PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Tile for floor applications.
   B. Tile for wall applications.
   C. Stone thresholds.
   D. Ceramic accessories.
   E. Non-ceramic trim.

1.02 RELATED REQUIREMENTS
   A. Section 07.92.00 - Joint Sealants: Sealing joints between tile work and adjacent construction and fixtures.
   B. Section 09.21.16 - Gypsum Board Assemblies: Tile backer board.

1.03 REFERENCE STANDARDS
   E. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive; 2009 (Revised).

O. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar; 2012 (Revised).


W. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2011.


1.04 ADMINISTRATIVE REQUIREMENTS

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

1.05 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, control and expansion joints, thresholds, ceramic accessories, 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. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.

G. 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: 10 square feet of each size, color, and surface finish combination.

1.06 TENNESSEE SUSTAINABLE DESIGN GUIDELINES COMPLIANCE DOCUMENTATION


B. Provide documentation of construction waste diverted from landfills:
1. Compliance with Credit 1.02-D-2: Construction Waste Management.

C. Submit shop drawing documentation demonstrating SDG compliance for the following:
   1. Compliance with Credit 1.02-D-3-a: Sustainable Materials - Recycled content 10%
   2. Compliance with Credit 1.02-D-3-b: Sustainable Materials - Rapidly renewables
   3. Compliance with Credit 1.02-D-3-c: Sustainable Materials - Certified wood
   4. Compliance with Credit 1.02-D-3-d: Sustainable Materials - Material reuse
   5. Compliance with Credit 1.02-E-6-b: Material VOC Limits - Adhesive and Sealants
   6. Compliance with Credit 1.02-E-6-b: Material VOC Limits - Paints
   7. Compliance with Credit 1.02-E-6-b: Material VOC Limits - Coatings and Anti-corrosive paints
   8. Compliance with Credit 1.02-E-6-d: Material VOC Limits - Flooring systems
   9. Compliance with Credit 1.02-E-6-d: Material VOC Limits - Composite wood and agrifiber

D. Submit documentation of quantity and material cost with monthly Application for Payment to the Contractor.

1.07 QUALITY ASSURANCE
   A. Maintain one copy of and ANSI A108/A118/A136.1 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: Company specializing in performing tile installation, with minimum of five years of documented experience.

1.08 MOCK-UP
   A. Construct tile mock-up where indicated on the drawings, incorporating all components specified for the location.
      1. Minimum size of mock-up is indicated on the drawings.
      2. Approved mock-up may remain as part of the Work.

1.09 DELIVERY, STORAGE, AND HANDLING
   A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.10 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.

PART 2 PRODUCTS

2.01 TILE

2.02 TRIM AND ACCESSORIES
   A. Ceramic Accessories: Glazed finish, same color and finish as adjacent field tile; same manufacturer as tile.
   B. Ceramic Trim: Matching bullnose, double bullnose, cove base, and cove ceramic shapes in sizes coordinated with field tile.
      1. Manufacturers: Same as for tile.
   C. Non-Ceramic Trim: Satin brass anodized extruded aluminum, style and dimensions to suit application, for setting using tile mortar or adhesive.
      1. Applications:
         a. Open edges of wall tile.
b. Outside wall corners.
c. Transition between floor finishes of different heights.
d. Thresholds at door openings.

2. Manufacturers:

D. 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 SETTING MATERIALS

A. Manufacturers:

B. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4 or 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:

2.04 GROUTS

A. Manufacturers:

B. Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
   1. Applications: Use this type of grout where indicated on Finish Legend.
   2. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.
   3. Color(s): As selected by Architect from manufacturer's full line.

C. Epoxy Grout: ANSI A118.3 chemical resistant and water-cleanable epoxy grout.
   1. Applications: Refer to Finish Legend.
   2. Color(s): As selected by Architect from manufacturer's full line.

D. Stain Resistant Grout Additive: Liquid admixture for sanded and unsanded cement-based grouts; mix with dry grout material in place of water.
   1. Applications: Refer to Finish Legend.

2.05 MAINTENANCE MATERIALS

A. Grout Sealer: Liquid-applied, moisture and stain protection for existing or new Portland cement grout.
   1. Composition: Water-based colorless silicone.

B. Grout Release: Temporary, water-soluble pre-grout coating.

2.06 ACCESSORY MATERIALS

A. Concrete Floor Slab Crack Isolation Membrane: Material complying with ANSI A118.12; not intended as waterproofing.
   1. Thickness: 20 mils, maximum.
   2. Crack Resistance: No failure at 1/16 inch gap, minimum.
   3. Products:

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. Fluid or Trowel Applied Type:
   b. Thickness: 25 mils, minimum, dry film thickness.

C. Underlayment at Floors: Specifically designed for bonding to thin-set setting mortar; not primarily a waterproofing material and having the following characteristics:
   1. Do Not Use: Gypsum or cementitious based self-leveling underlayment.
   2. Type: Fluid or Trowel Applied.
      a. Products:

D. Mesh Tape: 2 inch wide self-adhesive fiberglass mesh tape.

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. 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 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.
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.
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.
E. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

3.03 INSTALLATION - GENERAL

A. Install tile, thresholds, and stair treads 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 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 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 control and expansion joints free of mortar, grout, and adhesive.

K. Keep expansion joints free of adhesive or grout. Apply sealant to joints.

L. Prior to grouting, allow installation to completely cure; minimum of 48 hours.

M. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.

N. 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.

O. 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 TCNA (HB) Method F113, dry-set or latex-Portland cement bond coat, with standard grout, unless otherwise indicated.
   1. Use uncoupling membrane under all tile unless other underlayment is indicated.
   2. Where waterproofing membrane is indicated, install in accordance with TCNA (HB) Method F122, with latex-Portland cement grout.
   3. Where epoxy bond coat and grout are indicated, install in accordance with TCNA (HB) Method F131.

3.05 INSTALLATION - WALL TILE

A. Over cementitious backer units install in accordance with TCNA (HB) Method W223, organic adhesive.

B. Over coated glass mat backer board on studs, install in accordance with TCNA (HB) Method W245.

C. Over gypsum wallboard on wood or metal studs install in accordance with TCNA (HB) Method W243, thin-set with dry-set or latex-Portland cement bond coat, unless otherwise indicated.
   1. Where waterproofing membrane is indicated other than at showers and bathtub walls, install in accordance with TCNA (HB) Method W222, one coat method.

D. Over interior concrete and masonry install in accordance with TCNA (HB) Method W202, thin-set with dry-set or latex-Portland cement bond coat.

3.06 PROTECTION

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