

**SECTION 09 3000
TILING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Tile for floor applications.
- B. Tile for wall applications.
- C. Cementitious backer board as tile substrate.
- D. Non-ceramic trim.

1.02 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.

1.03 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 A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units; 2010 (Reaffirmed 2016).
- K. ANSI A108.12 - American National Standard for Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar; 1999 (Reaffirmed 2010).
- L. 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).
- M. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation; 2010 (Reaffirmed 2016).
- N. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 1999 (Reaffirmed 2016).

- O. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation; 2014.
- P. ANSI A118.15 - American National Standard Specifications for Improved Modified Dry-Set Cement Mortar; 2012.
- Q. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2012.
- R. ASTM C373 - Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products; 2017.
- S. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2017.
- T. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2016a.
- U. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2016.

1.04 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.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing tile installation, with minimum of five years of documented experience.

1.06 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. System Warranty: Provide manufacturer's system warranty agreeing to repair or replace tile work caused by any defect of a component of the tile setting system or by the workmanship of the Contractor as it relates to the installation of any component of the tile system.
 - 1. Warranty Term: 25 years.
 - 2. Transferability: Fully transferable for the full term of the warranty without restrictions.
 - 3. Repair and replacement include costs of setting, tile and grouting materials and labor in warranty.

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 solvent-based products in an unventilated environment.
- B. Maintain ambient and substrate temperature of 50 degrees F during installation of mortar materials.

1.09 ATTIC STOCK

- A. Provide two boxes of each floor tile and one box of wall tile clearly labeled as **FLOOR TILE ATTIC STOCK and WALL TILE ATTIC STOCK** along with tile manufacturer, unique number, style name, color and size.

PART 2 PRODUCTS

2.01 TILE

- A. Type T-1, Field Tile: ANSI A137.1 standard grade.
 - 1. Approved Manufacturers:
 - a. Daltile Corporation; Contact Sue Pucilowski, Daltile National Account Manager; sue.pucilowski@daltile.com; 570/780-2998.

- b. Crossville, Inc.; Contact Heidi Vassalotti, Strategic Accounts; hvassalotti@crossvilleinc.com; 773/988-8118
 - 2. Coefficient of Friction: ANSI A137.1, equal to or greater than 0.42.
 - 3. Size: 24 by 24 inch, **Rectified**.
 - 4. Shape: Square.
 - 5. Pattern and Color:
 - a. Daltile: Mariela MA90 2424RMT, Cream. (Basis of Design).
 - b. Crossville: Buc-ees SBTT/12424UPS Travel Taupe
- B. Type T-2, Quarry Tile: ANSI A137.1 standard grade.
 - 1. Approved Manufacturer: Daltile Corporation; Contact Sue Pucilowski, Daltile National Account Manager; sue.pucilowski@daltile.com; 570/780-2998.
 - 2. Moisture Absorption: 0.5 to 3.0 percent as tested in accordance with ASTM C373.
 - 3. Size, Finish and Color: Refer to the Overall Floor Finish Plan Sheet for tile schedule.
 - 4. Size: 8 by 8 inch, nominal.
 - 5. Thickness: 1/2 inch, nominal.
 - 6. Pattern and Color: DB Textures ABR 0T01, Diablo Red.
 - 7. Trim Units: Matching 5 inch high by 8 inch wide cove base shapes in sizes coordinated with field tile. **Provide double cove base at untiled walls: Daltile Q-3585.**
- C. Type T-3, Wall Tile: ANSI A137.1 standard grade.
 - 1. Approved Manufacturers:
 - a. Daltile Corporation; Contact Sue Pucilowski, Daltile National Account Manager; sue.pucilowski@daltile.com; 570/780-2998.
 - b. Crossville, Inc.; Contact Heidi Vassalotti, Strategic Accounts; hvassalotti@crossvilleinc.com; 773/988-8118
 - 2. Size: 12 by 12 inch, **Non-Rectified**.
 - 3. Pattern and Color:
 - a. Daltile: N529 BC1212MT Continental Slate CS50 Egyptian Beige (**Basis of Design**).
 - b. Crossville: Buc-ees SBHB/11212UPS Highway Beige.
- D. Type T-4, Deco Band: ANSI A137.1 Standard Grade
 - 1. Manufacturer: Daltile Corporation; Contact Sue Pucilowski, Daltile National Account Manager; sue.pucilowski@daltile.com; 570/780-2998.
 - 2. Custom Mosaic Band: CS70 412DECO1P2-Shade 250 Multi Deco, Buc-ees Original (Custom Dal Tile)
 - 3. Size: 4 inch x 12 inch.
- E. Type T-5, Floor Plank Tile: ANSI A137.1 standard grade
 - 1. Approved Manufacturer: Daltile Corporation; Contact Sue Pucilowski, Daltile National Account Manager; sue.pucilowski@daltile.com; 570/780-2998.
 - 2. Coefficient of Friction: ANSI A137.1, equal to or greater than 0.42.
 - 3. Size: 6 by 36 inch, nominal.
 - 4. Pattern and Color: DB Hill House Ceramic Floor HH04, Dark Brown.

2.02 TRIM AND ACCESSORIES

- A. Floor Transition Trim: Satin natural anodized extruded aluminum, style and dimensions to suit application, for setting using tile mortar or adhesive.
 - 1. Applications:
 - a. Transition between floor finishes of different heights.
 - b. Thresholds at door openings.
 - c. Borders and other trim as indicated on drawings.
 - 2. Manufacturer:
 - a. Laminim Industries; Model 311-MTR Multi Transition Ramp (Basis of Design)
 - b. Schluter Systems: www.schluter.com/#sle; Model 1.8 Schluter-Reno-Ramp.

- c. Laticrete TR3-A125SAT-01 Ramp Profile
- B. Outside Corner Bullnose Trim:
 - 1. Applications: Outside corner of tile to tile.
 - 2. Material: Aluminum
 - 3. Manufacturer:
 - a. Laminin Industries Color-Coated Aluminum Trim; www.lamininindustries.com/#sle. (Basis of Design)
 - 1) Corin 311-ABT for 90 degree corners
 - 2) Corin 311-ACT for 45 degree corners.
 - b. Schluter Systems; www.schluter.com/#sle.
 - 1) Rondec Bullnose Trim for 90 degree corners.
 - 2) Deco-DE Trim for 45 degree corners.
 - c. Laticrete; www.laticrete.com/#sle.
 - 1) R04-A100ANW-01 Texture Coated, for 90 degree corners.
 - 2) TR1-A100ANW-01 Texture Coated, for 45 degree corners.
 - 4. Color:
 - a. Laminin: Sand
 - b. Schluter: Cream
 - c. Laticrete: Walnut
 - 5. Size: As required to provide a flush installation with tile face.

2.03 SETTING MATERIALS

- A. Manufacturers:
 - 1. LATICRETE International, Inc: www.laticrete.com/#sle.
 - 2. MAPEI Corp.: www.mapei.com/#sle.
- 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. LATICRETE International, Inc; Laticrete Tri-Lite): www.laticrete.com/#sle.
 - b. MAPEI Corp.; Keraflex Super: www.mapei.com/#sle.

2.04 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. Color(s): As selected by Architect from manufacturer's full line.
 - 3. Products:
 - a. Laticrete International, Inc: www.laticrete.com/en/#sle.
 - 1) Sales, Restroom and Kitchen Walls: Permacolor Grout.
 - 2) Sales and Restroom Floors: Spectralock 1 Premixed Grout.
 - 3) Kitchen and TRU/Sweet Street Floors: Spectralock 2000 IG Epoxy Grout.
 - 4) Restroom Urinal Floor Areas: SpectraLock 2000 IG Epoxy Grout
 - b. MAPEI Corp.: www.mapei.com/us/en-us/home-page/#sle.
 - 1) Sales, Restroom and Kitchen Walls: Ultracolor Grout.
 - 2) Sales and Restroom Floors: Flexcolor CQ Premixed Grout.
 - 3) Kitchen and TRU/Sweet Street Floors: Kerapoxy IEG CQ Epoxy Grout
 - 4) Restroom Urinal Floor Areas: Kerapoxy CQ Epoxy Grout.

2.05 TILE SEALANT

- A. Gunnable, premium 100% silicone sealant.

1. Applications: At wall internal corner joints, floor slab expansion joints and where movement is expected between tile in lieu of grout.
2. Color(s): To match adjacent grout color.
3. Products:
 - a. LATICRETE International, Inc; LATICRETE LATASIL: www.laticrete.com/#sle.
 - b. MAPEI Corp.; Mapesil T: www.mapei.com/#sle.

2.06 ACCESSORY MATERIALS

- A. Concrete Floor Slab Crack Isolation Membrane: Material complying with ANSI A118.12; not intended as waterproofing.
 1. Type: Fluid-applied.
 2. Crack Resistance: No failure at 1/16 inch gap, minimum.
 - a. Material: Synthetic rubber or acrylic
 - b. Thickness: Maximum per manufacturer's specifications.
 - 1) Laticrete International, Inc.; Hydro Barrier Plus Anti-Fracture Membrane: www.laticrete.com/#sle.
 - 2) Mapei; Mapelastic CI: www.mapei.com/#sle.
- B. Backer Board: Cementitious type complying with ANSI A118.9; high density, glass fiber reinforced, 1/2 inch thick; 2 inch wide coated glass fiber tape for joints and corners.

PART 3 EXECUTION

3.01 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. Remove remnants of slab bond breaker and curing agents, if any. Verify that sub-floor surfaces are dust-free and free of substances that 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 the following limits:
 1. Moisture Emission Rate: Not greater than 3 lb per 1000 sq ft per 24 hours, test in accordance with ASTM F1869.
 2. Alkalinity (pH): Verify pH range of 5 to 9, test in accordance with ASTM F710.

3.02 PREPARATION

- A. Protect surrounding work from damage.
- B. Vacuum clean surfaces and damp clean.
- C. Apply Concrete Floor Slab Crack Isolation Membrane at all cracks, floor and wall joints, sawed control joints and other concrete breaks and spawls in accordance with manufacturer's installation instructions. Level existing substrate surfaces to acceptable flatness tolerances.
- D. Install backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of setting material to a feather edge.

3.03 INSTALLATION - GENERAL

- A. Install tile and grout in accordance with applicable requirements of ANSI A108.1a through ANSI 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. **Use 1/8" tile grout joints at all locations, unless noted otherwise. Quarry tile grout joints shall be 3/8 inch.**
- E. Form a complete covering without interruptions except for control joints where shown or required. Terminate work neatly at obstructions, edges and corners without disruption of pattern or joint alignments.
- F. Extend tile work into recesses and under equipment and fixtures in spaces shown or scheduled to receive tile.
- G. 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 and fixtures so that plates, collars, excutcheons and covers overlap tile.
- H. 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.
- I. Form internal angles square and external angles bullnosed. Provide aluminum bullnose trim at external angled corners, flush with the adjoining tile face.
- J. Install non-ceramic trim in accordance with manufacturer's instructions.
- K. Install thresholds where indicated.
- L. Sound tile after setting. Replace hollow sounding units.
- M. Keep control and expansion joints free of mortar, grout, and adhesive.
- N. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
- O. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.
- P. 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.

3.04 INSTALLATION - FLOORS - THIN-SET METHODS

- A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F113, dry-set or latex-Portland cement bond coat, with standard grout, unless otherwise indicated.
 - 1. Install epoxy grout in accordance with TCNA (HB) Method F115. All quarry tile is to be grouted using epoxy grout. Epoxy grout in Mens Restroom where shown.

3.05 INSTALLATION - WALL TILE

- A. Over cementitious backer units on studs, install in accordance with TCNA (HB) Method W244.

3.06 FINISH WORK TOLERANCES

- A. Walls: 1/8 inch in 8 feet in any direction, +/- 1/32 inch at any location.
- B. Floors: 1/8 inch in 10 feet in any direction, +/- 1/32 inch at any location.
- C. Joints: +/- 1/32 inch joint width at any location.

3.07 FINISHED TILE WORK

- A. Leave finished tile installation clean and free of chipped, cracked, broken, non-fully bonded or otherwise defective tile work. Grout color shall be consistent throughout the work.

3.08 CLEANING

- A. Clean tile and grout surfaces.

3.09 PROTECTION

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

END OF SECTION