
SECTION 09 30 00**TILING****PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Tile for floor applications.
- B. Tile for wall applications.
- C. Non-ceramic trim.

1.2 RELATED REQUIREMENTS

- A. Section 03 30 00 - Cast-In-Place Concrete.
- B. Section 04 20 00 - Unit Masonry.
- C. Section 07 92 00 - Joint Sealants: Sealing joints between tile work and adjacent construction and fixtures.
- D. Section 09 21 16 - Gypsum Board Assemblies: Tile backer board.

1.3 REFERENCE STANDARDS

- A. ANSI A108/A118/A136 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium) 2019.
- B. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar 2017.
- C. 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 2017.
- D. ANSI A108.1c - Contractor's 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 1999 (Reaffirmed 2021).
- E. ANSI A108.2 - American National Standard General Requirements: Materials, Environmental and Workmanship 2019.
- F. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesive or Water Cleanable Tile-Setting Epoxy Adhesive 2019.
- G. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar 2021.
- H. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grout Epoxy 1999 (Reaffirmed 2019).
- I. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout 1999 (Reaffirmed 2019).
- J. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout 1999 (Reaffirmed 2019).
- K. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework 2017.
- L. ANSI A108.12 - American National Standard for Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar 1999 (Reaffirmed 2019).
- M. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone 2005 (Reaffirmed 2021).

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- N. ANSI A108.19 - American National Standard Specifications for Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method Bonded with Modified Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar 2020.
 - O. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar 2019.
 - P. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation 2019.
 - Q. ANSI A118.10 - American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone 2014 (Reaffirmed 2019).
 - R. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation 2014 (Reaffirmed 2019).
 - S. ANSI A137.1 - American National Standard Specifications for Ceramic Tile 2022.
 - T. 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 2018.
 - U. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring 2022.
 - V. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride 2022.
 - W. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes 2019a.
 - X. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation 2022.

1.4 ADMINISTRATIVE REQUIREMENTS

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

1.5 SUBMITTALS

- A. See Section 01 30 00 - 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, thresholds, and setting details.
- D. Samples: Mount tile and apply grout on two plywood panels, minimum 18 by 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. Installer's Qualification Statement:
 - 1. Submit documentation of National Tile Contractors Association (NTCA) or Tile Contractors' Association of America (TCAA) accreditation.
- G. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.
- H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
 - 2. Extra Tile: 1 percent of each size, color, and surface finish combination, but not less than 10 percent of each type.

1.6 QUALITY ASSURANCE

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- A. Maintain one copy of and ANSI A108/A118/A136 and TCNA (HB) on site.
 - B. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum five years of documented experience.
 - C. Installer Qualifications:
 - 1. Company specializing in performing tile installation, with minimum of five years of documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

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

1.8 FIELD CONDITIONS

- A. Do not install solvent-based products in an unventilated environment.
- B. Maintain ambient and substrate temperature above 50 degrees F and below 100 degrees F during installation and curing of setting materials.

PART 2 PRODUCTS

2.1 TILE

- A. Basis of Design Manufacturer: Florida Tile Inc; www.floridatile.com or products meeting project requirements by one of the following: All products by the same manufacturer.
 - 1. American Olean Corporation: www.americanolean.com/#sle.
 - 2. Dal-Tile Corporation: www.daltile.com/#sle.
- B. Porcelain Wall Tile, Type PT-2: ANSI A137.1, standard grade.
 - 1. Florida Tile Inc: East Village Series.
 - 2. Moisture Absorption: 0 to 0.5 percent as tested in accordance with ASTM C373.
 - 3. Size: 3.75 by 12 inch, nominal.
 - 4. Shape: Rectangle.
 - 5. Surface Finish: Matte.
 - 6. Color(s): E. Houston Warm Gray (EVG20).
 - 7. Pattern: Running bond 1/3 offset, horizontal.
- C. Porcelain Floor Tile, Type PT-1: ANSI A137.1, standard grade.
 - 1. Florida Tile Inc: East Village Series.
 - 2. Moisture Absorption: 0 to 0.5 percent as tested in accordance with ASTM C373.
 - 3. Size: 12 by 12 inch, nominal.
 - 4. Shape: Rectangle.
 - 5. Surface Finish: Matte.
 - 6. Color(s): Stuyvesant Charcoal (EVG40).

2.2 TRIM AND ACCESSORIES

- A. Non-Ceramic Trim: Brushed stainless steel, style and dimensions to suit application, for setting using tile mortar or adhesive.
 - 1. Applications:
 - a. Open edges of wall tile.
 - b. Open edges of floor tile.
 - c. Wall corners, outside and inside.
 - d. Transition between floor and wall.

2. Basis of Design Manufacturer: Schluter-Systems; www.schluter.com/#sle
 - a. Model: Quadec.

2.3 SETTING MATERIALS

- A. Provide setting and grout materials from same manufacturer.
- B. Basis of Design Manufacturer: MAPEI Corporation, www.mapei.com or products meeting project requirements by one of the following:
 1. ARDEX Engineered Cements: www.ardexamericas.com/#sle.
 2. Custom Building Products: www.custombuildingproducts.com/#sle.
 3. LATICRETE International, Inc: www.laticrete.com/#sle.
- C. Polymer Modified Dry-Set Cement Mortar: ANSI A118.4.
 1. Basis of Design Product: MAPEI Corporation Ultraflex 3.
 2. Applications: Use this type of bond coat for wall tile 4 inch x 12 inch or smaller.
- D. Polymer Modified Dry-Set Cement Mortar: ANSI A118.4.
 1. Basis of Design Product: MAPEI Corporation Ultraflex LFT.
 2. Applications: Use this type of bond coat for wall tile larger than 4 inch x 12 inch .
- E. Polymer Modified Sanded Grout - Rapid Setting: ANSI A118.6.
 1. Basis of Design Product: MAPEI Corporation Ultracolor Plus with DropEffect .
 2. Applications: Use this type of bond coat where indicated to be used with wall tile base TB1..

2.4 GROUTS

- A. Provide setting and grout materials from same manufacturer.
- B. Basis of Design Manufacturer: MAPEI Corporation, www.mapei.com or products meeting project requirements by one of the following:
 1. ARDEX Engineered Cements: www.ardexamericas.com/#sle.
 2. Custom Building Products: www.custombuildingproducts.com/#sle.
 3. LATICRETE International, Inc: www.laticrete.com/#sle.
- C. High Performance Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
 1. Basis of Design Product: MAPEI Corporation Ultracolor Plus with DropEffect FA.
 2. Use sanded grout for joints 1/8 inch wide.
 3. Color(s): As selected by Architect from manufacturer's full line.

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.
 2. Color(s): As selected by Architect from manufacturer's full line.
 3. Products:
 - a. ARDEX Engineered Cements: www.ardexamericas.com/#sle.
 - b. Custom Building Products: www.custombuildingproducts.com/#sle.
 - c. LATICRETE International, Inc: www.laticrete.com/#sle.
- B. Grout Sealer: Liquid-applied, moisture and stain protection for existing or new Portland cement grout.
 1. Composition: Water-based colorless silicone.

2.6 ACCESSORY MATERIALS

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- A. Concrete Floor Slab Crack Isolation Membrane: Material complying with ANSI A118.12; not intended as waterproofing.
 - 1. Crack Resistance: No failure at 1/8 inch gap, minimum.
 - 2. Fluid or Trowel Applied Type:
 - a. Thickness: 20 mils, maximum.
 - b. Products: As approved for use by tile manufacturer.
 - B. Waterproofing Membrane at Floors: Specifically designed for bonding to cementitious substrate under thin-set tile; complying with ANSI A118.10. As required following moisture testing of concrete slab.
 - 1. Basis of Design Product: MAPEI Corporation Mapelastic AquaDefense.
 - 2. Crack Resistance: No failure at 1/16 inch gap, minimum; comply with ANSI A118.12.
 - 3. Fluid or Trowel Applied Type:
 - C. Waterproofing Membrane at showers: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that subfloor 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 subfloor surfaces are dust free and free of substances that could impair bonding of setting materials to subfloor surfaces.
- D. Cementitious Subfloor Surfaces: Verify that substrates are ready for tiling installation by testing for moisture and alkalinity (pH).
 - 1. Test as Follows:
 - a. Alkalinity (pH): ASTM F710.
 - b. Internal Relative Humidity: ASTM F2170.
 - c. Moisture Vapor Emission: ASTM F1869.
 - 2. Provide products and methods recommended by resilient flooring manufacturer and adhesive materials manufacturer if moisture and alkalinity test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

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 through ANSI A108.19, 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 joints.

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- 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. Sound tile after setting. Replace hollow sounding units.
 - H. Keep control and expansion joints free of mortar, grout, and adhesive.
 - I. Keep expansion joints free of adhesive or grout. Apply sealant to joints.
 - J. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
 - K. Grout tile joints unless otherwise indicated. Use standard grout 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.
 - M. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

3.4 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. Where waterproofing membrane as required from moisture testing, install in accordance with TCNA (HB) Method F122, with latex-Portland cement grout.
- B. Install tile-to-tile floor movement joints in accordance with TCNA (HB) Method EJ171F.

3.5 INSTALLATION - WALL TILE

- A. Over coated glass mat backer board on studs, install in accordance with TCNA (HB) Method W245.
- B. Over interior concrete and masonry install in accordance with TCNA (HB) Method W202, thin-set with dry-set or latex-Portland cement bond coat.

3.6 CLEANING

- A. Clean tile and grout surfaces.

3.7 PROTECTION

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

END OF SECTION 09 30 00