

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section Includes:
 - 1. Ceramic and Porcelain tile.
 - 2. Porcelain Paver Tile.
 - 3. Quarry Tile
 - 4. Stone thresholds.
 - 5. Waterproof membrane.
 - 6. Tile backing panels.
 - 7. Metal edge strips.

1.03 DEFINITIONS

- A. General: Definitions in the ANSI A108 series of tile installation standards and in ANSI A137.1 apply to Work of this Section unless otherwise specified.
- B. ANSI A108 Series: ANSI A108.01, ANSI A108.02, ANSI A108.1A, ANSI A108.1B, ANSI A108.1C, ANSI A108.4, ANSI A108.5, ANSI A108.6, ANSI A108.8, ANSI A108.9, ANSI A108.10, ANSI A108.11, ANSI A108.12, ANSI A108.13, ANSI A108.14, ANSI A108.15, ANSI A108.16, and ANSI A108.17, which are contained in "American National Standard Specifications for Installation of Ceramic Tile."
- C. Module Size: Actual tile size plus joint width indicated.
- D. Face Size: Actual tile size, excluding spacer lugs.

1.04 PERFORMANCE REQUIREMENTS

- A. Dynamic Coefficient of Friction (DCOF AcuTest): For tile installed on walkway surfaces, provide products with the following values as determined by testing in accordance with ANSI standard A137.1, Section 9.6:
 - 1. Level Surfaces: Minimum 0.42.
 - 2. Step Treads: Minimum 0.42.
 - 3. Ramp Surfaces: 0.42.

1.05 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- B. Samples for Initial Selection: For each type of tile and grout indicated indicating full range of colors and patterns. Include Samples of accessories involving color selection.

1.06 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.

- B. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile manufacturer and Installer certifying that products meet or exceed the specified requirements of ANSI A137.1.
- C. Product Certificates: For each type of product, signed by product manufacturer.
- D. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

1.07 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.
 - 2. Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated.

1.08 QUALITY ASSURANCE

- A. 2.01. Installer Qualifications: Company specializing in performing the work of this section with minimum two years' experience.
- B. Single Source Responsibility: Obtain each type and color of tile from a single source. Obtain each type and color of mortar, adhesive and grout from the same source.

1.09 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages.
- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.
- D. Store liquid materials in unopened containers and protected from freezing.
- E. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

1.10 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

PART 2 - PRODUCTS

2.01 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.

1. Provide tile complying with Standard grade requirements unless otherwise indicated.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCA installation methods specified in tile installation schedules, and other requirements specified.
- C. FloorScore Compliance: Tile for floors shall comply with requirements of FloorScore Standard.
- D. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.
- E. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer unless otherwise indicated.
 1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.
- F. Factory-Applied Temporary Protective Coating: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by pre-coating with continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces.
- G. Grout Release: High-performance, sacrificial, water-based coating to protect tile from grout residue and haze. Rinses with water during clean-up. Apply two coats and allow to cure for one-hour minimum prior to grouting. Installation and removal shall be as recommended by the manufacturer.
 1. Manufacturer: Mapei "UltraCare" Grout Release or approved equal.

2.02 TILE PRODUCTS

- A. Tile Type : Porcelain glazed floor tile.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. American Olean; Division of Dal-Tile International Inc.
 - b. Daltile; Division of Dal-Tile International Inc. Ayers Rock TM
 - c. Or approved equal.
 2. Face Size: 6 1/2 by 6 1/2 inches (165 by 165 mm).
 3. Thickness: 3/8 inch (9.5 mm).
 4. Wearing Surface: Nonabrasive, smooth .
 5. Finish: Mat, clear glaze.
 6. Tile Color and Pattern: As selected by Architect from manufacturer's full range.
 7. Grout Color: As selected by Architect from manufacturer's full range.
 8. For Furan-grouted quarry tile, pre coat with temporary protective coating.
 9. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:
 - a. Base: Coved with surface bullnose top edge, face size 6 by 13 inches (152 by 330 mm).
- B. Tile Type : Glazed Porcelain wall tile:
 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. American Olean; Division of Dal-Tile International Inc.
 - b. Daltile; Division of Dal-Tile International Inc: Avondale TM -
 2. Module Size: 2 inch by 4 inch (152 by 152 mm) Brick pattern (11 7/8 inch by 11 7/8 inch sheets) or as indicated on the drawings.

3. Thickness: 1/4 inch (8 mm).
 4. Face: Plain with modified square edges or cushion edges.
 5. Finish: Vellum, clear glaze.
 6. Tile Color and Pattern: As selected by Architect from manufacturer's full range.
 7. Grout Color: As selected by Architect from manufacturer's full range.
 8. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:
 - a. External Corners for Thin-Set Mortar Installations: 3 inch by 12 inch bullnose and 3 inch by 3 inch bullnose corner units.
 - b. Internal Corners: Field-buttet square corners. For coved base and cap use angle pieces designed to fit with stretcher shapes.
- C. Glazed Wall Tile:
1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Daltile; Division of Dal-Tile International Inc: Rittenhouse Square TM -
 - b. Or approved equal.
 2. Module Size: 3 inch by 3 inch (76 by 152 mm) or as indicated on the drawings.
 3. Thickness: 1/4 inch (8 mm).
 4. Face: Bevel edges.
 5. Finish: Polished, clear glaze.
 6. Tile Color and Pattern: As selected by Architect from manufacturer's full range.
 7. Grout Color: As selected by Architect from manufacturer's full range.
 8. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes selected from manufacturer's standard shapes.
- D. Porcelain Paver Tile:
1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 2. Daltile; Division of Dal-Tile International Inc: Haut Monde
 3. Or approved equal.
 4. Module Size: 12 inch by 24 inch (305 by 1330 mm) or as indicated on the drawings.
 5. Thickness: 3/8 inch (10 mm).
 6. Face: Tru-Edge (square)
 7. Finish: Unpolished
 8. Tile Color and Pattern: Empire Black HM06.
 9. Moisture Absorption: less than 0.5%
 10. Grout Color: As selected by Architect from manufacturer's full range.
 11. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes selected from manufacturer's standard shapes.
- E. Porcelain Paver Tile:
1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Daltile; Division of Dal-Tile International Inc: Forest Park TM
 - b. Or approved equal.
 2. Module Size: 8 3/4 inch by 35 1/4 inch (222 mm by 895 mm) or as indicated on the drawings.
 3. Thickness: 3/8 inch (10 mm).
 4. Face: Tru-Edge (square)
 5. Finish: Unpolished
 6. Tile Color and Pattern: Timberland - FP97

7. Moisture Absorption: less than 0.5%
 8. Grout Color: As selected by Architect from manufacturer's full range.
 9. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes selected from manufacturer's standard shapes.
 - a. Bullnose Base - S-43H9 (3 x 18)
- F. Glazed Wall Tile:
1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Daltile; Division of Dal-Tile International Inc: Modern Dimensions TM -
 - b. Or approved equal.
 2. Module Size: 4 1/4 inch by 12 3/4 inch (108 by 324 mm) or as indicated on the drawings.
 3. Thickness: 1/4 inch (8 mm).
 4. Face: Bevel edges.
 5. Finish: Polished, clear glaze.
 6. Tile Color: Arctic White - 0190 and Desert Gray X114
 7. Moisture Absorption: less than 20% (wall)
 8. Scratch Hardness (MOHS): 4.0 - 6.0
 9. Grout Color: As selected by Architect from manufacturer's full range.
 10. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes selected from manufacturer's standard shapes.
 - a. Flat Top Cove Base: A-34C1 (4 1/4" x 12 3/4")
- G. Quarry and Saltillo Tile:
1. Product: Quarry Textures.
 2. Moisture Absorption: Less than .07 percent to less than 20 percent.
 3. Size and Shape: 8 inches by 8 inches, nominal.
 4. Surface Finish: Textured.
 5. Colors: To be selected from manufacturer's standard range.
 6. Trim Units: Matching bullnose, bullnose corner, inside finger cove, radius cap, sink rail, inside corner, outside corner, cove base, outside cove , and corner shapes in sizes coordinated with field tile shapes.

2.03 THRESHOLDS

- A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.
1. Bevel edges at 1:2 slope, with lower edge of bevel aligned with or up to 1/16 inch (1.5 mm) above adjacent floor surface. Finish bevel to match top surface of threshold. Limit height of threshold to 1/2 inch (12.7 mm) or less above adjacent floor surface.
- B. Granite Thresholds: ASTM C615/C615M, with honed finish.
1. Description: Uniform, medium-grained, gray stone without veining.

2.04 TILE BACKING PANELS

- A. Cementitious Backer Units: ANSI A118.9>ANSI A108/A118/A136.1 or ASTM C1325, in maximum lengths available to minimize end-to-end butt joints. Provide 2 inch wide coated glass fiber tape for joints and corners.
1. Products: Subject to compliance with requirements, provide the following:
 - a. Custom Building Products; Wonderboard.
 - b. USG Corporation; DUROCK Cement Board.
 2. Thickness: 1/2 inch or as indicated.

2.05 WATERPROOF MEMBRANE

- A. General: Manufacturer's standard product that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
- B. Chlorinated Polyethylene Sheet: Non-plasticized, chlorinated polyethylene faced on both sides with nonwoven polyester fabric; 0.030-inch (0.76-mm) nominal thickness.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Noble Company (The); Nobleseal TS.
 - b. Or approved equal.
- C. Fabric-Reinforced, Fluid-Applied Membrane: System consisting of liquid-latex rubber or elastomeric polymer and continuous fabric reinforcement.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Laticrete International, Inc.; Laticrete 9235 Waterproof Membrane.
 - b. MAPEI Corporation; Mapelastic AquaDefense with MAPEI Fiberglass Mesh.
 - c. Or approved equal.

2.06 SETTING MATERIALS

- A. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Laticrete International, Inc.
 - b. MAPEI Corporation.
 - c. TEC; a subsidiary of H. B. Fuller Company.
 - 2. Provide prepackaged, dry-mortar mix containing dry, redispersable, vinyl acetate or acrylic additive to which only water must be added at Project site.
 - 3. Provide prepackaged, dry-mortar mix combined with acrylic resin liquid-latex additive at Project site.
 - 4. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.4.

2.07 GROUT MATERIALS

- A. Polymer-Modified Tile Grout: ANSI A118.7.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Laticrete International, Inc.
 - b. MAPEI Corporation.
 - c. TEC; a subsidiary of H. B. Fuller Company.
 - 2. Polymer Type: Ethylene vinyl acetate or acrylic additive, in dry, redispersable form, prepackaged with other dry ingredients.
 - 3. Polymer Type: Acrylic resin in liquid-latex form for addition to prepackaged dry-grout mix.
- B. Water-Cleanable Epoxy Grout: ANSI A118.8, 100 percent solids with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D. Use in Toilet Room Floor installations.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Laticrete International, Inc.
 - b. MAPEI Corporation.

- c. TEC; a subsidiary of H. B. Fuller Company.
- 2. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to 140 deg F (60 deg C) and 212 deg F (100 deg C), respectively, and certified by manufacturer for intended use.

C. Grout for Pre-grouted Tile Sheets: Same product used in factory to pre-grout tile sheets.

2.08 ELASTOMERIC SEALANTS

- A. General: Provide sealants, primers, backer rods, and other sealant accessories that comply with the following requirements and with the applicable requirements in Section .
 - 1. Sealants shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - 2. Use primers, backer rods, and sealant accessories recommended by sealant manufacturer.
- B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints unless otherwise indicated.
- C. Multi-part, Pourable Urethane Sealant for Use T: ASTM C920; Type M; Grade P; Class 25; Uses T, M, A, and, as applicable to joint substrates indicated, O.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Degussa Building Systems; Sonneborn Sonolastic SL 2.
 - b. Pecora Corporation; Dynatrol II-SG.
 - c. Sika Corporation; Sikaflex-2c SL.
 - d. Tremco Incorporated.; Vulkem 245.

2.09 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Metal Edge Strips: Angle or L-shape, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications; stainless-steel, ASTM A666, 300 Series exposed-edge material.
- C. Decorative Color Coated Tile Edges: Schluter R Rondec, 1/4" radius bullnose profiles, extruded aluminum with color-coated finish color as selected by the architect. Provide inside and outside corner connectors and special shapes for a complete installation.
- D. Temporary Protective Coating: Product indicated below that is formulated to protect exposed surfaces of tile against adherence of mortar and grout; compatible with tile, mortar, and grout products; and easily removable after grouting is completed without damaging grout or tile.
 - 1. Petroleum paraffin wax, fully refined and odorless, containing at least 0.5 percent oil with a melting point of 120 to 140 deg F (49 to 60 deg C) per ASTM D 87.
 - 2. Grout release in form of manufacturer's standard proprietary liquid coating that is specially formulated and recommended for use as temporary protective coating for tile.
- E. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.
- F. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints and that does not change color or appearance of grout.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Bonsal American; an Oldcastle company; Grout Sealer
 - b. Bostik, Inc.; CeramaSeal Grout & Tile Sealer .
 - c. C-Cure; Penetrating Sealer 978.
 - d. Custom Building Products>; Grout and Tile Sealer.
 - e. Jamo Inc.; Penetrating Sealer.
 - f. MAPEI Corporation; KER 003, Silicone Spray Sealer for Cementitious Tile Grout.
 - g. Southern Grouts & Mortars, Inc.; Silicone Grout Sealer.
 - h. Summitville Tiles, Inc.; SL-15, Invisible Seal Penetrating Grout and Tile Sealer.
 - i. TEC; a subsidiary of H. B. Fuller Company; TA-256 Penetrating Silicone Grout Sealer.

2.10 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.
- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
 1. Verify that substrates for setting tile are firm, dry, clean, free of coatings that are incompatible with tile-setting materials including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
 2. Verify that concrete substrates for tile floors installed with thin-set mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.
 - a. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
 - b. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.
 3. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.
 4. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with thin-set mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.
- B. Protect surrounding work from damage.
- C. Remove any curing compounds or other contaminants.

- D. Vacuum clean surfaces and damp clean.
- E. Where indicated, prepare substrates to receive waterproofing by applying a reinforced mortar bed that complies with ANSI A108.1a and is sloped 1/4 inch per foot (1:50) toward drains.
- F. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.
- G. Field-Applied Temporary Protective Coating: If indicated under tile type or needed to prevent grout from staining or adhering to exposed tile surfaces, pre coat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

3.03 TILE INSTALLATION

- A. Comply with TCA's "Handbook for Ceramic Tile Installation" for TCA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
 - 1. For the following installations, follow procedures in the ANSI A108 Series of tile installation standards for providing 95 percent mortar coverage:
 - a. Tile floors in wet areas.
 - b. Tile floors composed of tiles 8 by 8 inches (200 by 200 mm) or larger.
 - c. Tile floors composed of rib-backed tiles.
- B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- C. 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, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.
- E. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
 - 1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
 - 2. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.
 - 3. Where tiles are specified or indicated to be whole integer multiples of adjoining tiles on floor, base, walls, or trim, align joints unless otherwise indicated.
 - 4. For Plank type tiles, install staggered in a "running bond" brick joint pattern with no more than 33 % overlap to prevent lippage and warping.
- F. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
 - 1. Ceramic Mosaic Tile: 1/8 inch (1.6 mm).
 - 2. Porcelain Floor Tile: 3/16 inch (4.8 mm) minimum.
 - 3. Paver Tile: 1/8 inch.
 - 4. Glazed Porcelain Wall Tile: 1/8 inch (4.8 mm).

5. Decorative Thin Wall Tile: 1/8 inch (1.6 mm).
 6. Quarry Tile: 1/4 inch (6.3 mm)
- G. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.
- H. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.
 2. Prepare joints and apply sealants to comply with requirements in Section .
- I. Stone Thresholds: Install stone thresholds in same type of setting bed as adjacent floor unless otherwise indicated.
1. At locations where mortar bed (thickset) would otherwise be exposed above adjacent floor finishes, set thresholds in latex-portland cement mortar (thin set).
 2. Do not extend waterproofing or crack isolation membrane under thresholds set in latex-portland cement mortar. Fill joints between such thresholds and adjoining tile set on waterproofing or crack isolation membrane with elastomeric sealant.
- J. Metal Edge Strips: Install where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with top of tile.
- K. Grout Sealer: Apply grout sealer to cementitious grout joints in tile floors according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.

3.04 TILE BACKING PANEL INSTALLATION

- A. Install cementitious backer units and treat joints according to ANSI A118.11 and manufacturer's written instructions for type of application indicated. Use latex-portland cement mortar for bonding material unless otherwise directed in manufacturer's written instructions.

3.05 WATERPROOFING INSTALLATION

- A. Install waterproofing to comply with ANSI A118.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness and bonded securely to substrate.
- B. Do not install tile or setting materials over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

3.06 CLEANING AND PROTECTING

- A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
1. Remove epoxy and latex-portland cement grout residue from tile as soon as possible.
 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. For epoxy grout installations utilize recommended grout haze cleaner as recommended by the tile manufacturer. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
 3. Remove temporary protective coating by method recommended by coating manufacturer and that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent drain clogging.

- B. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.
- C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
- D. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

3.07 INTERIOR TILE INSTALLATION SCHEDULE

- A. Interior Floor Installations, Concrete Subfloor:
 - 1. Tile Installation F115A: Thin-set mortar; epoxy grout; TCA F115A.
 - a. Tile Type: Glazed Porcelain floor tile.
 - b. Thin-Set Mortar: Latex- portland cement mortar.
 - c. Grout: Water-cleanable epoxy grout.
 - 2. Tile Installation F122A: Thin-set mortar on waterproof membrane; TCA F122A.
 - a. Tile Type: Glazed Porcelain floor tile.
 - b. Thin-Set Mortar: Latex- portland cement mortar.
 - c. Grout: Polymer-modified sanded unsanded grout.
- B. Interior Wall Installations, Metal Studs or Furring:
 - 1. Tile Installation W244: Thin-set mortar on cementitious backer units or fiber cement underlayment; TCA W244F.
 - a. Tile Type: Glazed Porcelain wall tile.
 - b. Thin-Set Mortar: Latex- portland cement mortar.
 - c. Grout: Polymer-modified sanded grout.
- C. Bathtub/Shower Wall Installations, Metal Studs or Furring:
 - 1. Tile Installation B412: Thin-set mortar on cementitious backer units or fiber cement underlayment; TCA B412.
 - a. Tile Type: Porcelain wall tile.
 - b. Thin-Set Mortar: Dry-set Latex- portland cement mortar.
 - c. Grout: Polymer- modified sanded grout.

END OF SECTION