

SECTION 09300

TILE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Tile and Accessories:
 - 1. Mosaics Floor and Wall.
 - 2. Trim and Accessories.
 - 3. Setting Materials.

1.2 RELATED SECTIONS

- A. Section 03505 - Self-Leveling Underlayment.
- B. Section 07920 - Joint Sealant.

1.3 REFERENCES

- A. American National Standards Institute (ANSI):
 - 1. ANSI A108.1A, 1999 - Specifications for Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar.
 - 2. ANSI A108.1B, 1999 - Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex Portland Cement Mortar.
 - 3. ANSI A108.1C, 1999 - Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar -or- Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex Portland Cement Mortar.
 - 4. ANSI A108.5, 1999 - Specifications for Ceramic Tile Installed with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar.
 - 5. ANSI A108.6, 1999 - Specifications for Ceramic Tile Installed with Chemical-Resistant, Water-Cleanable Tile-Setting and -Grouting Epoxy.
 - 6. ANSI A108.8, 1999 - Specifications for Ceramic Tile Installed with Chemical-Resistant Furan Mortar and Grout.
 - 7. ANSI A108.9, 1999 - Specifications for Ceramic Tile Installed with Modified Epoxy Emulsion Mortar/Grout.
 - 8. ANSI A108.10, 1999 - Specifications for Installation of Grout in Tilework.
 - 9. ANSI A118.1, 1999 - Standard Specification for Dry-Set Portland Cement Mortar.
 - 10. ANSI A118.3, 1999 - Chemical-Resistant, Water-Cleanable, Tile-Setting and -Grouting Epoxy and Water-Cleanable Tile-Setting Epoxy Adhesive.
 - 11. ANSI A118.4, 1999 - Latex-Portland Cement Mortar.
 - 12. ANSI A118.5, 1999 - Chemical-Resistant Furan Mortar and Grout.
 - 13. ANSI A118.6, 1999 - Standard Ceramic Tile Grouts.
 - 14. ANSI A118.7, 1999 - Polymer Modified Cement Grouts
 - 15. ANSI A118.8, 1999 - Modified Epoxy Emulsion Mortar/Grout.
 - 16. ANSI A118.9, 1999 - Test Methods and Specifications for Cementitious Backer Units
 - 17. ANSI A118.10, 1999 - Load bearing, Bonded, Waterproof Membranes for Thinsset Ceramic Tile and Dimensional Stone.
 - 18. ANSI A137.1, 1988 - Specifications for Ceramic Tile.

- B. Tile Council of North America (TCNA): TCA Handbook for Ceramic Tile Installation, 2007.

1.4 PERFORMANCE REQUIREMENTS

- A. Static Coefficient of Friction: Tile on walkway surfaces shall be provided with the following values as determined by testing in conformance with ASTM C 1028.
 - 1. Level Surfaces: Minimum of 0.6 (Wet).
 - 2. Step Treads: Minimum of 0.6 (Wet).
 - 3. Ramp Surfaces: Minimum of 0.8 (Wet).

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. [Product Data]: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, and junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
- D. Selection Samples: Color charts illustrating full range of colors and patterns.
- E. Selection Samples: Samples of actual tiles for selection.
- F. Samples: Mount tile and apply grout on two plywood panels, illustrating pattern, color variations, and grout joint size variations.
- G. Manufacturer's Certificate:
 - 1. Certify that products meet or exceed specified requirements.
 - 2. For each shipment, type and composition of tile provide a Master Grade Certificate signed by the manufacturer and the installer certifying that products meet or exceed the specified requirements of ANSI A137.1.
- H. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing the work of this section with minimum two years experience.
- B. Single Source Responsibility: Obtain each type and color of tile from a single source. Obtain each type and color of mortar, adhesive and grout from the same source.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging until ready for installation.
- B. Protect adhesives and liquid additives from freezing or overheating in accordance with manufacturer's instructions.
- C. Store tile and setting materials on elevated platforms, under cover and in a dry location and protect from contamination, dampness, freezing or overheating.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Do not install adhesives in an unventilated environment.
- B. Maintain ambient and substrate temperature of 50 degrees F (10 degrees C) during tiling and for a minimum of 7 days after completion.

1.9 EXTRA MATERIALS

- A. Provide for Owner's use a minimum of 5 percent of the primary sizes and colors of tile specified, boxed and clearly labeled.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: DalTile Corporation, which is located at: 7834 C.F. Hawn Fwy. P. O. Box 170130 ; Dallas, TX 75217; Toll Free Tel: 800-933-TILE; Tel: 214-398-1411; Fax: 214-309-4584; Email: todd.lehr@daltile.com; Web: www.daltileproducts.com
- B. Substitutions: Not permitted.

2.2 TILE

- A. General: Provide tile that complies with ANSI A137.1 for types, compositions and other characteristics indicated. Provide tile in the locations and of the types colors and pattern indicated on the Drawings and identified in the Schedule and the end of this Section. Tile shall also be provided in accordance with the following:
 - 1. Factory Blending: For tile exhibiting color variations within the ranges selected under Submittal of samples, blend tile in the factory and package so tile taken from one package shows the same range of colors as those taken from other packages.
 - 2. Mounting: For factory mounted tile, provide back or edge mounted tile assemblies as standard with the manufacturer, unless otherwise specified.
 - 3. Factory Applied Temporary Protective Coatings: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by precoating with a continuous film of petroleum paraffin wax applied hot. Do not coat unexposed tile surfaces.
- B. ColorBody Porcelain Tile:
 - 1. Product: Keystones.
 - 2. Moisture Absorption: Less than .5 percent.
 - 3. Size and Shape: 2 inches square, nominal.
 - 4. Surface Finish: Abrasive.
 - 5. Colors: To be selected from manufacturer's standard range Group I & II.
 - 6. Trim Units: Matching bullnose, cove base corner, cove base out corner.

2.3 TRIM AND ACCESSORIES

- A. Non-Ceramic Trim: Satin natural anodized extruded aluminum, stainless steel, brass, etc, style and dimensions to suit application, for setting using tile mortar or adhesive; use in the following locations:
 - 1. Open edges of floor tile.
 - 2. Transition between floor finishes of different heights.
 - 3. Thresholds at door openings.
 - 4. Expansion and control joints, floor and wall.

- B. Stone Thresholds: Provide stone thresholds uniform in color and finish and fabricated as follows:
 - 1. Material:
 - a. Marble, complying with ASTM C 503 for exterior use and with a minimum abrasive hardness of 10 when tested in accordance with ASTM C 241.
 - 2. Color/Finish: As selected from the manufacturers standard range.
 - 3. Size:
 - a. Fabricate 2 inches (50 mm) wide by full width of wall or frame opening; 1/2 inch (12 mm) thick; beveled one long edge with radiused corners on top side; without holes, cracks, or open seams.
 - b. Fabricated in the sizes and profiles indicated.
 - 4. Provide to provide transition between tile surface and adjoining finishes and at the following locations:
 - a. At doorways where tile terminates.
 - b. At open edges of floor tile where adjacent finish is a different height.

2.4 SETTING MATERIALS

- A. Organic Adhesive: ANSI A136.1, thinset bond type; use Type I in areas subject to prolonged moisture exposure.
- B. Epoxy Adhesive: ANSI A118.3, thinset bond type.
- C. Mortar Bed Materials:
 - 1. Portland cement: ASTM C150, type 1, gray or white.
 - 2. Hydrated Lime: ASTM C207, Type S.
 - 3. Sand: ASTM C144, fine.
 - 4. Latex additive: As approved.
 - 5. Water: Clean and potable.
- D. Mortar Bond Coat Materials:
 - 1. Dry-Set Portland Cement type: ANSI A118.1.
 - 2. Latex-Portland Cement type: ANSI A118.4.
 - 3. Epoxy: ANSI A118.3, 100 percent solids.
- E. Polymer modified cement grout, sanded or unsanded, as specified in ANSI A118.7; color as selected.
- F. Epoxy Grout: ANSI A118.8, 100 percent solids epoxy grout; color as selected.
- G. Silicone Sealant: Silicone sealant, moisture and mildew resistant type, white; use for shower floors and shower walls.
- H. Cleavage Membrane:
 - 1. No. 15 (6.9 kg) asphalt saturated felt, ASTM D226, Type 1.
 - 2. Polyethylene film, ASTM D4397, 4.0 mil thickness.
- I. Waterproofing Membrane at Floors: Membrane in accordance with ANSI A118.10 and as follows:
 - 1. Chlorinated Polyethylene Sheet with polyester fabric reinforcing.
 - 2. Fabric Reinforced, Fluid-Applied elastomeric membrane.
 - 3. Un-Reinforced, Fluid-Applied elastomeric membrane.
 - 4. Polyethylene Sheet Product.
 - 5. Fabric-Reinforced, Modified-Bituminous Sheet Product.
 - 6. Urethane Waterproofing and Tile-Setting Adhesive Product.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that wall surfaces are free of substances which would impair bonding of setting materials, smooth and flat within tolerances specified in ANSI A137.1, and are ready to receive tile.
- B. Verify that sub-floor surfaces are dust-free, and free of substances which would impair bonding of setting materials to sub-floor surfaces, and are smooth and flat within tolerances specified in ANSI A137.1.
- C. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.
- D. Verify that required floor-mounted utilities are in correct location.

3.2 PREPARATION

- A. Protect surrounding work from damage.
- B. Remove any curing compounds or other contaminants.
- C. Vacuum clean surfaces and damp clean.
- D. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- E. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

3.3 INSTALLATION - GENERAL

- A. Install tile and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and TCA Handbook recommendations.
- B. Lay tile to pattern indicated. Arrange pattern so that a full tile or joint is centered on each wall and that no tile less than 1/2 width is used. Do not interrupt tile pattern through openings.
- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
- E. Form internal angles square and external angles bullnosed.
- F. Install ceramic accessories rigidly in prepared openings.
- G. Install non-ceramic trim in accordance with manufacturer's instructions.
- H. Install thresholds where indicated.
- I. Sound tile after setting. Replace hollow sounding units.
- J. Keep expansion joints free of adhesive or grout. Apply sealant to joints.

- K. Allow tile to set for a minimum of 48 hours prior to grouting.
- L. Grout tile joints. Use standard grout unless otherwise indicated.
- M. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

3.4 INSTALLATION - FLOORS - THIN-SET METHODS

- A. Over exterior concrete substrates, install in accordance with TCA Handbook Method F102, with standard grout.
- B. Over interior concrete substrates, install in accordance with TCA Handbook Method F113, dry-set or latex-portland cement bond coat, with standard grout, unless otherwise indicated.
 - 1. Where waterproofing membrane is indicated, install in accordance with TCA Handbook Method F122, with latex-portland cement grout.
 - 2. Where epoxy bond coat and grout are indicated, install in accordance with TCA Handbook Method F131.
- C. Over wood substrates, install in accordance with TCA Handbook Method F142, with standard grout, unless otherwise indicated.
 - 1. Where epoxy bond coat and grout are indicated, install in accordance with TCA Handbook Method F143.

3.5 INSTALLATION - FLOORS - MORTAR BED METHODS

- A. Over interior concrete substrates, install in accordance with TCA Handbook Method F111, with cleavage membrane, unless otherwise indicated.
 - 1. Where waterproofing membrane is indicated, with standard grout or no mention of grout type, install in accordance with TCA Handbook Method F121.

3.6 INSTALLATION - SHOWERS AND BATHTUB WALLS

- A. At tiled shower receptors install in accordance with TCA Handbook Method B415, mortar bed floor, and W244, thin-set over cementitious backer unit walls.
- B. Grout with standard grout as specified above.
- C. Seal joints between tile work and other work with sealant specified in Section 07900.

3.7 CLEANING

- A. Clean tile and grout surfaces.

3.8 PROTECTION OF FINISHED WORK

- A. Do not permit traffic over finished floor surface for 72 hours after installation.
- B. Cover floors with kraft paper and protect from dirt and residue from other trades.
- C. Where floor will be exposed for prolonged periods cover with plywood or other similar type walkways

END OF SECTION