition phase.
 - b. Resurface terrazzo flooring and border strips with a 300-400 grit and seal with water and oil repellent sealer.
 - c. Repair terrazzo floor where it is chipped or damaged to match original.
 - d. At the 2nd and 8th floors where the existing historic corridor is being extended beyond the original corridor line, grind down the existing floor and install new thin-set terrazzo as specified in Section 09 66 23.16.
 - e. Replace terrazzo flooring that was removed in the soft demolition phase to facilitate de-installation of the stone wall paneling.
 3. Tile Flooring: Replace broken and damaged tile with new tile to match existing.
 4. Cleaning existing flooring.

1.02 SUBMITTALS

- A. Product Data: Manufacturer's technical data for each product to be used, including recommendations for application and use.
- B. Cleaning and Restoration Program: Written program for each phase of cleaning and restoration including protection of surrounding materials during work.
1. Describe materials, methods and equipment to be used for each phase of work.
 2. If alternative methods and materials are proposed, furnish written description, including documentation of successful use on other comparable Projects.

1.03 QUALITY ASSURANCE

- A. Restoration Specialist: Firm having minimum 5-years experience in comparable restoration Projects, employing personnel skilled in the restoration and operations specified.
- B. Field Constructed Mock-Up: Prior to start of work, prepare a cleaning and restoration mock-up of each required floor surface where directed by the County's Representative. Demonstrate cleaning and restoration materials and methods proposed for use. Obtain County's Representative's approval of visual qualities before proceeding with the work.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's original and unopened containers and packaging, bearing labels indicating type and names of products and manufacturers.
- B. Protect materials during storage and construction from wetting by rain or ground water, and from staining or intermixture with earth and other types of materials.
- C. Protect grout, mortar and other materials from deterioration by moisture and temperature.
 - 1. Store in a dry location or in waterproof containers.
 - 2. Keep containers tightly closed and away from open flames.
 - 3. Comply with manufacturer's recommendations for storage temperature requirements.

1.05 PROJECT CONDITIONS

- A. Protect surrounding surfaces from damage resulting from the work.
- B. Prevent grout and mortar from staining face of surrounding surfaces. Remove grout and mortar immediately from exposed surfaces.

PART 2 - PRODUCTS

2.01 CLEANING MATERIALS AND EQUIPMENT

- A. Water for Cleaning: Clean, potable, free of oils, acids, alkalis, salts, and organic matter.
- B. Brushes: Fiber bristles.
- C. Sealer: Mira Seal or approved equal water and oil repellent sealer recommended for use on stone of the type required.
- D. Polyester Repair Resin: Akami Marble Repair Compound or approved equal.

PART 3 - EXECUTION

3.01 RESTORATION OF EXISTING MARBLE, TERRAZZO AND TILE FLOORS

- A. Preservation and Maintenance:
 - 1. Cleaning Methods:
 - a. Cleaning shall begin with the gentlest means possible.

- b. Cleaning and stain-removal products shall be tested on a small, inconspicuous area before using.
 - c. Do not use abrasive cleaners or mechanical equipment on stone and tile floors.
 - d. Do not use acid-based cleaning solutions on stone and tile floors because they can damage the complex silicates in a glaze. Acid-based cleaner may be needed to remove discoloration or staining caused by lime or cement mortar, but shall be tested first, used with caution, and applied only to a wetted floor.
 - e. Pre-wet floor tile before cleaning.
 - f. Rinse after cleaning.
 - g. Organic growth, including mold or mildew, shall be eliminated with a dilute solution of household bleach and a neutral household detergent or a dilute (5- to 10-percent) solution of tri-sodium phosphate (TSP). After application, scrub the floor with a natural bristle or nylon brush and rinse with clear water. Do not leave bleach solutions on floor for more than a few minutes since the alkali in the bleach can lead to the formation of a white efflorescent deposit.
2. Protective Coatings: Comply with ADA Guidelines for a static coefficient of friction of 0.6 for level surfaces and 0.8 for ramps. Apply a non-slip sealer or water to stone and tile floors if required.

B. Repair and Replacement:

- 1. Mortar Joint Repair: Check floor for loose tiles that need to be re-grouted. Carefully remove damaged mortar by hand and wet joints or apply a bonding agent prior to re-grouting. Use a grout that matches the old in color and consistency.
- 2. Tile Repair: Removing one tile can endanger surrounding tiles so it may be better to preserve and retain an original tile that is only slightly damaged rather than replacing it.
- 3. Tile Replacement: When an individual tile or a larger portion of a floor is missing or so severely damaged that it cannot be repaired, or if it has become a safety hazard then it shall be replaced. If damage to tiles is the result of more than normal wear and tear, identify the source of the problem and correct before replacing damaged tiles.
 - a. Selective Replacement:
 - 1) This cautious approach attempts to replace only the most seriously damaged tiles and shall be undertaken when only a small number of tiles are involved. Unless old, matching tiles can be found and reused, replacement requires specially fabricated reproduction tiles. If possible, individual tiles that are damaged may be replaced with matching tiles salvaged from other, less prominent areas of the floor or from other buildings.
 - 2) Replacing a single damaged tile is based on the ability to remove only the deteriorated tile without harming surrounding tiles. Attempts to remove one or several damaged tiles often fail because a hammer and chisel are used. To avoid damaging good tiles, the grout around the damaged tile shall be removed using a grout saw or for joints wider than 3/8-inch, a dry-cutting diamond blade mounted in an angle grinder or circular saw.

- 3) New reproduction tile may be different in thickness from the existing tile. If the setting bed does not have enough mortar to grip and hold the tile, one new tile laid among the originals will eventually come loose. If the new and old tiles are different thickness, the setting bed in which the new tiles are laid shall be modified in height as required to create a level finished surface.

b. Sectional Replacement:

- 1) Sectional replacement includes removal of a complete section of damaged tile and replacing that section in its entirety with new reproduction tiles. Original tiles that remain in good condition shall be saved to be reused in other sections where only a few tiles are damaged.
- 2) When laying a section of reproduction tiles, use materials and installation methods including expansion joints or flexible expansion material. Comply with recommendations in the Tile Council of America (TCA) "Handbook for Ceramic Tile Installation".

- C. Install tile in accordance with applicable requirements specified in Section 09 30 00.

END OF SECTION