

SECTION 09300

TILE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Tile for floor applications.
- B. Tile for wall applications.
- C. Mortar setting bed as dictated by field conditions.
- D. Stone thresholds.
- E. Ceramic trim.
- F. Non-ceramic trim.

1.02 RELATED REQUIREMENTS

- A. Section 07900 - Joint Sealers.
- B. Section 09999 - Finish Schedule.

1.03 REFERENCE STANDARDS

- A. ANSI A108 Series/A118 Series/A136.1 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 2005.
 - 1. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 2005.
 - 2. ANSI A108.1b - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex Portland Cement Mortar; 1999 (R2005).
 - 3. ANSI A108.1c - 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 Bed with Dry-Set or Latex Portland Cement Mortar; 1999 (R2005).
 - 4. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive; 1999 (R2005).
 - 5. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar; 1999 (R2005).
 - 6. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy; 1999 (R2005).
 - 7. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout; 1999 (R2005).
 - 8. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 1999 (R2005).
 - 9. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 1999 (R2005).
 - 10. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone; 2005.
 - 11. ANSI A118.1 - American National Standard Specifications for Dry-Set Portland Cement Mortar; 1999 (R2005).
 - 12. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive; 1999 (R2005).
 - 13. ANSI A118.4 - American National Standard Specifications for Latex-Portland Cement Mortar; 1999 (R2005).

14. ANSI A118.6 - American National Standard Specifications for Standard Cement Grouts for Tile Installation; 1999 (R2005).
 15. ANSI A118.7 - American National Standard Specifications for Polymer Modified Cement Grouts for Tile Installation; 1999 (R2005).
 16. ANSI A118.8 - American National Standard Specifications for Modified Epoxy Emulsion Mortar/Grout; 1999 (R2005).
 17. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2008.
- B. TCA (HB) - Handbook for Ceramic Tile Installation; Tile Council of North America, Inc.; 2007/2008.

1.04 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.
- C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, waterproofing membrane and setting details.
- D. Samples: Mount tile and apply grout on two plywood panels, minimum 18 x 18 inches in size illustrating pattern, color variations, and grout joint size variations.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- F. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

1.05 QUALITY ASSURANCE

- A. Maintain one copy of TCA Handbook and ANSI A108 Series/A118 Series on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum 5 years of documented experience.
- C. Installer Qualifications: Company specializing in performing tile installation, with minimum of 5 years of documented experience.

1.06 PRE-INSTALLATION MEETING

- A. Convene one week before starting work of this section.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.08 FIELD CONDITIONS

- A. Do not install adhesives in an unventilated environment.
- B. Maintain ambient and substrate temperature of 50 degrees F during installation of mortar materials.

1.09 EXTRA MATERIALS

- A. Extra Tile Materials: Quantity equivalent to 2 percent of each type and color.

PART 2 PRODUCTS

2.01 TILE

- A. Manufacturers: All products by the same manufacturer.
 1. American Olean: www.americanolean.com.

2. Dal-Tile Corporation: www.daltile.com.
 3. Crossville, Inc: www.crossvilleinc.com.
 4. Substitutions: See Section 01600 - Product Requirements.
- B. Ceramic Mosaic Tile Type CTF: ANSI A137.1, and as follows:
1. Keystone manufactured by Dal-Tile or approved equivalent product.
 2. Moisture Absorption: 0 to 0.5 percent.
 3. Size and Shape: 1 inch square.
 4. Edges: Cushioned.
 5. Surface Finish: Unglazed.
 6. Colors: As scheduled. Provide 9 colors. See Finish Schedule.
 7. Pattern: Type CTFP-1 and CTFP-2: As scheduled. See Finish Schedule.
 8. Trim Units: Matching 4 inch built up coved base shapes in 1 x 1 tile, colors as scheduled.
 - a. Base Type CTB-1: Built-up base Keystones BM-4C as scheduled, manufactured by Dal-Tile Corporation.
 - b. Base Type CTB-2: Built-up base Keystones BM-4C as scheduled, manufactured by Dal-Tile Corporation.
- C. Glazed Wall Tile Type CWT: ANSI A137.1, and as follows:
1. Semi-Gloss Series and Festiva Series manufactured by Dal-Tile Corporation or approved equivalent product.
 2. Moisture Absorption: Over 7.0 but less than 20.0 percent.
 3. Size and Shape: 4-1/4 inch square.
 4. Edges: Square.
 5. Colors: As scheduled. See Finish Schedule.
 - a. CWT-1 through CWT-4: Semi-Gloss Series, Semi-gloss texture.
 - b. CWT-5 through CWT-7: Festiva Series, Matte texture.
 6. Pattern: Pattern CWTP-1 as indicated on Finish Schedule.
 7. Trim Units: Matching base shapes in sizes indicated.
 - a. Base Type CTB-3: 4-1/4 x 4-1/4 inch coved bullnose pattern as selected; Color as scheduled.
- D. Quarry Tile Type QTF-1: ANSI A137.1, and as follows:
1. Suretread manufactured by Dal-Tile Corporation or approved equivalent product.
 2. Moisture Absorption: 0.5 to 3.0 percent.
 3. Size and Shape: 6 inch square.
 4. Thickness: 3/8 inch.
 5. Edges: Square.
 6. Surface Finish: Unglazed.
 7. Colors: As scheduled. See Finish Schedule.
 8. Trim Units: Matching bullnose shapes in sizes coordinated with field tile.
 - a. Base Type QTB-1: 6 x 6 inch, P-1665 as manufactured by Dal-Tile Corporation, color as scheduled.
- E. Porcelain Tile Type PTF-1: ANSI A137.1, and as follows:
1. Cross-Colors LP manufactured by Crossville Inc. or approved equivalent product.
 2. Moisture Absorption: 0 to 0.5 percent.
 3. Size and Shape: 12 inch square.
 4. Thickness: 5/16 inch.
 5. Face: Plain.
 6. Edges: Square.
 7. Surface Finish: As selected.
 8. Colors: As scheduled.
- F. Porcelain Tile Type PTW-1: ANSI A137.1, and as follows:
1. Color Blox Too manufactured by Crossville, Inc. or approved equivalent product.
 2. Moisture Absorption: 0 to 0.5 percent.

3. Size and Shape: 12 inch square.
 4. Thickness: 3/8 inch
 5. Face: Plain.
 6. Edges: Square. .
 7. Surface Finish: As selected.
 8. Colors: As scheduled.
- G. Porcelain Tile Type PWT-2 and PWT-3: ANSI A137.1, and as follows:
1. Fabrique and Kimona Silk manufactured by Dal-Tile Corporation or approved equivalent product.
 2. Moisture Absorption: 0 to 0.5 percent.
 3. Size and Shape: 12 inch square.
 4. Thickness: 3/8 inch
 5. Face: Plain.
 6. Edges: Square.
 7. Surface Finish: As selected.
 8. Colors: As scheduled.
 9. Trim Units: Type PTB-1 Fabrique tile 12 x 12 cut to 6 x 12 inch size.
- H. Porcelain Tile Type PWS-1: ANSI A137.1, and as follows:
1. CrossColors manufactured by Crossville Inc. or approved equivalent product.
 2. Moisture Absorption: 0 to 0.5 percent.
 3. Size and Shape: Size varies. 12 x 12 tile cut to size as required.
 4. Thickness: 5/16 inch
 5. Face: Plain.
 6. Edges: Square. Provide rectified tile.
 7. Surface Finish: Matte.
 8. Colors: As scheduled.

2.02 TRIM AND ACCESSORIES

- A. Non-Ceramic Trim: Satin natural anodized extruded aluminum, style and dimensions to suit application, for setting using tile mortar or adhesive.
1. Applications: Use in the following locations:
 - a. Open edges of floor tile.
 2. Manufacturer:
 - a. Schluter-Systems: www.schluter.com.
 - b. Genesis APS International: www.genesis-aps.com.
 - c. Substitutions: See Section 01600 - Product Requirements.
- B. Thresholds: Marble, white or gray, honed finish; 2 inches wide by full width of wall or frame opening; 1/2 inch thick; beveled one long edge with radiused corners on top side; without holes, cracks, or open seams.

2.03 MORTAR MATERIALS

- A. Manufacturers:
1. Bonsal American, Inc: www.sakrete.com
 2. Bostik Inc: www.bostik-us.com.
 3. Custom Building Products: www.custombuildingproducts.com.
 4. C-Cure.
 5. Substitutions: See Section 01600 - Product Requirements.
- B. Mortar Bed Materials: Portland cement, sand, latex additive and water.
- C. 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.

2.04 GROUT MATERIALS

- A. Manufacturers:
 1. Bonsal American, Inc: www.sakrete.com
 2. Bostik Inc: www.bostik-us.com.
 3. Basis of Design: Custom Building Products: www.custombuildingproducts.com.
 4. C-Cure www.c-cure.com.
 5. Substitutions: See Section 01600 - Product Requirements.
- B. Standard Grout: Any type specified in ANSI A118.6 or A118.7.
 1. Color: As selected.
- C. Epoxy Grout: ANSI A118.8, modified epoxy emulsion grout; use for quarry tile applications.
- D. Grout Colors Type GR: Provide 6 grout colors Type GR-1 through GR-6. See Finish Schedule for grout colors and applications.

2.05 ACCESSORY MATERIALS

- A. Cleavage Membrane: Reinforced asphalt paper.
- B. Waterproofing Membrane at Floors: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
 1. Material: PVC sheet membrane, 40 mils, thick, minimum.
 2. Manufacturers:
 - a. Compotite Corporation; Composeal Gold: www.compotite.com.
 - b. Protecto Wrap Company; AFM-WM: www.protectowrap.com.
 - c. Noble Company; Noble Deck: www.noblecompany.com
 - d. Substitutions: See Section 01600 - Product Requirements.
- C. Reinforcing Mesh: 2 x 2 inch size weave of 16/16 wire size; welded fabric, galvanized.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify field conditions prior to proceeding. Notify Architect of items at variance with Documents.
- B. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.
- C. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of setting materials to sub-floor surfaces.
- D. 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.
- E. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

- A. Protect surrounding work from damage.
- B. Vacuum clean surfaces and damp clean.
- C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

3.03 INSTALLATION - GENERAL

- A. Install tile and thresholds 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. 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 non-ceramic trim in accordance with manufacturer's instructions.
- G. Install thresholds where indicated.
- H. Sound tile after setting. Replace hollow sounding units.
- I. Keep expansion joints free of adhesive or grout. Apply sealant to joints.
- J. Allow tile to set for a minimum of 48 hours prior to grouting.
- K. Grout tile joints. Use standard grout unless otherwise indicated.
- L. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

3.04 INSTALLATION - FLOORS - THIN-SET METHODS

- A. 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.
- B. Over wood substrates, install in accordance with TCA Handbook Method F142, with standard grout, unless otherwise indicated.
- C. Over wood substrate with backer board underlayment, install in accordance with TCA Handbook Method F144, for cementitious backer boards, with standard grout.

3.05 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.
 - 2. Where epoxy bond coat and grout are indicated, install in accordance with TCA Handbook Method F132, bonded.
- B. Cleavage Membrane: Lap edges and ends.
- C. Waterproofing Membrane: Install as specified in ANSI A108.13.
- D. Mortar Bed Thickness: 1-1/4 inch, unless otherwise indicated.

3.06 INSTALLATION - WALL TILE

- A. Over interior concrete and masonry install in accordance with TCA Handbook Method W202, thin-set with dry-set or latex-portland cement bond coat.

3.07 CLEANING

- A. Clean tile and grout surfaces.

3.08 PROTECTION

- A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION