

SECTION 093000 - TILING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Ceramic tile.
 2. Waterproof membrane.
 3. Crack isolation membrane.
 4. Tile backing panels.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. LEED Submittal:
1. Product data for Credit EQ 4.1: For adhesives and sealants, including printed statement of VOC content.
- C. Samples:
1. Each type and composition of tile and for each color and finish required.
 2. Assembled samples, with grouted joints, for each type and composition of tile and for each color and finish required.
 3. Stone thresholds in 6-inch (150-mm) lengths.

1.3 QUALITY ASSURANCE

- A. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Build mockup of each type of floor tile installation.
 2. Build mockup of each type of wall tile installation.
 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.4 EXTRA MATERIALS

- A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering and identified with labels describing contents.
1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.

PART 2 - PRODUCTS

2.1 TILE PRODUCTS

- A. ANSI Ceramic Tile Standard: Provide Standard grade tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.

- B. Tile Type CFT-1: Factory-mounted unglazed ceramic mosaic tile.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. American Olean; Division of Dal-Tile International Inc.
 - b. Crossville, Inc.
 - c. Daltile; Division of Dal-Tile International Inc.
 - d. Deutsche Steinzeug America, Inc.
 - e. Interceramic.
 - f. Lone Star Ceramics Company.
 - g. Grupo Porcelanite.
 - h. Portobello America, Inc.
 - i. Seneca Tiles, Inc.

 - 2. Composition: Porcelain.
 - 3. Module Size: 1 by 1 inch (25.4 by 25.4 mm).
 - 4. Thickness: 1/4 inch (6.35 mm).
 - 5. Face: Plain with cushion edges.
 - 6. Surface: Slip-resistant, with abrasive admixture.
 - 7. Finish: Mat, clear glaze.
 - 8. Tile Color and Pattern: As indicated on drawings.
 - 9. Grout Color: As indicated on drawings.

- C. Tile Type CWT-1: Glazed wall tile.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. American Marazzi Tile, Inc.
 - b. American Olean; Division of Dal-Tile International Inc.
 - c. Daltile; Division of Dal-Tile International Inc.
 - d. Deutsche Steinzeug America, Inc.
 - e. Florida Tile Industries, Inc.
 - f. Florim USA.
 - g. Laufen.
 - h. Grupo Porcelanite.
 - i. Portobello America, Inc.
 - j. Seneca Tiles, Inc.
 - k. United States Ceramic Tile Company.

 - 2. Module Size: 4-1/4 by 4-1/4 inches (108 by 108 mm).
 - 3. Thickness: 5/16 inch (8 mm).
 - 4. Face: Plain with cushion edges.
 - 5. Finish: Mat, opaque glaze.

6. Tile Color and Pattern: As indicated on drawings.
7. Grout Color: As indicated on drawings.
8. Mounting: Factory, back mounted.
9. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:
 - a. Base: Coved, module size 4-1/4 by 4-1/4 inches (108 by 108 mm).
 - b. External Corners for Thin-Set Mortar Installations: Bullnose shape, same size as adjoining flat tile.
 - c. Internal Corners: Field-buttet square corners. For coved base and cap use angle pieces designed to fit with stretcher shapes.

D. Tile Type CWT-2: Accent Glass Wall Tile.

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. American Marazzi Tile, Inc.
 - b. American Olean; Division of Dal-Tile International Inc.
 - c. Daltile; Division of Dal-Tile International Inc.
 - d. Deutsche Steinzeug America, Inc.
 - e. Florida Tile Industries, Inc.
 - f. Florim USA.
 - g. Laufen.
 - h. Grupo Porcelanite.
 - i. Portobello America, Inc.
 - j. Seneca Tiles, Inc.
 - k. United States Ceramic Tile Company.
2. Module Size: 4-1/4 by 4-1/4 inches (108 by 108 mm)
3. Thickness: 5/16 inch (8 mm).
4. Face: Plain with modified square edges.
5. Finish: No finish
6. Tile Color and Pattern: As indicated on drawings.
7. Grout Color: As indicated on drawings.
8. Mounting: Factory, back mounted.

2.2 THRESHOLDS

- A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.
 1. Bevel edges at 1:2 slope, with lower edge of bevel aligned with or up to 1/16 inch (1.5 mm) above adjacent floor surface. Finish bevel to match top surface of threshold. Limit height of threshold to 1/2 inch (12.7 mm) or less above adjacent floor surface.

2.3 TILE BACKING PANELS

- A. Cementitious Backer Units: ANSI A118.9 or ASTM C 1325.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. C-Cure; C-Cure Board 990.
 - b. Custom Building Products; Wonderboard.
 - c. FinPan, Inc.; Util-A-Crete Concrete Backer Board.
 - d. USG Corporation; DUROCK Cement Board.
2. Thickness: 5/8 inch (15.9 mm).

2.4 WATERPROOF MEMBRANE

- A. General: Manufacturer's standard product that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated.
- B. Urethane Waterproofing and Tile-Setting Adhesive: One-part, liquid-applied urethane, with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Bostik, Inc.; Hydroment Ultra-Set Advanced.

2.5 CRACK ISOLATION MEMBRANE

- A. General: Manufacturer's standard product, that complies with ANSI A118.12 for high performance and is recommended by the manufacturer for the application indicated.
- B. Urethane Crack Isolation Membrane and Tile-Setting Adhesive: One-part, liquid-applied urethane, with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Bostik, Inc.; Hydroment Ultra-Set Advanced.

2.6 SETTING MATERIALS

- A. Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.02.
- B. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated or comparable product by one of the following:
 - a. Boiardi Products; a QEP company.
 - b. Bonsal American; an Oldcastle company.
 - c. Bostik, Inc.

- d. C-Cure.
- e. Custom Building Products.
- f. Jamo Inc.
- g. Laticrete International, Inc.
- h. MAPEI Corporation.
- i. Mer-Kote Products, Inc.
- j. Southern Grouts & Mortars, Inc.
- k. Summitville Tiles, Inc.
- l. TEC; a subsidiary of H. B. Fuller Company.
2. Prepackaged, dry-mortar mix combined with liquid-latex additive.
3. For wall applications, provide nonsagging mortar.

2.7 GROUT MATERIALS

- A. Polymer-Modified Tile Grout: ANSI A118.7.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Boiardi Products; a QEP company.
 - b. Bonsal American; an Oldcastle company.
 - c. Bostik, Inc.
 - d. C-Cure.
 - e. Custom Building Products.
 - f. Jamo Inc.
 - g. Laticrete International, Inc.
 - h. MAPEI Corporation.
 - i. Southern Grouts & Mortars, Inc.
 - j. Summitville Tiles, Inc.
 - k. TEC; a subsidiary of H. B. Fuller Company.
 2. Polymer Type: Liquid-latex form for addition to prepackaged dry-grout mix.

2.8 ELASTOMERIC SEALANTS

- A. General: Provide sealants, primers, backer rods, and other sealant accessories that comply with the following requirements and with the applicable requirements in Division 07 Section "Joint Sealants."
 1. Use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- B. One-Part, Mildew-Resistant Silicone Sealant: ASTM C 920; Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint substrates indicated, O; formulated with fungicide, intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and extreme temperatures.
 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. DAP Inc.; 100 percent Silicone Kitchen and Bath Sealant.

- b. Dow Corning Corporation; Dow Corning 786.
- c. GE Silicones, a division of GE Specialty Materials; Sanitary 1700.
- d. Laticrete International, Inc.; Latasil Tile & Stone Sealant.
- e. Pecora Corporation; Pecora 898 Sanitary Silicone Sealant.
- f. Tremco Incorporated; Tremsil 600 White.

2.9 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints and that does not change color or appearance of grout.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Bonsal American, an Oldcastle company; Grout Sealer.
 - b. Bostik, Inc.; CeramaSeal Grout & Tile Sealer.
 - c. C-Cure; Penetrating Sealer 978.
 - d. Custom Building Products; Surfaceguard Sealer.
 - e. Jamo Inc.; Penetrating Sealer.
 - f. MAPEI Corporation; KER 003, Silicone Spray Sealer for Cementitious Tile Grout.
 - g. Southern Grouts & Mortars, Inc.; Silicone Grout Sealer.
 - h. Summitville Tiles, Inc.; SL-15, Invisible Seal Penetrating Grout and Tile Sealer.
 - i. TEC, a subsidiary of H. B. Fuller Company; TA-256 Penetrating Silicone Grout Sealer.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with adhesives or thin-set mortar with trowelable leveling and 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. Blending: For tile exhibiting color variations, use factory blended tile or blend tiles at Project site before installing.
- D. Field-Applied Temporary Protective Coating: If indicated under tile type or needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

3.3 INSTALLATION

- A. Comply with TCA's "Handbook for Ceramic Tile Installation" for TCA installation methods specified in 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 tile installation schedules, and apply to types of setting and grouting materials used.
 - 1. For the following installations, follow procedures in the ANSI A108 Series of tile installation standards for providing 95 percent mortar coverage:
 - a. Tile floors in wet areas.
 - B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
 - C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
 - D. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
 - E. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
 - 1. Ceramic Mosaic Tile: 1/16 inch (1.6mm)
 - 2. Glazed Wall Tile: 1/16 inch (1.6 mm).
 - F. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
 - 1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.
 - 2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

- G. Stone Thresholds: Install stone thresholds in same type of setting bed as adjacent floor unless otherwise indicated.
 - 1. At locations where mortar bed (thickset) would otherwise be exposed above adjacent floor finishes, set thresholds in latex-portland cement mortar (thin set)
- H. Grout Sealer: Apply grout sealer to cementitious grout joints in tile floors according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.
- I. Install cementitious backer units and fiber-cement underlayment and treat joints according to ANSI A108.11 and manufacturer's written instructions for type of application indicated. Use latex-portland cement mortar for bonding material unless otherwise directed in manufacturer's written instructions.
- J. Install waterproofing to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness and bonded securely to substrate.
- K. 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.

3.4 INTERIOR TILE INSTALLATION SCHEDULE

- A. Interior Floor Installations, Concrete Subfloor:
 - 1. Tile Installation F112: Cement mortar bed (thickset) bonded to concrete; TCA F112.
 - a. Tile Type: CFT-1.
 - b. Thin-Set Mortar for Cured-Bed Method: Latex-portland cement mortar.
 - c. Grout: Polymer-modified unsanded] grout.
- B. Interior Wall Installations, Metal Studs or Furring:
 - 1. Tile Installation W244: Thin-set mortar on cementitious backer units or fiber cement underlayment over cleavage membrane; TCA W244.
 - a. Tile Type: CWT-1/CWT-2.
 - b. Thin-Set Mortar: Latex portland cement mortar.
 - c. Grout: Polymer-modified unsanded grout.
- C. Shower Receptor and Wall Installations, Metal Studs or Furring:
 - 1. Tile Installation B420: Thin-set mortar on coated glass-mat, water-resistant backer board; TCA B420.
 - a. Tile Type: CWT-1/CWT-2.
 - b. Thin-Set Mortar: Latex portland cement mortar.
 - c. Grout: Polymer-modified sanded grout.

END OF SECTION 093000