

SECTION 09 3000

TILING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Tile for floor applications.
- B. Tile for wall applications.
- C. Stone thresholds.
- D. Stone Window Stools.
- E. Non-ceramic trim.

1.2 RELATED REQUIREMENTS

- A. Section 07 9200 - Joint Sealants: Sealing joints between tile work and adjacent construction and fixtures.
- B. Section 09 2116 - Gypsum Board Assemblies: Tile backer board.

1.3 REFERENCE STANDARDS

- A. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 2014.
- B. 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 (Reaffirmed 2010).
- C. 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; 1999 (Reaffirmed 2010).
- D. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive; 2009 (Revised).
- E. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar; 1999 (Reaffirmed 2010).
- F. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy; 1999 (Reaffirmed 2010).
- G. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout; 1999 (Reaffirmed 2010).
- H. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 1999 (Reaffirmed 2010).
- I. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 1999 (Reaffirmed 2010).
- J. ANSI A108.12 - American National Standard for Installation of Ceramic Tile with EGP (Exterior glue plywood) Latex-Portland Cement Mortar; 1999 (Reaffirmed 2010).
- K. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone; 2005 (Reaffirmed 2010).

- L. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive; 2013 (Revised).
- M. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation; 2010 (Revised).
- N. ANSI A118.10 - American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes For Thin-Set Ceramic Tile And Dimension Stone Installation; 2014.
- O. ANSI A118.15 - American National Standard Specifications for Improved Modified Dry-Set Cement Mortar; 2012.
- P. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2013.1.
- Q. ASTM C373 - Standard Test Method for Water Absorption, Bulk Density, Apparent Porosity, and Apparent Specific Gravity of Fired Whiteware Products, Ceramic Tiles, and Glass Tiles; 2014a.
- R. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2015.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.5 SUBMITTALS

- A. See Section 01 3000 - 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. Provide tile and grout samples for color selection.
- C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
- D. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 6000 - Product Requirements, for additional provisions.
 - 2. Extra Tile: 2 percent of each size, color, and surface finish combination.

1.6 FIELD CONDITIONS

- A. Maintain ambient and substrate temperature of 50 degrees F (10 degrees C) during installation of mortar materials.

PART 2 PRODUCTS

2.1 TILE

- A. Manufacturers: All products by the same manufacturer.
 - 1. American Olean Corporation: www.americanolean.com/#sle.
 - 2. Dal-Tile Corporation: www.daltile.com/#sle.
 - 3. Emser Tile, LLC: www.emser.com/#sle.
 - 4. Substitutions: See Section 01 6000 - Product Requirements.
- B. Porcelain Tile, Type PT1: ANSI A137.1, standard grade.

1. Size: 12 by 12 inch (305 by 305 mm), nominal.
2. Thickness: 5/16 inch (8 mm).
3. Edges: Cushioned.
4. Surface Finish: Matte glazed.
5. Color(s): To be selected by Architect from manufacturer's standard range. Allow two colors per room.
6. Trim Units: Matching bullnose and cove base shapes in sizes coordinated with field tile.
7. Basis of Design Product: Daltile, Volume 1.0.
 - a. Substitutions: See Section 01 6000 - Product Requirements.

C. Porcelain Tile, Type PT2: ANSI A137.1, standard grade.

1. Moisture Absorption: 0 to 0.5 percent as tested in accordance with ASTM C373.
2. Size: 2 by 2 Mosaic inch (51 by 51 mm), nominal.
3. Thickness: 1/4 inch (6 mm).
4. Edges: Cushioned.
5. Surface Finish: Unglazed.
6. Color(s): To be selected by Architect from manufacturer's full range, price groups 1 through 4. Allow two colors per room.
7. Trim Units: Matching bullnose and build-up base shapes in sizes coordinated with field tile.
8. Basis of Design Product: Daltile, Keystones.
 - a. Substitutions: See Section 01 6000 - Product Requirements.

2.2 TRIM AND ACCESSORIES

- A. Non-Ceramic Trim: Brushed stainless steel, style and dimensions as indicated on drawings, for setting using tile mortar or adhesive.
1. Applications:
 - a. Open edges of wall tile.
 - b. Wall corners, outside.
 - c. Transition between floor finishes of different heights.
 - d. Expansion and control joints, floor and wall.
 2. Manufacturers:
 - a. Schluter-Systems: www.schluter.com/#sle.
 - b. Genesis APS International: www.genesis-aps.com/#sle.
 - c. Substitutions: See Section 01 6000 - Product Requirements.
- B. Thresholds: Marble, white or gray, honed finish; 2 inches (51 mm) wide by full width of wall or frame opening; thickness to fit application; beveled one long edge with radiused corners on top side; without holes, cracks, or open seams.
1. Applications:
 - a. At doorways where tile terminates.

- b. At open edges of floor tile where adjacent finish is a different height.
- C. Window Stools: Slate, color and finish to match existing window stools.
 - 1. Face and exposed edges: Honed with corners slightly eased.

2.3 SETTING MATERIALS

- A. Manufacturers:
 - 1. ARDEX Engineered Cements; : www.ardexamericas.com.
 - 2. Custom Building Products; : www.custombuildingproducts.com.
 - 3. LATICRETE International, Inc; : www.laticrete.com.
 - 4. Merkrete, by Parex USA, Inc; : www.merkrete.com.
 - 5. ProSpec, an Oldcastle brand; : www.prospec.com.
 - 6. Substitutions: See Section 01 6000 - Product Requirements.
- B. Improved Latex-Portland Cement Mortar Bond Coat: ANSI A118.15.
 - 1. Applications: Use this type of bond coat where indicated and where no other type of bond coat is indicated.
 - 2. Products:
 - a. ARDEX Engineered Cements; S 28: www.ardexamericas.com/#sle.
 - b. Custom Building Products; FlexBond Premium Crack Prevention Thin-set Mortar : www.custombuildingproducts.com/#sle.
 - c. LATICRETE International, Inc; LATICRETE 254 Platinum: www.laticrete.com/#sle.
 - d. TEC, an H.B. Fuller Construction Products Brand; TEC 3N1 Performance Mortar: www.tecspecialty.com/#sle.
 - e. Substitutions: See Section 01 6000 - Product Requirements.
- C. Mortar Bed Materials: Pre-packaged mix of Portland cement, sand, latex additive, and water.
 - 1. Products:
 - a. LATICRETE International, Inc; LATICRETE 3701 Fortified Mortar Bed: www.laticrete.com/#sle.
 - b. Merkrete, by Parex USA, Inc; Merkrete Underlay C: www.merkrete.com/#sle.
 - c. Proflex Products, Inc; MSI - Mud Set Installation: www.proflex.us/#sle.
 - d. Substitutions: See Section 01 6000 - Product Requirements.

2.4 GROUTS

- A. High Performance Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
 - 1. Applications: Use this type of grout where indicated and where no other type of grout is indicated.
 - 2. Use sanded grout for joints 1/8 inch (3.2 mm) wide and larger; use unsanded grout for joints less than 1/8 inch (3.2 mm) wide.
 - 3. Color(s): As selected by Architect from manufacturer's full line.
 - 4. Products:

- a. Custom Building Products; Fusion Pro Single Component Grout: www.custombuildingproducts.com/#sle.
 - b. LATICRETE International, Inc; LATICRETE PERMACOLOR Grout: www.laticrete.com/#sle.
 - c. Merkrete, by Parex USA, Inc; Merkrete Pro Grout: www.merkrete.com/#sle.
 - d. Substitutions: See Section 01 6000 - Product Requirements.
- B. Epoxy Grout: ANSI A118.3 chemical resistant and water-cleanable epoxy grout.
1. Applications: Where indicated.
 2. Color(s): As selected by Architect from manufacturer's full line.
 3. Products:
 - a. Custom Building Products; CEG-IG 100% Solids Industrial Grade Epoxy Grout: www.custombuildingproducts.com/#sle.
 - b. LATICRETE International, Inc; LATICRETE SPECTRALOCK PRO Premium Grout: www.laticrete.com/#sle.
 - c. Merkrete, by Parex USA, Inc; Merkrete Pro Epoxy: www.merkrete.com/#sle.
 - d. TEC, an H.B. Fuller Construction Products Brand; TEC AccuColor EFX Epoxy Special Effects Grout: www.tecspecialty.com/#sle.
 - e. Substitutions: See Section 01 6000 - Product Requirements.

2.5 Maintenance Materials

- A. Tile Sealant: Gunnable, silicone, siliconized acrylic, or urethane sealant; moisture and mildew resistant type.
1. Applications: Between tile and plumbing fixtures, at control joints and at inside corners of base and wall tile.
 2. Color(s): As selected by Architect from manufacturer's full line.
 3. Products:
 - a. ARDEX Engineered Cements; ARDEX SX: www.ardexamericas.com/#sle.
 - b. Custom Building Products; Commercial 100% Silicone Caulk: www.custombuildingproducts.com/#sle.
 - c. LATICRETE International, Inc; LATICRETE LATASIL: www.laticrete.com/#sle.
 - d. Merkrete, by Parex USA, Inc; Merkrete Colored Caulking: www.merkrete.com/#sle.
 - e. Substitutions: See Section 01 6000 - Product Requirements.
- B. Grout Release: Temporary, water-soluble pre-grout coating.
1. Products:
 - a. Custom Building Products; Aqua Mix Grout Release: www.custombuildingproducts.com/#sle.
 - b. Substitutions: See Section 01 6000 - Product Requirements.

2.6 ACCESSORY MATERIALS

- A. Waterproofing Membrane: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.

1. Fluid or Trowel Applied Type:
 - a. Thickness: 25 mils (0.6 mm), minimum, dry film thickness.
 - b. Products:
 - 1) Custom Building Products; RedGard Crack Prevention and Waterproofing Membrane: www.custombuildingproducts.com/#sle.
 - 2) LATICRETE International, Inc; LATICRETE HYDRO BAN: www.laticrete.com/#sle.
 - 3) Merkrete, by Parex USA, Inc; Merkrete Hydro Guard 2000: www.merkrete.com/#sle.
 - 4) Substitutions: See Section 01 6000 - Product Requirements.
- B. Cleavage Membrane Under Thick Mortar Bed:
 1. Material: 4 mil (0.1 mm) thick polyethylene film.
- C. Reinforcing Mesh: 2 by 2 inch (51 by 51 mm) size weave of 16/16 wire size; welded fabric, galvanized.
- D. Mesh Tape: 2 inch (50 mm) wide self-adhesive fiberglass mesh tape.
- E. Textured Sealant: Silicone sealant, by same manufacturer as grout, color to match grout.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, 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 required floor-mounted utilities are in correct location.

3.2 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.

3.3 INSTALLATION - GENERAL

- A. Install tile and thresholds and grout in accordance with applicable requirements of ANSI A108.1A thru A108.13, manufacturer's instructions, and TCNA (HB) 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, base, and wall joints.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little 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 control and expansion joints free of mortar, grout, and adhesive.
- J. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
- K. Grout tile joints unless otherwise indicated.
- L. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.4 INSTALLATION - FLOORS - THIN-SET METHODS

- A. Over interior concrete substrates, unless otherwise indicated, install in accordance with TCNA (HB) Method F122A-17, with latex Portland cement bond coat, and crack isolation & waterproofing membrane.

3.5 INSTALLATION - FLOORS - MORTAR BED METHODS

- A. Over interior concrete substrates where drawings indicate mortar setting bed, install in accordance with TCNA (HB) Method F121-17 with latex Portland cement bond coat. Provide cleavage membrane under mortar bed, and waterproofing membrane under bond coat.
- B. Cleavage Membrane: Lap edges and ends.
- C. Waterproofing Membrane: Install as recommended by manufacturer and as specified in the section in which the product is specified.
- D. Mortar Bed: Thickness; 2 inch (51 mm), unless otherwise indicated, mesh reinforced.

3.6 INSTALLATION - WALL TILE

- A. Over cementitious backer units on studs, install in accordance with TCNA (HB) Method W244C-2017, using membrane at toilet rooms.
- B. Over interior concrete and masonry install in accordance with TCNA (HB) Method W202I-17, thin set with latex-Portland cement bond coat.

3.7 CLEANING

- A. Clean tile and grout surfaces.

3.8 PROTECTION

- A. Do not permit traffic over finished floor surface for 4 days after installation. Cover tile flooring until final inspection with heavy Kraft paper or other heavy protective covering to prevent surface damage.

3.9 MAINTENANCE

- A. Provide 2% of each tile type and color to the Owner at project completion.

3.10 SCHEDULE

- A. Group Restrooms:
 - 1. Tile: Porcelain PT-1.
 - 2. Base: Coved, 6 inches (51 mm) high, bullnosed top edge.
 - 3. Installation Method: Thinset or mortar bed, see drawings for locations.
 - 4. Grout: Epoxy.
- B. Single Use Restrooms & Custodial Rooms:

1. Tile: Porcelain Mosaic PT-2.
2. Base: Coved, 6 inches (51 mm) high, bullnosed top edge.
3. Installation Method, floors and walls: Thin-set.
4. Grout:
 - a. Floors and Base: Epoxy.
 - b. Wainscot: Polymer modified.

END OF SECTION