

## SECTION 093033

### STONE TILING

#### PART 1 - GENERAL

##### 1.1 STIPULATIONS

- A. The specifications sections "General Conditions of the Construction Contract", "Special Conditions", and "Division 1 - General Requirements" form a part of this Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.

##### 1.2 SUMMARY

- A. Section Includes:
  - 1. Dimension stone tile and related setting materials applied to floors for the elevator cab.

##### 1.3 DEFINITIONS

- A. Dimension Stone Tile: Modular stone units less than 3/4 inch (19 mm) thick.
- B. Honed Finish: Smooth, nonreflective surface similar to that produced by grinding with a 400- to 1200-grit abrasive; with a gap not exceeding 0.005-inch (0.13 mm) when faces are tested for flatness with a 24-inch (600-mm) straightedge.

##### 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show locations of each type of stone tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in substrates and finished stone tile surfaces.
- C. Samples for Verification:
  - 1. 12-inch-square units of each type of stone tile.
- D. Qualification Data: For Installer.
- E. Maintenance Data: For dimension stone tile to include in maintenance manuals.

##### 1.5 QUALITY CONTROL

- A. Supplier Qualifications: A firm experienced in supplying products similar to those indicated for the Project and with a record of successful in-service performance.

- B. Source Limitations for Stone Tile: Obtain each stone product type through single source from single producer.
- C. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from single manufacturer and each aggregate from single source or producer.
- D. Source Limitations for Other Products: Obtain each of the following products specified in this Section from a single manufacturer for each product:
  - 1. Crack isolation membrane.
  - 2. Joint sealants.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use.
- B. Store stone tile and cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.
- D. Store liquid materials in unopened containers and protected from freezing.

#### 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install stone tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

#### 1.8 SEQUENCING AND SCHEDULING

- A. Sequence stone tile installation with other work to minimize possibility of damage and soiling during remainder of construction period.
- B. Install stone tile and accessories only after other finishing operations, including painting, have been completed.

### PART 2 - PRODUCTS

#### 2.1 STONE PRODUCTS

- A. Varieties and Sources: Subject to compliance with requirements, provide those indicated.
- B. Provide stone products that are free of defects impairing their function for use indicated, including cracks, seams, and starts.

- C. Pattern Orientation: For stone varieties with a directional pattern, provide tile with pattern oriented parallel to one side of tile.
- D. Stone Tile Type ST-1:
  - 1. Stone Type: Granite, complying with ASTM C 615.
  - 2. Cut: Vein.
  - 3. Finish: Honed.
  - 4. Edges: Square.
  - 5. Size: Refer to layout on drawings.
  - 6. Nominal Tile Thickness: 5/8 inch (16 mm).
  - 7. Joint Width: 1/8 inch (3 mm).

## 2.2 CRACK ISOLATION MEMBRANES

- A. Fabric-Reinforced, Fluid-Applied Membrane: System consisting of liquid-latex rubber or elastomeric polymer and fabric reinforcement.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
    - a. Boiardi Products, a QEP company; Elastiment 344 Reinforced Waterproofing and Anti-Fracture/Crack Suppression Membrane.
    - b. Bonsal American, an Oldcastle company; B 6000 Waterproof Membrane with Glass Fabric.
    - c. Bostik, Inc.; Hydroment Blacktop 90210.
    - d. Custom Building Products; 9240 Waterproofing and Anti-Fracture Membrane.
    - e. Laticrete International, Inc.; Laticrete Blue 92 Anti-Fracture Membrane.
    - f. MAPEI Corporation; Mapelastic HPG with MAPEI Fiberglass Mesh.
    - g. Or equivalent product as approved by the Professional.

## 2.3 SETTING MATERIALS

- A. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Bonsal American; an Oldcastle company.
    - b. Bostik, Inc.
    - c. C-Cure.
    - d. Custom Building Products.
    - e. Laticrete International, Inc.
    - f. MAPEI Corporation.
    - g. Or other manufacturer as approved by the Professional.
  - 2. Provide prepackaged, dry-mortar mix combined with acrylic resin or styrene-butadiene-rubber liquid-latex additive at Project site.

## 2.4 GROUT MATERIALS

- A. Sand-Portland Cement Grout: ANSI A108.10, composed of white or gray cement and white or colored aggregate as required to produce color indicated.
- B. Polymer-Modified Tile Grout: ANSI A118.7.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Bonsal American; an Oldcastle company.
    - b. Bostik, Inc.
    - c. C-Cure.
    - d. Custom Building Products.
    - e. Laticrete International, Inc.
    - f. MAPEI Corporation.
    - g. Or other manufacturer as approved by the Professional.
  - 2. Polymer Type: Ethylene vinyl acetate or acrylic additive, in dry, redispersible form, prepackaged with other dry ingredients.
  - 3. Polymer Type: Acrylic resin or styrene-butadiene rubber in liquid-latex form for addition to prepackaged dry-grout mix.

## 2.5 ELASTOMERIC SEALANTS

- A. Sealants shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D.
- B. Sealants shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- C. Use primers, backer rods, and sealant accessories recommended by sealant manufacturer.
- D. Colors: Provide colors of exposed sealants to match colors of grout in stone tile adjoining sealed joints unless otherwise indicated.
- E. Multipart, Pourable Urethane Sealant for Use T: ASTM C 920; Type M; Grade P; Class 25; Uses T, M, A, and, as applicable to joint substrates indicated, O.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
    - a. Bostik, Inc.; Chem-Calk 550.
    - b. Degussa Building Systems; Sonneborn Sonolastic SL 2.
    - c. Pecora Corporation; Dynatrol II-SG.
    - d. Sika Corporation; Sikaflex-2c SL.
    - e. Tremco Incorporated.; THC-900.
    - f. Or equivalent product as approved by the Professional.

## 2.6 MISCELLANEOUS MATERIALS

- A. Trowelable Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Metal Edge Strips: Angle or L-shaped, height to match stone tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications; half-hard brass exposed-edge material.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Blanke Corporation.
    - b. Ceramic Tool Company, Inc.
    - c. Schluter Systems L.P.
    - d. Or other manufacturer as approved by the Professional.
- C. Cleaner: A neutral cleaner capable of removing soil and residue without harming stone tile and grout surfaces, specifically approved for materials and installations indicated by stone tile producers and grout manufacturers.

## 2.7 FABRICATION

- A. Facial Dimensions of Stone Tiles with Honed Faces: Do not vary facial dimensions from specified dimensions by more than plus or minus 1/64 inch (0.4 mm).
- B. Joint Surfaces: Except for specified beveled or eased edges if any, dress joint surfaces square for full depth of stone tile.
- C. Backs of Pieces: Gage units by dressing backs of pieces smooth and flat. When tested with a 24-inch (600-mm) straightedge, gap shall not exceed 1/32 inch (0.8 mm).
  - 1. Natural-cleft stone need not be gaged if gap does not exceed 1/16-inch (1.6 mm) when tested with a 24-inch (600-mm) straightedge on backs of units.

## 2.8 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and with mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.
- C. Use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where stone tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed stone tile.
  - 1. Verify that substrates for setting stone tile are firm, dry, clean, and free of coatings that are incompatible with tile-setting materials including curing compounds and other substances that contain soap, wax, oil, or silicone, and that they comply with flatness tolerances required by ANSI A108.01 for installations indicated.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for stone tile floors installed with thin-set mortar with trowelable patching compound specifically recommended by tile-setting material manufacturer.
- B. Where indicated, prepare substrates to receive waterproofing by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped 1/4 inch per foot (1:50) toward drains.
- C. Lay out stone tile patterns per approved shop drawings.

### 3.3 STONE TILE INSTALLATION

- A. Comply with TCA's "Handbook for Ceramic Tile Installation" for TCA installation methods specified in stone tile installation schedules. Comply with parts of the ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCA installation methods specified in stone tile installation schedules, and apply to types of setting and grouting materials used.
- B. Wipe backs of stone tiles with a damp cloth to remove dirt and dust before units are installed.
- C. Accurately form intersections and returns. Perform cutting and drilling of stone tile without marring visible surfaces. Carefully grind cut edges of stone tile abutting trim, finish, or built-in items for straight aligned joints. Fit stone tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap stone tile.
- D. Finish cut stone tile edges that will not be concealed by other construction by grinding and honing cut surfaces to match factory-fabricated edges unless otherwise indicated.
- E. Jointing Pattern: Lay stone tile in pattern per approved shop drawings.
- F. Lay out stone tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.

- G. Mix stone tiles to achieve a uniformly random distribution of color shadings and patterns.
- H. Metal Edge Strips: Install where exposed edge of stone tile flooring meets other flooring that finishes flush with top of stone tile.

### 3.4 CRACK ISOLATION MEMBRANE INSTALLATION

- A. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness and bonded securely to substrate.
- B. Do not install tile or setting materials over crack isolation membrane until membrane has cured.

### 3.5 INSTALLATION TOLERANCES

- A. Variation in Level: For horizontal joints and other conspicuous lines, do not exceed 1/8 inch in 10 feet (3 mm in 3 m), or 1/2-inch (12 mm) maximum.
- B. Variation in Surface Plane of Flooring: Do not exceed 1/8 inch in 10 feet (3 mm in 3 m) from level or slope indicated when tested with a 10-foot (3-m) straightedge.
- C. Variation in Plane between Adjacent Units (Lipping): Do not exceed the following differences between faces of adjacent units as measured from a straightedge parallel to stone tiled surface:
  - 1. Units with Polished Faces: 1/64 inch (0.4 mm).
  - 2. Units with Honed Faces: 1/32 inch (0.8 mm).
  - 3. Units with Sand-Rubbed Faces: 1/32 inch (0.8 mm).
  - 4. Units with Thermal-Finished Faces: Depth of thermal finish or 3/16 inch (5 mm), whichever is less.
- D. Variation in Joint Width: Do not vary joint thickness more than 1/32 inch or one-fourth of nominal joint width, whichever is less.

### 3.6 ADJUSTING AND CLEANING

- A. Remove and replace material that is stained or otherwise damaged or that does not match adjoining stone tile. Provide new matching units, installed as specified and in a manner to eliminate evidence of replacement.
- B. Cleaning: On completion of placement and grouting, clean stone tile surfaces so they are free of foreign matter.
  - 1. Remove latex-portland cement grout residue from stone tile as soon as possible.
  - 2. Clean grout smears and haze from stone tile according to stone tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by stone tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of stone tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

### 3.7 PROTECTION

- A. Protect installed stone tile floors with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by stone tile manufacturer, apply coat of neutral protective cleaner to completed stone tile walls and floors.
- B. Prohibit foot and wheel traffic from stone tiled floors for at least seven days after grouting is completed.
- C. Before final inspection, remove protective coverings and rinse neutral protective cleaner from stone tile surfaces.

### 3.8 INTERIOR STONE TILE INSTALLATION SCHEDULE

- A. Interior Floor Installations, Concrete Subfloor:
  - 1. Stone Tile Installation F125A: Thin-set mortar on crack isolation membrane; TCA F125A.
    - a. Stone Tile Type: ST-1.
    - b. Thin-Set Mortar: Latex-portland cement mortar.
    - c. Grout: Polymer-modified sanded grout.

END OF SECTION 093033