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SECTION 093000 - TILING

PART 1 - GENERAL

0.1 RELATED DOCUMENTS

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

0.2 SUMMARY

A. Section Includes:

1. Ceramic tile.
2. Stone thresholds.
3. Waterproof membrane.
4. Crack isolation membrane.
5. Tile backing panels.
6. Metal edge strips.

B. Related Sections:

1. [Section 071326 "Self-Adhering Sheet Waterproofing"] [Section 071353 "Elastomeric Sheet Waterproofing"] [Section 071354 "Thermoplastic Sheet Waterproofing"] [Section 071413 "Hot Fluid-Applied Rubberized Asphalt Waterproofing"] [Section 071416 "Cold Fluid-Applied Waterproofing"] for waterproofing under thickset mortar beds.
2. Section 079200 "Joint Sealants" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.
3. Section 092400 "Portland Cement Plastering" for portland cement scratch coat over metal lath on wall surfaces.

4. Section 092613 "Gypsum Veneer Plastering" for cementitious backer units.
5. Section 092900 "Gypsum Board" for [**cementitious backer units**] [**glass-mat, water-resistant backer board**].
6. Section 093033 "Stone Tiling."
7. Section 096340 "Stone Flooring" for stone thresholds.

0.3 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.

0.4 PERFORMANCE REQUIREMENTS

- A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028:
 1. Level Surfaces: Minimum **<Insert required static coefficient of friction>**.
 2. Step Treads: Minimum **<Insert required static coefficient of friction>**.
 3. Ramp Surfaces: Minimum **<Insert required static coefficient of friction>**.

0.5 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. LEED Submittals:
 1. Product Data for Credit IEQ 4.1: For [**adhesives**] [**and**] [**sealants**], documentation including printed statement of VOC content.
 2. Product Data for Credit IEQ 4.3: For [**adhesives**] [**and**] [**grouts**], documentation including printed statement of VOC content.
 3. Product Data for Credit IEQ 4.3: For tile floors, documentation from an independent testing agency indicating compliance with the FloorScore Standard.
 4. Laboratory Test Reports for Credit IEQ 4: For [**adhesives**] [**sealants**] [**and**] [**tile flooring systems**], documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

- C. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
- D. Samples for Initial Selection: For each type of tile and grout indicated. Include Samples of accessories involving color selection.
- E. Samples for Verification:
 - 1. Full-size units of each type and composition of tile and for each color and finish required. [**For ceramic mosaic tile in color blend patterns, provide full sheets of each color blend.**]
 - 2. Assembled samples mounted on a rigid panel, with grouted joints, for each type and composition of tile and for each color and finish required. Make samples at least [**12 inches (300 mm) square**] <Insert size>, but not fewer than 4 tiles. Use grout of type and in color or colors approved for completed Work.
 - 3. Full-size units of each type of trim and accessory[**for each color and finish required**].
 - 4. Stone thresholds in **6-inch (150-mm)** lengths.
 - 5. Metal edge strips in **6-inch (150-mm)** lengths.

0.6 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.
- C. Product Certificates: For each type of product, signed by product manufacturer.
- D. Material Test Reports: For each tile-setting and -grouting product[**and special purpose tile**].

0.7 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.**]
 - a. <Insert, in separate subparagraphs, tile-type designation or description and quantity required for each category of tile for which extra material is required>.
 - 2. Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated.

0.8 QUALITY ASSURANCE

- A. Source Limitations for Tile: Obtain [**tile of each type and color or finish**] [**tile of each type**] [**tile of each color or finish**] [**tile**] from one source or producer.
1. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.
- B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from one manufacturer and each aggregate from one source or producer.
- C. Source Limitations for Other Products: Obtain each of the following products specified in this Section from a single manufacturer for each product:
1. Stone thresholds.
 2. Waterproof membrane.
 3. Crack isolation membrane.
 4. Joint sealants.
 5. Cementitious backer units.
 6. Metal edge strips.
- D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Build mockup of[**each type of**] floor tile installation.
 2. Build mockup of[**each type of**] wall tile installation.
 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- E. Preinstallation Conference: Conduct conference at [**Project site**] <**Insert location**>.
1. Review requirements in ANSI A108.01 for substrates and for preparation by other trades.

0.9 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.

0.10 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

0.1 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. Low-Emitting Materials: Tile flooring systems shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- E. 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.
- F. 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 swimming pools**] [**on exteriors**] [**or**] [**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.
- G. Factory-Applied Temporary Protective Coating: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by precoating with continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces.

0.2 TILE PRODUCTS

- A. Tile Type [CT-<#>]: Factory-mounted [**unglazed**] [**glazed**] ceramic mosaic tile.

1. Manufacturers: Subject to compliance with requirements, **[provide products by one of the following]** **[available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:**
2. Basis-of-Design Product: Subject to compliance with requirements, provide **[product indicated on Drawings]** **<Insert manufacturer's name; product name or designation>** or comparable product by one of the following:
 - a. American Olean; Division of Dal-Tile International Inc.
 - b. Crossville, Inc.
 - c. Daltile; Division of Dal-Tile International Inc.
 - d. Deutsche Steinzeug America, Inc.
 - e. Interceramic.
 - f. Lone Star Ceramics Company.
 - g. Grupo Porcelanite.
 - h. Portobello America, Inc.
 - i. Seneca Tiles, Inc.
 - j. **<Insert manufacturer's name>**.
3. Composition: **[Porcelain]** **[Impervious natural clay or porcelain]** **[Vitreous or impervious natural clay or porcelain]**.
4. Module Size: **[1 by 1 inch (25.4 by 25.4 mm)]** **[1 by 2 inches (25.4 by 50.8 mm)]** **[2 by 2 inches (50.8 by 50.8 mm)]** **<Insert size>**.
5. Thickness: **1/4 inch (6.35 mm)**.
6. Face: **[Plain]** **[Pattern of design indicated,]** with cushion edges.
7. Surface: **[Smooth, without]** **[Slip-resistant, with]** abrasive admixture.
8. Finish: **[Bright, opaque]** **[Bright, clear]** **[Mat, opaque]** **[Mat, clear]** **[Semimat, opaque]** **[Semimat, clear]** **[Vellum, opaque]** **[Vellum, clear]** **[Crystalline]** **<Insert description>** glaze.
9. Tile Color and Pattern: **[As indicated by manufacturer's designations]** **[Match Architect's sample]** **[As selected by Architect from manufacturer's full range]** **<Insert color and pattern>**.
10. Grout Color: **[As indicated by manufacturer's designations]** **[Match Architect's sample]** **[As selected by Architect from manufacturer's full range]** **<Insert color>**.
11. 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 Cove: Cove, module size **[1 by 1 inch (25.4 by 25.4 mm)]** **[2 by 1 inch (50.8 by 25.4 mm)]** **<Insert size>**.
 - b. Base Cap for Portland Cement Mortar Installations: Bead (bullnose), module size **[1 by 1 inch (25.4 by 25.4 mm)]** **[2 by 1 inch (50.8 by 25.4 mm)]** **<Insert size>**.
 - c. Base Cap for Thin-Set Mortar Installations: Surface bullnose, module size **[1 by 1 inch (25.4 by 25.4 mm)]** **[2 by 1 inch (50.8 by 25.4 mm)]** **[2 by 2 inches (50.8 by 50.8 mm)]** **<Insert size>**.
 - d. Wainscot Cap for Portland Cement Mortar Installations: Bead (bullnose), module size **[1 by 1 inch (25.4 by 25.4 mm)]** **[2 by 1 inch (50.8 by 25.4 mm)]** **<Insert size>**.
 - e. Wainscot Cap for Thin-Set Mortar Installations: Surface bullnose, module size **[1 by 1 inch (25.4 by 25.4 mm)]** **[2 by 1 inch (50.8 by 25.4 mm)]** **[2 by 2 inches (50.8 by 50.8 mm)]** **<Insert size>**.

- f. Wainscot Cap for Flush Conditions: Regular flat tile for conditions where tile wainscot is shown flush with wall surface above it, same size as adjoining flat tile.
- g. External Corners for Portland Cement Mortar Installations: Bead (bullnose), module size [**1 by 1 inch (25.4 by 25.4 mm)**] [**2 by 1 inch (50.8 by 25.4 mm)**] **<Insert size>**.
- h. External Corners for Thin-Set Mortar Installations: Surface bullnose, module size [**1 by 1 inch (25.4 by 25.4 mm)**] [**2 by 1 inch (50.8 by 25.4 mm)**] [**2 by 2 inches (50.8 by 50.8 mm)**] **<Insert size>**.
- i. Internal Corners: Cove, module size [**1 by 1 inch (25.4 by 25.4 mm)**] [**2 by 1 inch (50.8 by 25.4 mm)**] **<Insert size>**.
- j. Internal Corners: Field-buttet square corners. For coved base and cap, use angle pieces designed to fit with stretcher shapes.
- k. Tapered Transition Tile: Shape designed to effect transition between thickness of tile floor and adjoining floor finishes of different thickness, tapered to provide reduction in thickness from **1/2 to 1/4 inch (12.7 to 6.35 mm)** across nominal **4-inch (100-mm)** dimension.

B. Tile Type [CT-**<#>**]: [**Unglazed**] [**Glazed**] square-edged quarry tile.

- 1. Manufacturers: Subject to compliance with requirements, [**provide products by one of the following**] [**available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following**]:
- 2. Basis-of-Design Product: Subject to compliance with requirements, provide [**product indicated on Drawings**] **<Insert manufacturer's name; product name or designation>** or comparable product by one of the following:
 - a. American Olean; Division of Dal-Tile International Inc.
 - b. Atlas Minerals & Chemicals, Inc.
 - c. Daltile; Division of Dal-Tile International Inc.
 - d. Deutsche Steinzeug America, Inc.
 - e. Endicott Tile Ltd.; Endicott Clay Products Co.
 - f. Florida Brick & Clay Company Inc.
 - g. Florida Tile Industries, Inc.
 - h. Interceramic.
 - i. Metropolitan Ceramics.
 - j. Portobello America, Inc.
 - k. Quarry Tile Co.
 - l. Seneca Tiles, Inc.
 - m. Summitville Tiles, Inc.
 - n. United States Ceramic Tile Company.
 - o. **<Insert manufacturer's name>**.
- 3. Face Size: [**3 by 3 inches (76 by 76 mm)**] [**4 by 4 inches (102 by 102 mm)**] [**6 by 3 inches (152 by 76 mm)**] [**6 by 6 inches (152 by 152 mm)**] [**8 by 3-7/8 inches (203 by 98 mm)**] [**8 by 8 inches (203 by 203 mm)**] **<Insert size>**.
- 4. Thickness: [**3/8 inch (9.5 mm)**] [**1/2 inch (12.7 mm)**] [**3/4 inch (19 mm)**].
- 5. Wearing Surface: [**Nonabrasive, smooth**] [**Abrasive aggregate embedded in surface**] **<Insert description>**.
- 6. Finish: [**Bright, opaque**] [**Bright, clear**] [**Mat, opaque**] [**Mat, clear**] [**Semimat, opaque**] [**Semimat, clear**] [**Vellum, opaque**] [**Vellum, clear**] [**Crystalline**] **<Insert description>** glaze.

7. Tile Color and Pattern: **[As indicated by manufacturer's designations]** **[Match Architect's sample]** **[As selected by Architect from manufacturer's full range]** **<Insert color and pattern>**.
 8. Grout Color: **[As indicated by manufacturer's designations]** **[Match Architect's sample]** **[As selected by Architect from manufacturer's full range]** **<Insert color>**.
 9. For furan-grouted quarry tile, precoat with temporary protective coating.
 10. 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 6 inches (152 by 152 mm)]** **[8 by 3-7/8 inches (203 by 98 mm)]** **<Insert size>**.
 - b. Wainscot Cap: Surface bullnose, face size **[6 by 6 inches (152 by 152 mm)]** **[8 by 3-7/8 inches (203 by 98 mm)]** **<Insert size>**.
 - c. Wainscot Cap for Flush Conditions: Regular flat tile for conditions where tile wainscot is shown flush with wall surface above it, same size as adjoining flat tile.
- C. Tile Type **[CT-<#>]**: **[Unglazed]** **[Glazed]** paver tile.
1. Manufacturers: Subject to compliance with requirements, **[provide products by one of the following]** **[available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]**:
 2. Basis-of-Design Product: Subject to compliance with requirements, provide **[product indicated on Drawings]** **<Insert manufacturer's name; product name or designation>** or comparable product by one of the following:
 - a. American Marazzi Tile, Inc.
 - b. American Olean; Division of Dal-Tile International Inc.
 - c. Crossville, Inc.
 - d. Daltile; Division of Dal-Tile International Inc.
 - e. Deutsche Steinzeug America, Inc.
 - f. Florida Tile Industries, Inc.
 - g. Florim USA.
 - h. GranitiFiandre; c/o Trans Ceramica, Ltd.
 - i. Interceramic.
 - j. Laufen.
 - k. Lone Star Ceramics Company.
 - l. Grupo Porcelanite.
 - m. Portobello America, Inc.
 - n. Seneca Tiles, Inc.
 - o. United States Ceramic Tile Company.
 - p. **<Insert manufacturer's name>**.
 3. Composition: **[Porcelain]** **[Impervious natural clay or porcelain]** **[Vitreous or impervious natural clay or porcelain]** **[Natural clay or porcelain]**.
 4. Face Size: **[3 by 3 inches (76 by 76 mm)]** **[4 by 4 inches (102 by 102 mm)]** **[6 by 6 inches (152 by 152 mm)]** **[7-3/4 by 3-7/8 inches (197 by 98 mm)]** **[7-7/8 by 7-7/8 inches (200 by 200 mm)]** **[11-13/16 by 11-13/16 inches (300 by 300 mm)]** **[165 by 333 mm]** **[200 by 250 mm]** **[250 by 250 mm]** **[165 by 333 mm]** **[333 by 333 mm]** **[400 by 400 mm]** **<Insert size>**.
 5. Thickness: **[1/4 inch (6.35 mm)]** **[3/8 inch (9.5 mm)]** **[1/2 inch (12.7 mm)]**.

6. Face: **[Plain with square or cushion edges]** **[Plain with square edges]** **[Plain with cushion edges]** **[Pattern of design indicated, with square or cushion edges]** **[As indicated]**.
 7. Finish: **[Bright, opaque]** **[Bright, clear]** **[Mat, opaque]** **[Mat, clear]** **[Semimat, opaque]** **[Semimat, clear]** **[Vellum, opaque]** **[Vellum, clear]** **[Crystalline]** **<Insert description>** glaze.
 8. Tile Color and Pattern: **[As indicated by manufacturer's designations]** **[Match Architect's sample]** **[As selected by Architect from manufacturer's full range]** **<Insert color and pattern>**.
 9. Grout Color: **[As indicated by manufacturer's designations]** **[Match Architect's sample]** **[As selected by Architect from manufacturer's full range]** **<Insert color>**.
 10. 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 Cove: Cove, module size **[same as adjoining flat tile]** **<Insert size>**.
 - b. Base Cap for Portland Cement Mortar Installations: Bead (bullnose), module size **[same as adjoining flat tile]** **<Insert size>**.
 - c. Base Cap for Thin-Set Mortar Installations: Surface bullnose, module size **[same as adjoining flat tile]** **<Insert size>**.
 - d. Wainscot Cap for Portland Cement Mortar Installations: Bead (bullnose), module size **[same as adjoining flat tile]** **<Insert size>**.
 - e. Wainscot Cap for Thin-Set Mortar Installations: Surface bullnose, module size **[same as adjoining flat tile]** **<Insert size>**.
 - f. Wainscot Cap for Flush Conditions: Regular flat tile for conditions where tile wainscot is shown flush with wall surface above it, same size as adjoining flat tile.
 - g. External Corners for Portland Cement Mortar Installations: Bead (bullnose), module size **[same as adjoining flat tile]** **<Insert size>**.
 - h. External Corners for Thin-Set Mortar Installations: Surface bullnose, module size **[same as adjoining flat tile]** **<Insert size>**.
 - i. Internal Corners: Cove, module size **[same as adjoining flat tile]** **<Insert size>**.
 - j. Internal Corners: Field-buttet square corners. For coved base and cap, use angle pieces designed to fit with stretcher shapes.
 - k. Tapered Transition Tile: Shape designed to effect transition between thickness of tile floor and adjoining floor finishes of different thickness, tapered to provide reduction in thickness from **1/2 to 1/4 inch (12.7 to 6.35 mm)** across nominal **4-inch (100-mm)** dimension.
- D. Tile Type **[CT-<#>]**: **[Glazed wall tile]** **[Decorative thin wall tile]**.
1. Manufacturers: Subject to compliance with requirements, **[provide products by one of the following]** **[available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]**:
 2. Basis-of-Design Product: Subject to compliance with requirements, provide **[product indicated on Drawings]** **<Insert manufacturer's name; product name or designation>** or comparable product by one of the following:
 - a. American Marazzi Tile, Inc.
 - b. American Olean; Division of Dal-Tile International Inc.
 - c. Daltile; Division of Dal-Tile International Inc.
 - d. Deutsche Steinzeug America, Inc.

- e. Florida Tile Industries, Inc.
 - f. Florim USA.
 - g. Laufen.
 - h. Grupo Porcelanite.
 - i. Portobello America, Inc.
 - j. Seneca Tiles, Inc.
 - k. United States Ceramic Tile Company.
 - l. **<Insert manufacturer's name>**.
3. Module Size: **[4-1/4 by 4-1/4 inches (108 by 108 mm)] [6 by 4-1/4 inches (152 by 108 mm)] [6 by 6 inches (152 by 152 mm)] [200 by 200 mm] [250 by 250 mm] [200 by 300 mm]** **<Insert size>**.
 4. Thickness: **5/16 inch (8 mm)**.
 5. Face: **[Plain with modified square edges or cushion edges] [Plain with modified square edges] [Plain with cushion edges] [Pattern of design indicated, with manufacturer's standard edges]**.
 6. Finish: **[Bright, opaque] [Bright, clear] [Mat, opaque] [Mat, clear] [Semimat, opaque] [Semimat, clear] [Vellum, opaque] [Vellum, clear] [Crystalline]** **<Insert description>** glaze.
 7. Tile Color and Pattern: **[As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Architect from manufacturer's full range]** **<Insert color and pattern>**.
 8. Grout Color: **[As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Architect from manufacturer's full range]** **<Insert color>**.
 9. Mounting: Factory, back mounted.
 10. Mounting: Pregrouted sheets of tiles factory assembled and grouted with manufacturer's standard white silicone rubber.
 11. 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 for Portland Cement Mortar Installations: Coved, module size **[4-1/4 by 4-1/4 inches (108 by 108 mm)] [6 by 6 inches (152 by 152 mm)] [6 by 3-3/4 inches (152 by 95 mm)]** **<Insert size>**.
 - b. Base for Thin-Set Mortar Installations: Straight, module size **[4-1/4 by 4-1/4 inches (108 by 108 mm)] [6 by 6 inches (152 by 152 mm)] [6 by 2 inches (152 by 51 mm)]** **<Insert size>**.
 - c. Wainscot Cap for Portland Cement Mortar Installations: Bullnose cap, module size **[4-1/4 by 4-1/4 inches (108 by 108 mm)] [6 by 6 inches (152 by 152 mm)] [6 by 2 inches (152 by 51 mm)]** **<Insert size>**.
 - d. Wainscot Cap for Thin-Set Mortar Installations: Surface bullnose, module size **[4-1/4 by 4-1/4 inches (108 by 108 mm)] [6 by 6 inches (152 by 152 mm)] [6 by 2 inches (152 by 51 mm)]** **<Insert size>**.
 - e. Wainscot Cap for Flush Conditions: Regular flat tile for conditions where tile wainscot is shown flush with wall surface above it, same size as adjoining flat tile.
 - f. External Corners for Portland Cement Mortar Installations: Bullnose shape with radius of at least **3/4 inch (19 mm)** unless otherwise indicated.
 - g. External Corners for Thin-Set Mortar Installations: Surface bullnose, same size as adjoining flat tile.
 - h. Internal Corners: Field-buttet square corners. For coved base and cap use angle pieces designed to fit with stretcher shapes.

- E. Accessories: Provide vitreous china accessories of type and size indicated, suitable for installing by same method as adjoining wall tile.
1. One soap holder[**with grab handle**] for each shower and tub indicated.
 2. One paper holder at each water closet.
 3. Color and Finish: [**Match adjoining glazed wall tile**] [**As indicated by manufacturer's designations**] [**Match Architect's sample**] [**As selected by Architect from manufacturer's full range**] [**White, bright glaze**] <Insert color and finish>.

0.3 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 C 615, with [**polished**] [**honed**] <Insert finish> finish.
1. Description: Uniform, [**fine**] [**medium**]-grained, [**white**] [**gray**] [**black**] <Insert color> stone without veining.
 2. Description: Match Architect's sample.
 3. Description: Provide[**one of**] the following:
 - a. <Insert, in separate subparagraphs, name of variety and producer, distributor, or importer>.
- C. Marble Thresholds: ASTM C 503, with a minimum abrasion resistance of [**10**] [**12**] per ASTM C 1353 or ASTM C 241 and with honed finish.
1. Description: Uniform, fine- to medium-grained white stone with gray veining.
 2. Description: Match Architect's sample.
 3. Description: Provide[**one of**] the following:
 - a. <Insert, in separate subparagraphs, name of variety and producer, distributor, or importer>.
- D. Slate Thresholds: ASTM C 629, Classification [**I Exterior**] [**II Interior**], with fine, even grain and honed finish.
1. Description: Uniform, [**black**] [**blue-black**] [**gray**] [**blue-gray**] [**green**] <Insert color> stone[**and unfading**].
 2. Description: Match Architect's sample.
 3. Description: Provide[**one of**] the following:
 - a. <Insert, in separate subparagraphs, name of variety and producer, distributor, or importer>.

0.4 TILE BACKING PANELS

- A. Cementitious Backer Units: ANSI A118.9 or ASTM C 1325, in maximum lengths available to minimize end-to-end butt joints.
1. Products: Subject to compliance with requirements, **[provide the following]** **[provide one of the following]** **[available products that may be incorporated into the Work include, but are not limited to, the following]**:
 - a. C-Cure; C-Cure Board 990.
 - b. Custom Building Products; Wonderboard.
 - c. FinPan, Inc.; Util-A-Crete Concrete Backer Board.
 - d. USG Corporation; DUROCK Cement Board.
 - e. **<Insert manufacturer's name; product name or designation>**.
 2. Thickness: **[1/4 inch (6.4 mm)]** **[1/2 inch (12.7 mm)]** **[5/8 inch (15.9 mm)]** **[As indicated]**.
- B. Fiber-Cement Underlayment: ASTM C 1288, in maximum lengths available to minimize end-to-end butt joints.
1. Products: Subject to compliance with requirements, **[provide the following]** **[provide one of the following]** **[available products that may be incorporated into the Work include, but are not limited to, the following]**:
 - a. CertainTeed Corp.; FiberCement **[Underlayment]** **[BackerBoard]**.
 - b. James Hardie; **[Hardiebacker]** **[Hardiebacker 500]**.
 - c. **<Insert manufacturer's name; product name or designation>**.
 2. Thickness: **[1/4 inch (6.4 mm)]** **[1/2 inch (12.7 mm)]** **[As indicated]**.
- C. Glass-Mat, Water-Resistant Backing Board with Water-Resistant Coating: ASTM C 1178/ C 1178M.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Georgia-Pacific Gypsum LLC; "DensShield Tile Backer" or a comparable product by another manufacturer.
 2. Core: **[As indicated on Drawings]** **[1/4 inch (6.4 mm), regular type]** **[1/2 inch (12.7 mm), regular type]** **[5/8 inch (15.9 mm), Type X]**.
 3. Long Edges: Square.

0.5 WATERPROOF MEMBRANE

- A. General: Manufacturer's standard product**[, selected from the following,]** 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: Nonplasticized, 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, **[provide the following]** **[provide one of the following]** **[available products that may be incorporated into the Work include, but are not limited to, the following]**:
 - a. Noble Company (The); Nobleseal TS.
 - b. **<Insert manufacturer's name; product name or designation>**.
- C. PVC Sheet: Two layers of PVC sheet heat-fused together and to facings of nonwoven polyester; **0.040-inch (1.01-mm)** nominal thickness.
 1. Compotite Corporation; Composeal Gold.
 2. **<Insert manufacturer's name; product name or designation>**.
- D. Polyethylene Sheet: Polyethylene faced on both sides with fleece webbing; **0.008-inch (0.203-mm)** nominal thickness.
 1. Products: Subject to compliance with requirements, **[provide the following]** **[provide one of the following]** **[available products that may be incorporated into the Work include, but are not limited to, the following]**:
 - a. Schluter Systems L.P.; KERDI.
 - b. **<Insert manufacturer's name; product name or designation>**.
- E. Fabric-Reinforced, Modified-Bituminous Sheet: Self-adhering, SBS-modified-bituminous sheet with woven reinforcement facing; **0.040-inch (1.01-mm)** nominal thickness.
 1. Products: Subject to compliance with requirements, **[provide the following]** **[provide one of the following]** **[available products that may be incorporated into the Work include, but are not limited to, the following]**:
 - a. National Applied Construction Products, Inc.; Strataflex.
 - b. **<Insert manufacturer's name; product name or designation>**.
- F. 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 the following]** **[provide one of the following]** **[available products that may be incorporated into the Work include, but are not limited to, the following]**:
 - a. Boiardi Products; a QEP company; Elastiment 344 Reinforced Waterproofing and Anti-Fracture/Crack Suppression Membrane.
 - b. Bonsal American; an Oldcastle company; B 6000 Waterproof Membrane with Glass Fabric.
 - c. Bostik, Inc.; Hydroment Blacktop 90210.
 - d. Custom Building Products; 9240 Waterproofing and Anti-Fracture Membrane.
 - e. Laticrete International, Inc.; Laticrete 9235 Waterproof Membrane.
 - f. MAPEI Corporation; **[Mapelastic L (PRP M19)] [Mapelastic HPG with MAPEI Fiberglass Mesh]**.
 - g. Mer-Kote Products, Inc.; Hydro-Guard 2000.
 - h. Summitville Tiles, Inc.; S-9000.

- i. <Insert manufacturer's name; product name or designation>.
- G. Fluid-Applied Membrane: Liquid-latex rubber or elastomeric polymer.
1. Products: Subject to compliance with requirements, **[provide the following]** **[provide one of the following]** **[available products that may be incorporated into the Work include, but are not limited to, the following]**:
 - a. Boiardi Products; a QEP company; Elastiment 644 Membrane Waterproofing System.
 - b. Bonsal American; an Oldcastle company; B 6000 Waterproof Membrane.
 - c. Bostik, Inc.; **[Durabond D-222 Duraguard Membrane]** **[Hydroment Gold]**.
 - d. C-Cure; Pro-Red Waterproofing Membrane 63.
 - e. Custom Building Products; Redgard Waterproofing and Crack Prevention Membrane.
 - f. Jamo Inc.; Waterproof.
 - g. Laticrete International, Inc.; **[Latapoxy 24hr HydroProofing]** **[Laticrete Watertight Floor N' Wall Waterproofing]**.
 - h. MAPEI Corporation; Mapelastc HPG.
 - i. Southern Grouts & Mortars, Inc.; Southcrete 1100 Crack Suppression and Waterproofing.
 - j. TEC; a subsidiary of H. B. Fuller Company; HydraFlex - Waterproofing Crack Isolation Membrane.
 - k. <Insert manufacturer's name; product name or designation>.
- H. Latex-Portland Cement: Flexible mortar consisting of cement-based mix and latex additive.
1. Products: Subject to compliance with requirements, **[provide the following]** **[provide one of the following]** **[available products that may be incorporated into the Work include, but are not limited to, the following]**:
 - a. Boiardi Products; a QEP company; Elastiment 323 Cement Based Waterproofing, Anti-Fracture/Crack Suppression Membrane.
 - b. C-Cure; UltraCure 971.
 - c. MAPEI Corporation; Mapelastc (PRP 315).
 - d. Southern Grouts & Mortars, Inc.; Southcrete 1100.
 - e. TEC; a subsidiary of H. B. Fuller Company; Triple Flex Waterproofing, Crack Isolation Membrane & Mortar.
 - f. <Insert manufacturer's name; product name or designation>.
- I. Urethane Waterproofing and Tile-Setting Adhesive: One-part, liquid-applied urethane[, **with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24)**],[, **that complies with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers,"**] in a consistency suitable for trowel application and intended for use as both waterproofing and tile-setting adhesive in a two-step process.
1. Products: Subject to compliance with requirements, **[provide the following]** **[provide one of the following]** **[available products that may be incorporated into the Work include, but are not limited to, the following]**:

- a. Bostik, Inc.; [Durabond D-200] [Hydroment Ultra-Set] [Hydroment Ultra-Set Advanced].
- b. <Insert manufacturer's name; product name or designation>.

0.6 CRACK ISOLATION MEMBRANE

- A. General: Manufacturer's standard product[, **selected from the following,**] that complies with ANSI A118.12 for [**standard**] [**high**] performance and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
- B. Chlorinated Polyethylene Sheet: Nonplasticized, 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, [**provide the following**] [**provide one of the following**] [**available products that may be incorporated into the Work include, but are not limited to, the following**]:
 - a. Noble Company (The); Nobleseal CIS.
 - b. <Insert manufacturer's name; product name or designation>.
- C. PVC Sheet: Two layers of PVC sheet heat-fused together and to facings of nonwoven polyester; **0.040-inch (1.01-mm)** nominal thickness.
 1. Products: Subject to compliance with requirements, [**provide the following**] [**provide one of the following**] [**available products that may be incorporated into the Work include, but are not limited to, the following**]:
 - a. Composit Corporation; Composeal Gold.
 - b. <Insert manufacturer's name; product name or designation>.
- D. Polyethylene Sheet: Polyethylene faced on both sides with fleece webbing; **0.008-inch (0.203-mm)** nominal thickness.
 1. Products: Subject to compliance with requirements, [**provide the following**] [**provide one of the following**] [**available products that may be incorporated into the Work include, but are not limited to, the following**]:
 - a. Schluter Systems L.P.; KERDI.
 - b. <Insert manufacturer's name; product name or designation>.
- E. Corrugated Polyethylene: Corrugated polyethylene with dovetail-shaped corrugations and with anchoring webbing on the underside; **3/16-inch (4-mm)** nominal thickness.
 1. Products: Subject to compliance with requirements, [**provide the following**] [**provide one of the following**] [**available products that may be incorporated into the Work include, but are not limited to, the following**]:
 - a. Schluter Systems L.P.; DITRA.
 - b. <Insert manufacturer's name; product name or designation>.

- F. Fabric-Reinforced, Modified-Bituminous Sheet: Self-adhering, modified-bituminous sheet with fabric reinforcement facing; **0.040-inch (1.01-mm)** nominal thickness.
1. Products: Subject to compliance with requirements, **[provide the following] [provide one of the following] [available products that may be incorporated into the Work include, but are not limited to, the following]:**
 - a. MAPEI Corporation; Mapelastic SM.
 - b. National Applied Construction Products, Inc.; Strataflex.
 - c. **<Insert manufacturer's name; product name or designation>**.
- G. Fabric-Reinforced, Fluid-Applied Membrane: System consisting of liquid-latex rubber or elastomeric polymer and fabric reinforcement.
1. Products: Subject to compliance with requirements, **[provide the following] [provide one of the following] [available products that may be incorporated into the Work include, but are not limited to, the following]:**
 - a. Boiardi Products; a QEP company; Elastiment 344 Reinforced Waterproofing and Anti-Fracture/Crack Suppression Membrane.
 - b. Bonsal American; an Oldcastle company; B 6000 Waterproof Membrane with Glass Fabric.
 - c. Bostik, Inc.; Hydroment Blacktop 90210.
 - d. Custom Building Products; 9240 Waterproofing and Anti-Fracture Membrane.
 - e. Laticrete International, Inc.; Laticrete **[Blue 92 Anti-Fracture Membrane] [9235 Waterproof Membrane]**.
 - f. MAPEI Corporation; **[Mapelastic L (PRP M19)] [Mapelastic HPG with MAPEI Fiberglass Mesh]**.
 - g. Mer-Kote Products, Inc.; Hydro-Guard 2000.
 - h. Summitville Tiles, Inc.; S-9000.
 - i. **<Insert manufacturer's name; product name or designation>**.
- H. Fluid-Applied Membrane: Liquid-latex rubber or elastomeric polymer.
1. Products: Subject to compliance with requirements, **[provide the following] [provide one of the following] [available products that may be incorporated into the Work include, but are not limited to, the following]:**
 - a. Bostik, Inc.; **[Durabond D-222 Duraguard Membrane] [Hydroment Gold]**.
 - b. C-Cure; **[CureLastic 949] [Pro-Red Waterproofing Membrane 963]**.
 - c. Custom Building Products; **[Redgard Waterproofing and Crack Prevention Membrane] [FractureFree Crack Prevention Membrane] [Semco Crack Prevention Membrane]**.
 - d. Jamo Inc.; Waterproof.
 - e. Mer-Kote Products, Inc.; Fracture-Guard 5000.
 - f. Southern Grouts & Mortars, Inc.; Southcrete 1100 Crack Suppression and Waterproofing.
 - g. TEC; a subsidiary of H. B. Fuller Company; HydraFlex - Waterproofing Crack Isolation Membrane.
 - h. **<Insert manufacturer's name; product name or designation>**.

- I. Latex-Portland Cement: Flexible mortar consisting of cement-based mix and latex additive.
1. Products: Subject to compliance with requirements, **[provide the following] [provide one of the following] [available products that may be incorporated into the Work include, but are not limited to, the following]:**
 - a. C-Cure; UltraCure 971.
 - b. MAPEI Corporation; Mapelastic (PRP 315).
 - c. TEC; a subsidiary of H. B. Fuller Company; Triple Flex Waterproofing, Crack Isolation Membrane & Mortar.
 - d. **<Insert manufacturer's name; product name or designation>**.
- J. Urethane Crack Isolation Membrane and Tile-Setting Adhesive: One-part, liquid-applied urethane**[, with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24),][, that complies with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers,"]** in a consistency suitable for trowel application and intended for use as both waterproofing and tile-setting adhesive in a two-step process.
1. Products: Subject to compliance with requirements, **[provide the following] [provide one of the following] [available products that may be incorporated into the Work include, but are not limited to, the following]:**
 - a. Bostik, Inc.; **[Durabond D-200] [Hydroment Ultra-Set] [Hydroment Ultra-Set Advanced]**.
 - b. **<Insert manufacturer's name; product name or designation>**.

0.7 SETTING MATERIALS

- A. Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.02.
1. Cleavage Membrane: Asphalt felt, ASTM D 226, Type I (No. 15); or polyethylene sheeting, ASTM D 4397, **4.0 mils (0.1 mm)** thick.
 2. Reinforcing Wire Fabric: Galvanized, welded wire fabric, **2 by 2 inches (50.8 by 50.8 mm)** by **0.062-inch (1.57-mm)** diameter; comply with ASTM A 185 and ASTM A 82 except for minimum wire size.
 3. Expanded Metal Lath: Diamond-mesh lath complying with ASTM C 847.
 - a. Base Metal and Finish for Interior Applications: Uncoated or zinc-coated (galvanized) steel sheet, with uncoated steel sheet painted after fabrication into lath.
 - b. Base Metal and Finish for Exterior Applications: Zinc-coated (galvanized) steel sheet.
 - c. Configuration over Studs and Furring: Flat.
 - d. Configuration over Solid Surfaces: Self furring.
 - e. Weight: **[2.5 lb/sq. yd. (1.4 kg/sq. m)] [3.4 lb/sq. yd. (1.8 kg/sq. m)]**.
 4. Latex Additive: **[Manufacturer's standard] [acrylic resin] [or] [styrene-butadiene-rubber]** water emulsion, serving as replacement for part or all of gaging water, of type

specifically recommended by latex-additive manufacturer for use with field-mixed portland cement and aggregate mortar bed.

B. Dry-Set Portland Cement Mortar (Thin Set): ANSI A118.1.

1. Manufacturers: Subject to compliance with requirements, **[provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:**
2. Basis-of-Design Product: Subject to compliance with requirements, provide **[product indicated on Drawings] <Insert manufacturer's name; product name or designation>** or comparable product by one of the following:
 - a. Boiardi Products; a QEP company.
 - b. Bonsal American; an Oldcastle company.
 - c. Bostik, Inc.
 - d. C-Cure.
 - e. Custom Building Products.
 - f. Jamo Inc.
 - g. Laticrete International, Inc.
 - h. MAPEI Corporation.
 - i. Southern Grouts & Mortars, Inc.
 - j. Summitville Tiles, Inc.
 - k. TEC; a subsidiary of H. B. Fuller Company.
 - l. **<Insert manufacturer's name>**.
3. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.1.

C. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4.

1. Manufacturers: Subject to compliance with requirements, **[provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:**
2. Basis-of-Design Product: Subject to compliance with requirements, provide **[product indicated on Drawings] <Insert manufacturer's name; product name or designation>** or comparable product by one of the following:
 - a. Boiardi Products; a QEP company.
 - b. Bonsal American; an Oldcastle company.
 - c. Bostik, Inc.
 - d. C-Cure.
 - e. Custom Building Products.
 - f. Jamo Inc.
 - g. Laticrete International, Inc.
 - h. MAPEI Corporation.
 - i. Mer-Kote Products, Inc.
 - j. Southern Grouts & Mortars, Inc.
 - k. Summitville Tiles, Inc.
 - l. TEC; a subsidiary of H. B. Fuller Company.
 - m. **<Insert manufacturer's name>**.

3. Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.
 4. Provide prepackaged, dry-mortar mix combined with [**acrylic resin**] [**or**] [**styrene-butadiene-rubber**] liquid-latex additive at Project site.
 5. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.4.
- D. Medium-Bed, Latex-Portland Cement Mortar: Comply with requirements in ANSI A118.4. Provide product that is approved by manufacturer for application thickness of [**5/8 inch (16 mm)**] <Insert thickness>.
1. Manufacturers: Subject to compliance with requirements, [**provide products by one of the following**] [**available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following**]:
 2. Basis-of-Design Product: Subject to compliance with requirements, provide [**product indicated on Drawings**] <Insert manufacturer's name; product name or designation> or comparable product by one of the following:
 - a. Bonsal American; an Oldcastle company.
 - b. Bostik, Inc.
 - c. C-Cure.
 - d. Custom Building Products.
 - e. Jamo Inc.
 - f. Laticrete International, Inc.
 - g. MAPEI Corporation.
 - h. Mer-Kote Products, Inc.
 - i. Southern Grouts & Mortars, Inc.
 - j. Summitville Tiles, Inc.
 - k. TEC; a subsidiary of H. B. Fuller Company.
 - l. <Insert manufacturer's name>.
 3. Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.
 4. Provide prepackaged, dry-mortar mix combined with [**acrylic resin**] [**or**] [**styrene-butadiene-rubber**] liquid-latex additive at Project site.
- E. EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar (Thin Set): ANSI A118.11.
1. Manufacturers: Subject to compliance with requirements, [**provide products by one of the following**] [**available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following**]:
 2. Basis-of-Design Product: Subject to compliance with requirements, provide [**product indicated on Drawings**] <Insert manufacturer's name; product name or designation> or comparable product by one of the following:
 - a. Bonsal American; an Oldcastle company.
 - b. Bostik, Inc.
 - c. C-Cure.
 - d. Custom Building Products.
 - e. Jamo Inc.
 - f. Laticrete International, Inc.

- g. MAPEI Corporation.
 - h. Southern Grouts & Mortars, Inc.
 - i. Summitville Tiles, Inc.
 - j. TEC; a subsidiary of H. B. Fuller Company.
 - k. **<Insert manufacturer's name>**.
3. Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.
 4. Provide prepackaged, dry-mortar mix combined with **[acrylic resin] [or] [styrene-butadiene-rubber]** liquid-latex additive at Project site.
- F. Water-Cleanable, Tile-Setting Epoxy: ANSI A118.3[.][, with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).][, that complies with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."]
1. Manufacturers: Subject to compliance with requirements, **[provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:**
 2. Basis-of-Design Product: Subject to compliance with requirements, provide **[product indicated on Drawings] <Insert manufacturer's name; product name or designation>** or comparable product by one of the following:
 - a. Atlas Minerals & Chemicals, Inc.
 - b. Bonsal American; an Oldcastle company.
 - c. Bostik, Inc.
 - d. C-Cure.
 - e. Custom Building Products.
 - f. Jamo Inc.
 - g. Laticrete International, Inc.
 - h. MAPEI Corporation.
 - i. Mer-Kote Products, Inc.
 - j. Southern Grouts & Mortars, Inc.
 - k. Summitville Tiles, Inc.
 - l. TEC; a subsidiary of H. B. Fuller Company.
 - m. **<Insert manufacturer's name>**.
 3. 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.
- G. Chemical-Resistant Furan Mortar: ANSI A118.5, with **[carbon] <Insert material>** filler.
1. Manufacturers: Subject to compliance with requirements, **[provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:**
 - a. Atlas Minerals & Chemicals, Inc.
 - b. **<Insert manufacturer's name>**.

- H. Organic Adhesive: ANSI A136.1, Type I[.], with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24)[, that complies with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."]
1. Manufacturers: Subject to compliance with requirements, **[provide products by one of the following]** **[available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:**
 2. Basis-of-Design Product: Subject to compliance with requirements, provide **[product indicated on Drawings]** **<Insert manufacturer's name; product name or designation>** or comparable product by one of the following:
 - a. Bonsal American; an Oldcastle company.
 - b. Bostik, Inc.
 - c. C-Cure.
 - d. Custom Building Products.
 - e. DAP Inc.
 - f. Jamo Inc.
 - g. Laticrete International, Inc.
 - h. MAPEI Corporation.
 - i. Southern Grouts & Mortars, Inc.
 - j. Summitville Tiles, Inc.
 - k. TEC; a subsidiary of H. B. Fuller Company.
 - l. **<Insert manufacturer's name>**.

0.8 GROUT MATERIALS

- A. Sand-Portland Cement Grout: ANSI A108.10, composed of white or gray cement and white or colored aggregate as required to produce color indicated.
- B. Standard Cement Grout: ANSI A118.6.
1. Basis-of-Design Product: Subject to compliance with requirements, provide **[product indicated on Drawings]** **<Insert manufacturer's name; product name or designation>** or comparable product by one of the following:
 - a. Boiardi Products; a QEP company.
 - b. Bonsal American; an Oldcastle company.
 - c. Bostik, Inc.
 - d. C-Cure.
 - e. Custom Building Products.
 - f. Jamo Inc.
 - g. Laticrete International, Inc.
 - h. MAPEI Corporation.
 - i. Southern Grouts & Mortars, Inc.
 - j. Summitville Tiles, Inc.
 - k. TEC; a subsidiary of H. B. Fuller Company.
 - l. **<Insert manufacturer's name>**.

C. Polymer-Modified Tile Grout: ANSI A118.7.

1. Basis-of-Design Product: Subject to compliance with requirements, provide [**product indicated on Drawings**] <Insert manufacturer's name; product name or designation> or comparable product by one of the following:
 - a. Boiardi Products; a QEP company.
 - b. Bonsal American; an Oldcastle company.
 - c. Bostik, Inc.
 - d. C-Cure.
 - e. Custom Building Products.
 - f. Jamo Inc.
 - g. Laticrete International, Inc.
 - h. MAPEI Corporation.
 - i. Southern Grouts & Mortars, Inc.
 - j. Summitville Tiles, Inc.
 - k. TEC; a subsidiary of H. B. Fuller Company.
 - l. <Insert manufacturer's name>.
2. Polymer Type: Ethylene vinyl acetate or acrylic additive, in dry, redispersible form, prepackaged with other dry ingredients.
3. Polymer Type: [**Acrylic resin**] [or] [**styrene-butadiene rubber**] in liquid-latex form for addition to prepackaged dry-grout mix.

D. Water-Cleanable Epoxy Grout: ANSI A118.3[, with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D].

1. Basis-of-Design Product: Subject to compliance with requirements, provide [**product indicated on Drawings**] <Insert manufacturer's name; product name or designation> or comparable product by one of the following:
 - a. Atlas Minerals & Chemicals, Inc.
 - b. Boiardi Products; a QEP company.
 - c. Bonsal American; an Oldcastle company.
 - d. Bostik, Inc.
 - e. C-Cure.
 - f. Custom Building Products.
 - g. Jamo Inc.
 - h. Laticrete International, Inc.
 - i. MAPEI Corporation.
 - j. Mer-Kote Products, Inc.
 - k. Southern Grouts & Mortars, Inc.
 - l. Summitville Tiles, Inc.
 - m. TEC; a subsidiary of H. B. Fuller Company.
 - n. <Insert manufacturer's name>.
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.

- E. Chemical-Resistant Furan Grout: ANSI A118.5, with carbon filler[, **with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D**].
1. Manufacturers: Subject to compliance with requirements, [**provide products by one of the following**] [**available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following**]:
 - a. Atlas Minerals & Chemicals, Inc.
 - b. **<Insert manufacturer's name>**.
- F. Grout for Pregrouted Tile Sheets: Same product used in factory to pregrout tile sheets.

0.9 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 079200 "Joint Sealants."
- B. Retain first subparagraph below if required for LEED-NC, or LEED-CI, or LEED-CS Credit IEQ 4.1.
1. Sealants shall have a VOC content of [**250**] **<Insert value>** g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 2. Sealants shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
 3. Use primers, backer rods, and sealant accessories recommended by sealant manufacturer.
- C. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints unless otherwise indicated.
- D. One-Part, Mildew-Resistant Silicone Sealant: ASTM C 920; Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint substrates indicated, O; formulated with fungicide, intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and extreme temperatures.
1. Products: Subject to compliance with requirements, [**provide the following**] [**provide one of the following**] [**available products that may be incorporated into the Work include, but are not limited to, the following**]:
 - a. DAP Inc.; [**Titanium Enriched Kitchen and Bath Sealant**] [**100 percent Silicone Kitchen and Bath Sealant**].
 - b. Dow Corning Corporation; Dow Corning 786.
 - c. GE Silicones; a division of GE Specialty Materials; Sanitary 1700.
 - d. Laticrete International, Inc.; Latasil Tile & Stone Sealant.
 - e. Pecora Corporation; Pecora 898 Sanitary Silicone Sealant.
 - f. Tremco Incorporated; Tremsil 600 White.
 - g. **<Insert manufacturer's name; product name or designation>**.

- E. Multipart, Pourable Urethane Sealant for Use T: ASTM C 920; 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 the following] [provide one of the following] [available products that may be incorporated into the Work include, but are not limited to, the following]:**
 - a. Bostik, Inc.; Chem-Calk 550.
 - b. Degussa Building Systems; Sonneborn Sonolastic SL 2.
 - c. Pecora Corporation; **[Dynatrol II-SG] [NR-200 Urexpan]**.
 - d. Sika Corporation; Sikaflex-2c SL.
 - e. Tremco Incorporated.; **[THC-900] [THC-901] [Vulkem 245]**.
 - f. **<Insert manufacturer's name; product name or designation>**.
- F. Chemical-Resistant Sealants: For chemical-resistant floors, provide chemical-resistant elastomeric sealant of type recommended and produced by chemical-resistant mortar and grout manufacturer for type of application indicated, with proven service record and compatibility with tile and other setting materials, and with chemical resistance equivalent to mortar/grout.
1. Manufacturers: Subject to compliance with requirements, **[provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:**
 - a. Atlas Minerals & Chemicals, Inc.
 - b. **<Insert manufacturer's name>**.

0.10 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; **[half-hard brass] [white zinc alloy] [nickel silver] [stainless-steel, ASTM A 666, 300 Series]** exposed-edge material.
- C. Temporary Protective Coating: **[Either product] [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.
- D. 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.

- E. 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, **[provide the following]** **[provide one of the following]** **[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]** **[Magic Seal]** **[Silox 8]** **[Siloxane 220]**.
 - c. C-Cure; Penetrating Sealer 978.
 - d. Custom Building Products; **[Surfaceguard]** **[Grout and Tile]** **[Grout]** Sealer.
 - e. Jamo Inc.; **[Matte Finish]** **[Penetrating]** Sealer.
 - f. MAPEI Corporation; KER **[003, Silicone Spray Sealer for Cementitious Tile Grout]** **[004, Keraseal Penetrating Sealer for Unglazed Grout and Tile]**.
 - 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]** **[TA-257 Silicone]** Grout Sealer.

0.11 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

0.1 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 **[adhesives]** **[bonded mortar bed]** **[or]** **[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.

0.2 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with [adhesives] [or] [thin-set mortar] with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.
- B. 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.
- C. 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.
- D. Field-Applied Temporary Protective Coating: If indicated under tile type or needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

0.3 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. Exterior tile floors.
 - b. Tile floors in wet areas.
 - c. Tile swimming pool decks.
 - d. Tile floors in laundries.
 - e. Tile floors composed of tiles **8 by 8 inches (200 by 200 mm)** or larger.
 - f. 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.
- F. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
1. Ceramic Mosaic Tile: **1/16 inch (1.6 mm)**.
 2. Quarry Tile: [**1/4 inch (6.35 mm)**] [**3/8 inch (9.5 mm)**].
 3. Paver Tile: [**1/4 inch (6.35 mm)**] [**3/8 inch (9.5 mm)**].
 4. Glazed Wall Tile: **1/16 inch (1.6 mm)**.
 5. Decorative Thin Wall Tile: **1/16 inch (1.6 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.
- 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 [**cleavage membrane**] [**waterproofing**] [**or**] [**crack isolation membrane**] under thresholds set in [**dry-set portland cement**] [**or**] [**latex-portland cement**] mortar. Fill joints between such thresholds and adjoining tile set on [**cleavage membrane**] [**waterproofing**] [**or**] [**crack isolation membrane**] with elastomeric sealant.

- J. Metal Edge Strips: Install **[at locations indicated] [where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with top of tile] [where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with or below top of tile and no threshold is indicated].**
- 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.

0.4 TILE BACKING PANEL INSTALLATION

- A. Install **[cementitious backer units] [and] [fiber-cement underlayment]** and treat joints according to ANSI A108.11 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.]**
- B. Install **[glass-mat, water-resistant backing board with water-resistant coating] [and] [glass-mat, water-resistant gypsum panel]** and treat joints according to current Tile Council of North America (TCNA) "Handbook for Ceramic Tile Installation" 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.] [Use Type I mastic for bonding material unless otherwise directed in manufacturer's written instructions.]**

0.5 WATERPROOFING INSTALLATION

- A. Install waterproofing to comply with ANSI A108.13 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.

0.6 CRACK ISOLATION MEMBRANE INSTALLATION

- A. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness and bonded securely to substrate.
- B. Do not install tile or setting materials over crack isolation membrane until membrane has cured.

0.7 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. 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.

0.8 EXTERIOR TILE INSTALLATION SCHEDULE

A. Exterior Floor Installations:

1. Tile Installation F101: Cement mortar bed (thickset) [**bonded to concrete**] [**over waterproof membrane on concrete**] [**over waterproof membrane on concrete where indicated and bonded to concrete where membrane is not indicated**]; TCA F101 and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C].
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar for Cured-Bed Method: [**Dry-set**] [**Latex-**] [**Medium-bed, latex-**] portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**Polymer-modified sanded**] [**Polymer-modified unsanded**] grout.
2. Tile Installation F102: Thin-set mortar [**on concrete**] [**over waterproof membrane on concrete**] [**over waterproof membrane on concrete where indicated and on concrete where membrane is not indicated**]; TCA F102.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [**Dry-set**] [**Latex-**] [**Medium-bed, latex-**] portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**Polymer-modified sanded**] [**Polymer-modified unsanded**] grout.

B. Exterior Wall Installations, Masonry or Concrete:

1. Tile Installation W201: Cement mortar bed (thickset) on metal lath over waterproof membrane; TCA W201 and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C].
 - a. Tile Type: <Insert tile-type designation>.
 - b. Bond Coat Mortar for Wet-Set Method: [Dry-set] [Latex-] portland cement mortar.
 - c. Thin-Set Mortar for Cured-Bed Method: [Dry-set] [Latex-] portland cement mortar.
 - d. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.

2. Tile Installation W202: Thin-set mortar; TCA W202.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Dry-set] [Latex-] [Medium-bed, latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.

0.9 INTERIOR TILE INSTALLATION SCHEDULE

A. Interior Floor Installations, Concrete Subfloor:

1. Tile Installation F111: Cement mortar bed (thickset) with cleavage membrane; TCA F111 and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C].
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar for Cured-Bed Method: [Dry-set] [Latex-] [Medium-bed, latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.

2. Tile Installation F112: Cement mortar bed (thickset) bonded to concrete; TCA F112 and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C].
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar for Cured-Bed Method: [Dry-set] [Latex-] [Medium-bed, latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.

3. Tile Installation F113: Thin-set mortar; TCA F113.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Dry-set] [Latex-] [Medium-bed, latex-] portland cement mortar.

- c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
4. Tile Installation F114: Cement mortar bed (thickset) with cleavage membrane; [epoxy] [furan] grout; TCA F114 and ANSI A108.1B.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar for Cured-Bed Method: [Dry-set] [Latex-] [Medium-bed, latex-] portland cement mortar.
 - c. Grout: [Water-cleanable epoxy] [Chemical-resistant furan] grout.
5. Tile Installation F115: Thin-set mortar; [epoxy] [furan] grout; TCA F115.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Dry-set] [Latex-] [Medium-bed, latex-] portland cement mortar.
 - c. Grout: [Water-cleanable epoxy] [Chemical-resistant furan] grout.
6. Tile Installation F116: [Organic adhesive] [Water-cleanable, tile-setting epoxy]; TCA F116.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
7. Tile Installation F121: Cement mortar bed (thickset) on waterproof membrane; TCA F121 and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C].
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar for Cured-Bed Method: [Dry-set] [Latex-] [Medium-bed, latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.
8. Tile Installation F122: Thin-set mortar on waterproof membrane; TCA F122.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Latex-] [Medium-bed, latex-] portland cement mortar.
 - c. Grout: Polymer-modified [sanded] [unsanded] grout.
9. Tile Installation F125A: Thin-set mortar on crack isolation membrane; TCA F125A.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Latex-] [Medium-bed, latex-] portland cement mortar.
 - c. Grout: [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.

10. Tile Installation F131: Water-cleanable, tile-setting epoxy; epoxy grout; TCA F131.
 - a. Tile Type: **<Insert tile-type designation>**.
 - b. Grout: Water-cleanable epoxy grout.
11. Tile Installation F132: Water-cleanable, tile-setting epoxy on cured cement mortar bed **[bonded to concrete subfloor] [installed over cleavage membrane]**; epoxy grout; TCA F132.
 - a. Tile Type: **<Insert tile-type designation>**.
 - b. Grout: Water-cleanable epoxy grout.
12. Tile Installation F133: **[Chemical-resistant furan mortar] [Water-cleanable, tile-setting epoxy]**; furan grout. TCA F133**[except use water-cleanable, tile-setting epoxy instead of chemical-resistant furan mortar for setting tile]**.
 - a. Tile Type: **<Insert tile-type designation>**.
 - b. Grout: Chemical-resistant furan grout.

B. Interior Floor Installations, Wood Subfloor:

1. Tile Installation F121: Cement mortar bed (thickset) on waterproof membrane; TCA F121 and **[ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C]**.
 - a. Tile Type: **<Insert tile-type designation>**.
 - b. Thin-Set Mortar for Cured-Bed Method: **[Dry-set] [Latex-] [Medium-bed, latex-]** portland cement mortar.
 - c. Grout: **[Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy]** grout.
2. Tile Installation F141: Cement mortar bed (thickset) with cleavage membrane; TCA F141 and **[ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C]**.
 - a. Tile Type: **<Insert tile-type designation>**.
 - b. Thin-Set Mortar for Cured-Bed Method: **[Dry-set] [Latex-] [Medium-bed, latex-]** portland cement mortar.
 - c. Grout: **[Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy]** grout.
3. Tile Installation F142: Organic adhesive; TCA F142.
 - a. Tile Type: **<Insert tile-type designation>**.
 - b. Grout: **[Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy]** grout.
4. Tile Installation F143: Water-cleanable, tile-setting epoxy; epoxy grout; TCA F143.
 - a. Tile Type: **<Insert tile-type designation>**.

- b. Grout: Water-cleanable epoxy grout.
5. Tile Installation F144: Thin-set mortar on cementitious backer units or fiber cement underlayment; TCA F144.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Dry-set] [Latex-] [Medium-bed, latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
 6. Tile Installation F150/160: Thin-set mortar on exterior-gluе plywood; TCA F150 or TCA F160.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: EGP latex-portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
- C. Interior Radiant Heat Floor Installations, Concrete Subfloor:
1. Tile Installation RH110: Thin-set mortar on crack isolation membrane; hydronic piping installed in concrete; TCA RH110.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Latex-] [Medium-bed, latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
 2. Tile Installation RH115: Thin-set mortar; electric radiant system encapsulated in thin-set mortar; TCA RH115.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Latex-] [Medium-bed, latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
 3. Tile Installation RH116: Thin-set mortar on crack isolation membrane; electric radiant system encapsulated in cementitious self-leveling underlayment; TCA RH116.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Cementitious Self-Leveling Underlayment: Specified in Section 035416 "Hydraulic Cement Underlayment."
 - c. Thin-Set Mortar: [Latex-] [Medium-bed, latex-] portland cement mortar.
 - d. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.

D. Interior Radiant Heat Floor Installations, Wood Subfloor:

1. Tile Installation RH130: Thin-set mortar on exterior-glue plywood; electric radiant system encapsulated in thin-set mortar; TCA RH130.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: EGP latex-portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
2. Tile Installation RH135: Thin-set mortar on cementitious backer units or fiber cement underlayment; electric radiant system encapsulated in thin-set mortar; TCA RH135.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Latex-] [Medium-bed, latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
3. Tile Installation RH140: Thin-set mortar on crack isolation membrane; electric radiant system encapsulated in cementitious self-leveling underlayment; TCA RH140.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Cementitious Self-Leveling Underlayment: Specified in Section 035416 "Hydraulic Cement Underlayment."
 - c. Thin-Set Mortar: [Latex-] [Medium-bed, latex-] portland cement mortar.
 - d. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.

E. Interior Wall Installations, Masonry or Concrete:

1. Tile Installation W202: Thin-set mortar; TCA W202.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Dry-set] [Latex-] [Medium-bed, latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
2. Tile Installation W211: Cement mortar bed (thickset) bonded to substrate; TCA W211 and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C].
 - a. Tile Type: <Insert tile-type designation>.
 - b. Bond Coat Mortar for Wet-Set Method: [Dry-set] [Latex-] portland cement mortar.
 - c. Thin-Set Mortar for Cured-Bed Method: [Dry-set] [Latex-] portland cement mortar.

- d. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
3. Tile Installation W221: Cement mortar bed (thickset) on metal lath[**over waterproof membrane**]; TCA W221 and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C].
 - a. Tile Type: <Insert tile-type designation>.
 - b. Bond Coat Mortar for Wet-Set Method: [Dry-set] [Latex-] portland cement mortar.
 - c. Thin-Set Mortar for Cured-Bed Method: [Dry-set] [Latex-] portland cement mortar.
 - d. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
 4. Tile Installation W222: One-coat cement mortar bed (thickset) on metal lath[**over waterproof membrane**]; TCA W222 and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C].
 - a. Tile Type: <Insert tile-type designation>.
 - b. Bond Coat Mortar for Wet-Set Method: [Dry-set] [Latex-] portland cement mortar.
 - c. Thin-Set Mortar for Cured-Bed Method: [Dry-set] [Latex-] portland cement mortar.
 - d. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.
 5. Tile Installation W223: Organic adhesive; TCA W223.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.
- F. Interior Wall Installations, Wood Studs or Furring:
1. Tile Installation W221: Cement mortar bed (thickset)[**over waterproof membrane**] on solid backing; TCA W221 and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C].
 - a. Tile Type: <Insert tile-type designation>.
 - b. Bond Coat Mortar for Wet-Set Method: [Dry-set] [Latex-] portland cement mortar.
 - c. Thin-Set Mortar for Cured-Bed Method: [Dry-set] [Latex-] portland cement mortar.
 - d. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.

2. Tile Installation W222: One-coat cement mortar bed (thickset)[**over waterproof membrane**] on solid backing; TCA W222 and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C].
 - a. Tile Type: <Insert tile-type designation>.
 - b. Bond Coat Mortar for Wet-Set Method: [Dry-set] [Latex-] portland cement mortar.
 - c. Thin-Set Mortar for Cured-Bed Method: [Dry-set] [Latex-] portland cement mortar.
 - d. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
3. Tile Installation W223: Organic adhesive on solid backing; TCA W223.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.
4. Tile Installation W231: Cement mortar bed (thickset); TCA W231 and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C].
 - a. Tile Type: <Insert tile-type designation>.
 - b. Bond Coat Mortar for Wet-Set Method: [Dry-set] [Latex-] portland cement mortar.
 - c. Thin-Set Mortar for Cured-Bed Method: [Dry-set] [Latex-] portland cement mortar.
 - d. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.
5. Tile Installation W243: Thin-set mortar on gypsum board; TCA W243.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Dry-set] [Latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.
6. Tile Installation W244: Thin-set mortar on cementitious backer units or fiber cement underlayment[**over cleavage membrane**]; TCA W244.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Dry-set] [Latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
7. Tile Installation W245: [Thin-set mortar] [Organic adhesive] on coated glass-mat, water-resistant gypsum backer board; TCA W245.

- a. Tile Type: <Insert tile-type designation>.
- b. Thin-Set Mortar: [Dry-set] [Latex-] portland cement mortar.
- c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.

G. Interior Wall Installations, Metal Studs or Furring:

1. Tile Installation W221: Cement mortar bed (thickset)[over waterproof membrane] on solid backing; TCA W221 and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C].
 - a. Tile Type: <Insert tile-type designation>.
 - b. Bond Coat Mortar for Wet-Set Method: [Dry-set] [Latex-] portland cement mortar.
 - c. Thin-Set Mortar for Cured-Bed Method: [Dry-set] [Latex-] portland cement mortar.
 - d. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
2. Tile Installation W222: One-coat cement mortar bed (thickset)[over waterproof membrane] on solid backing; TCA W222 and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C].
 - a. Tile Type: <Insert tile-type designation>.
 - b. Bond Coat Mortar for Wet-Set Method: [Dry-set] [Latex-] portland cement mortar.
 - c. Thin-Set Mortar for Cured-Bed Method: [Dry-set] [Latex-] portland cement mortar.
 - d. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
3. Tile Installation W223: Organic adhesive on solid backing; TCA W223.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.
4. Tile Installation W241: Cement mortar bed (thickset); TCA W241 and ANSI A108.1B.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar for Cured-Bed Method: [Dry-set] [Latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.
5. Tile Installation W242: Organic adhesive on gypsum board; TCA W242.

- a. Tile Type: <Insert tile-type designation>.
 - b. Grout: [Polymer-modified sanded] [Polymer-modified unsanded] grout.
6. Tile Installation W243: Thin-set mortar on gypsum board; TCA W243.
- a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Dry-set] [Latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.
7. Tile Installation W244: Thin-set mortar on cementitious backer units or fiber cement underlayment[over cleavage membrane]; TCA W244.
- a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Dry-set] [Latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
8. Tile Installation W245: [Thin-set mortar] [Organic adhesive] on coated glass-mat, water-resistant gypsum backer board; TCA W245.
- a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Dry-set] [Latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
- H. Bathtub Wall Installations, [Wood] [Metal] Studs or Furring:
1. Tile Installation B413: [Thin-set mortar] [Organic adhesive] on water-resistant gypsum board; TCA B413.
- a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Dry-set] [Latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.
- I. Bathtub/Shower Wall Installations, [Wood] [Metal] Studs or Furring:
1. Tile Installation B411: Cement mortar bed (thickset); TCA B411 and ANSI A108.1A.
- a. Tile Type: <Insert tile-type designation>.
 - b. Bond Coat Mortar for Wet-Set Method: [Dry-set] [Latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.

2. Tile Installation B412: Thin-set mortar on cementitious backer units or fiber cement underlayment; TCA B412.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Dry-set] [Latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
 3. Tile Installation B419: [Thin-set mortar] [Organic adhesive] on coated glass-mat, water-resistant backer board; TCA B419.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Dry-set] [Latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] [Water-cleanable epoxy] grout.
- J. Shower Receptor and Wall Installations, Concrete or Masonry:
1. Tile Installation B414: Cement mortar bed (thickset); TCA B414 and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C].
 - a. Tile Type: <Insert tile-type designation>.
 - b. Bond Coat Mortar for Wet-Set Method: [Dry-set] [Latex-] portland cement mortar.
 - c. Thin-Set Mortar for Cured-Bed Method: [Dry-set] [Latex-] portland cement mortar.
 - d. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.
 2. Tile Installation B421: Thin-set mortar on waterproof membrane; TCA B421.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: Latex-portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.
 3. Tile Installation B422: Thin-set mortar on waterproof membrane with integrated bonding flange for bonded membranes; TCA B422.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Dry-set] [Latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.
- K. Shower Receptor and Wall Installations, [Wood] [Metal] Studs or Furring:

1. Tile Installation B414: Cement mortar bed (thickset); TCA B414 and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C].
 - a. Tile Type: <Insert tile-type designation>.
 - b. Bond Coat Mortar for Wet-Set Method: [Dry-set] [Latex-] portland cement mortar.
 - c. Thin-Set Mortar for Cured-Bed Method: [Dry-set] [Latex-] portland cement mortar.
 - d. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.

2. Tile Installation B415: Thin-set mortar on cementitious backer units or fiber cement underlayment; TCA B415.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Dry-set] [Latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.

3. Tile Installation B420: Thin-set mortar on coated glass-mat, water-resistant backer board; TCA B420.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: [Dry-set] [Latex-] portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.

4. Tile Installation B421: Thin-set mortar on waterproof membrane over cementitious backer units or fiber cement underlayment; TCA B421.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: Latex-portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.

5. Tile Installation B422: Thin-set mortar on waterproof membrane over cementitious backer units or fiber cement underlayment with integrated bonding flange for bonded membranes; TCA B422.
 - a. Tile Type: <Insert tile-type designation>.
 - b. Thin-Set Mortar: Latex-portland cement mortar.
 - c. Grout: [Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [Polymer-modified sanded] [Polymer-modified unsanded] grout.

END OF SECTION 093000