

SECTION 093013 - CERAMIC TILING

TIPS:

To view non-printing **Editor's Notes** that provide guidance for editing, click on Masterworks/Single-File Formatting/Toggle/Editor's Notes.

To read **detailed research, technical information about products and materials, and coordination checklists**, click on Masterworks/Supporting Information.

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Ceramic mosaic tile.
2. Quarry tile.
3. Pressed floor tile.
4. Porcelain tile.
5. Glazed wall tile.
6. Stone thresholds.
7. Tile backing panels.
8. Waterproof membrane[**for thinset applications**].
9. Crack isolation membrane.
10. Metal edge strips.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. LEED Submittals:

1. Product Data for Credit IEQ 4.1: For adhesives, documentation including printed statement of VOC content.
2. Laboratory Test Reports for Credit IEQ 4.1: For adhesives, documentation indicating that products comply with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Small-Scale Environmental Chambers."
3. Product Data for Credit IEQ 4.3: For grout sealers, documentation indicating that products comply with requirements of FloorScore certification.
4. Laboratory Test Reports for Credit IEQ 4.3: For grout sealers, documentation indicating that products comply with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Small-Scale Environmental Chambers."

C. Samples:

1. Each type and composition of tile and for each color and finish required.[**For ceramic mosaic tile in color blend patterns, provide samples 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.
3. Stone thresholds.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

1.4 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>.**

1.5 QUALITY ASSURANCE

- A. Installer Qualifications:

1. Installer is [**a five-star member of the National Tile Contractors Association**] [**or**] [**a Trowel of Excellence member of the Tile Contractors' Association of America**].
2. Installer's supervisor for Project holds the International Masonry Institute's Foreman Certification.
3. Installer employs [**Ceramic Tile Education Foundation Certified Installers**] [**or**] [**installers recognized by the U.S. Department of Labor as Journeyman Tile Layers**].

- B. 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 off[**each type of**] floor tile installation.
2. Build mockup off[**each type of**] wall tile installation.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide Standard-grade tile that complies with ANSI A137.1 for types, compositions, and other characteristics 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 TCNA installation methods specified in tile installation schedules, and other requirements specified.

2.2 TILE PRODUCTS

- A. Ceramic Tile Type [CT-<#>]: Factory-mounted [unglazed] [glazed] ceramic mosaic tile.
 - 1. Manufacturers: Subject to compliance with requirements, [provide products by the following] [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 Corporation.](#)
 - c. [Dal-Tile Corporation.](#)
 - d. <Insert manufacturer's name>.
 - 3. Composition: [Porcelain] [Impervious natural clay or porcelain] [Vitreous or impervious natural clay or porcelain].
 - 4. Certification: Porcelain tile certified by the Porcelain Tile Certification Agency.
 - 5. Module Size: [25.4 by 25.4 mm (1 by 1 inch)] [25.4 by 50.8 mm (1 by 2 inches)] [50.8 by 50.8 mm (2 by 2 inches)] <Insert dimensions>.
 - 6. Thickness: 6.4 mm (1/4 inch).
 - 7. Face: [Plain] [Pattern of design indicated,] with cushion edges.
 - 8. Surface: [Smooth, without] [Slip resistant, with] abrasive admixture.
 - 9. Dynamic Coefficient of Friction: Not less than 0.42.
 - 10. Finish: [Bright, opaque] [Bright, clear] [Mat, opaque] [Mat, clear] [Semimat, opaque] [Semimat, clear] [Vellum, opaque] [Vellum, clear] [Crystalline] <Insert description> glaze.
 - 11. 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>.

12. Grout Color: **[As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Architect from manufacturer's full range] <Insert color>**.
13. 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 [25.4 by 25.4 mm (1 by 1 inch)] [50.8 by 25.4 mm (2 by 1 inch)] **<Insert dimensions>**.
 - b. Base Cap: **[Bead (bullnose)] [Surface bullnose]**, module size [25.4 by 25.4 mm (1 by 1 inch)] [50.8 by 25.4 mm (2 by 1 inch)] [50.8 by 50.8 mm (2 by 2 inches)] **<Insert dimensions>**.
 - c. Wainscot Cap: **[Bead (bullnose)] [Surface bullnose]**, module size [25.4 by 25.4 mm (1 by 1 inch)] [50.8 by 25.4 mm (2 by 1 inch)] [50.8 by 50.8 mm (2 by 2 inches)] **<Insert dimensions>**.
 - d. External Corners for Thinset Mortar Installations: **[Bead (bullnose)] [Surface bullnose]**, module size [25.4 by 25.4 mm (1 by 1 inch)] [50.8 by 25.4 mm (2 by 1 inch)] [50.8 by 50.8 mm (2 by 2 inches)] **<Insert dimensions>**.
 - e. Internal Corners: Cove, module size [25.4 by 25.4 mm (1 by 1 inch)] [50.8 by 25.4 mm (2 by 1 inch)] **<Insert dimensions>**.
 - f. 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 12.7 to 6.4 mm (1/2 to 1/4 inch) across nominal 100-mm (4-inch) dimension.

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

1. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [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 Corporation**.
 - b. **Dal-Tile Corporation**.
 - c. **<Insert manufacturer's name>**.
3. Face Size: [76 by 76 mm (3 by 3 inches)] [102 by 102 mm (4 by 4 inches)] [152 by 76 mm (6 by 3 inches)] [152 by 152 mm (6 by 6 inches)] [203 by 98 mm (8 by 3-7/8 inches)] [203 by 203 mm (8 by 8 inches)] **<Insert dimensions>**.
4. Thickness: [9.5 mm (3/8 inch)] [12.7 mm (1/2 inch)] [19 mm (3/4 inch)].
5. Wearing Surface: **[Nonabrasive, smooth] [Abrasive aggregate embedded in surface] <Insert description>**.
6. Dynamic Coefficient of Friction: Not less than 0.42.

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: Coved **[with surface bullnose top edge]**, face size [152 by 152 mm (6 by 6 inches)] [203 by 98 mm (8 by 3-7/8 inches)] <Insert dimensions>.
 - b. Wainscot Cap: Surface bullnose, face size [152 by 152 mm (6 by 6 inches)] [203 by 98 mm (8 by 3-7/8 inches)] <Insert dimensions>.

C. Ceramic Tile Type **[CT-<#>]: [Unglazed] [Glazed]** pressed floor tile.

1. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [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 Corporation.](#)
 - c. [Dal-Tile Corporation.](#)
 - d. <Insert manufacturer's name>.
3. Composition: **[Impervious natural clay or porcelain] [Vitreous or impervious natural clay or porcelain] [Natural clay or porcelain].**
4. Face Size: [76 by 76 mm (3 by 3 inches)] [102 by 102 mm (4 by 4 inches)] [152 by 152 mm (6 by 6 inches)] [197 by 98 mm (7-3/4 by 3-7/8 inches)] [200 by 200 mm (7-7/8 by 7-7/8 inches)] [300 by 300 mm (11-13/16 by 11-13/16 inches)] **[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 dimensions>.
5. Face Size Variation: **[Calibrated or rectified] [Rectified].**
6. Thickness: [6.4 mm (1/4 inch)] [9.5 mm (3/8 inch)] [12.7 mm (1/2 inch)].
7. 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].**
8. Dynamic Coefficient of Friction: Not less than 0.42.

9. Glaze: **[Bright, opaque]** **[Bright, clear]** **[Mat, opaque]** **[Mat, clear]** **[Semimat, opaque]** **[Semimat, clear]** **[Vellum, opaque]** **[Vellum, clear]** **[Crystalline]** **<Insert description>**.
10. 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>**.
11. Grout Color: **[As indicated by manufacturer's designations]** **[Match Architect's sample]** **[As selected by Architect from manufacturer's full range]** **<Insert color>**.
12. 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: **[Bead (bullnose)]** **[Surface bullnose]**, module size **[same as adjoining flat tile]** **<Insert size>**.
 - c. Wainscot Cap: **[Bead (bullnose)]** **[Surface bullnose]**, module size **[same as adjoining flat tile]** **<Insert size>**.
 - d. External Corners: **[Bead (bullnose)]** **[Surface bullnose]**, module size **[same as adjoining flat tile]** **<Insert size>**.
 - e. Internal Corners: Cove, module size **[same as adjoining flat tile]** **<Insert size>**.
 - f. 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 12.7 to 6.4 mm (1/2 to 1/4 inch) across nominal 100-mm (4-inch) dimension.

D. Ceramic Tile Type **[CT-#>]**: **[Unglazed]** **[Glazed]** porcelain tile.

1. Manufacturers: Subject to compliance with requirements, **[provide products by the following]** **[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 Corporation.](#)
 - c. [Dal-Tile Corporation.](#)
 - d. **<Insert manufacturer's name>**.
3. Certification: Tile certified by the Porcelain Tile Certification Agency.
4. Face Size: **[76 by 76 mm (3 by 3 inches)]** **[102 by 102 mm (4 by 4 inches)]** **[152 by 152 mm (6 by 6 inches)]** **[197 by 98 mm (7-3/4 by 3-7/8 inches)]** **[200 by 200 mm (7-7/8 by 7-7/8 inches)]** **[300 by 300 mm (11-13/16 by 11-13/16 inches)]** **[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 dimensions>**.

5. Face Size Variation: Rectified.
6. Thickness: [6.4 mm (1/4 inch)] [9.5 mm (3/8 inch)] [12.7 mm (1/2 inch)].
7. Face: [**Plain with square or cushion edges**] [**Plain with square edges**] [**Plain with cushion edges**] [**Polished with square edges**] [**As indicated**].
8. Dynamic Coefficient of Friction: Not less than 0.42.
9. Tile Color, Glaze, and Pattern: [**As indicated by manufacturer's designations**] [**Match Architect's sample**] [**As selected by Architect from manufacturer's full range**] <Insert color, glaze, 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 Cap: Surface bullnose, module size [**same as adjoining flat tile**] <Insert size>.
 - b. Wainscot Cap: Surface bullnose, module size [**same as adjoining flat tile**] <Insert size>.
 - c. External Corners: Surface bullnose, module size [**same as adjoining flat tile**] <Insert size>.
 - d. 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 12.7 to 6.4 mm (1/2 to 1/4 inch) across nominal 100-mm (4-inch) dimension.

E. Ceramic Tile Type [CT-<#>]: Glazed wall tile.

1. Manufacturers: Subject to compliance with requirements, [**provide products by the following**] [**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 Corporation.
 - c. Dal-Tile Corporation.
 - d. <Insert manufacturer's name>.
3. Module Size: [108 by 108 mm (4-1/4 by 4-1/4 inches)] [152 by 108 mm (6 by 4-1/4 inches)] [152 by 152 mm (6 by 6 inches)] [**200 by 200 mm**] [**250 by 250 mm**] [**200 by 300 mm**] <Insert dimensions>.
4. Face Size Variation: Rectified.
5. Thickness: 8 mm (5/16 inch).

6. 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].
 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. Mounting: Factory, back mounted.
 11. Mounting: Pregrouted sheets of tiles are factory assembled and grouted with manufacturer's standard white silicone rubber.
 12. 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] [Straight], module size [108 by 108 mm (4-1/4 by 4-1/4 inches)] [152 by 152 mm (6 by 6 inches)] [152 by 95 mm (6 by 3-3/4 inches)] [152 by 51 mm (6 by 2 inches)] <Insert dimensions>.
 - b. Wainscot Cap: [Bullnose cap] [Surface bullnose], module size [108 by 108 mm (4-1/4 by 4-1/4 inches)] [152 by 152 mm (6 by 6 inches)] [152 by 51 mm (6 by 2 inches)] <Insert dimensions>.
 - c. External Corners: [Bullnose] [Surface bullnose], same size as adjoining flat tile.
 - d. Internal Corners: Field-buttet square corners. For coved base and cap use angle pieces designed to fit with stretcher shapes.
- F. Accessories: Provide vitreous china accessories of type and size indicated, suitable for installing by same method as used for 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>.

2.3 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 1.5 mm (1/16 inch) above adjacent floor surface. Finish bevel to match top surface of threshold. Limit height of threshold to 12.7 mm (1/2 inch) or less above adjacent floor surface.

- B. Marble Thresholds: ASTM C 503/C 503M, with a minimum abrasion resistance of [10] [12] according to ASTM C 1353 or ASTM C 241/C 241M 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>.**

2.4 TILE BACKING PANELS

- A. Cementitious Backer Units: ANSI A118.9 or ASTM C 1325, Type A.
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.; ProTEC Concrete Backer Board.
 - d. USG Corporation; DUROCK Cement Board.
 - e. **<Insert manufacturer's name; product name or designation>.**
 2. Thickness: [6.4 mm (1/4 inch)] [12.7 mm (1/2 inch)] [15.9 mm (5/8 inch)] [**As indicated**].
- B. Fiber-Cement Backer Board: ASTM C 1288.
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 Corporation; FiberCement [Underlayment] [BackerBoard].
 - b. James Hardie Building Products, Inc.; [Hardiebacker 1/4"] [Hardiebacker 500].
 - c. **<Insert manufacturer's name; product name or designation>.**
 2. Thickness: [6.4 mm (1/4 inch)] [12.7 mm (1/2 inch)] [**As indicated**].

2.5 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.
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. Noble Company (The); Noble Deck.
 - c. **<Insert manufacturer's name; product name or designation>**.
 2. Nominal Thickness: 0.76 mm (0.030 inch).
 3. Nominal Thickness: 1 mm (0.040 inch).
- C. **PVC Sheet:** PVC heat-fused on both sides to facings of nonwoven polyester.
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. Compotite Corporation; Composeal Gold.
 - b. Noble Company (The); Wall Seal.
 - c. **<Insert manufacturer's name; product name or designation>**.
 2. Nominal Thickness: 0.6 mm (0.025 inch).
 3. Nominal Thickness: 1 mm (0.040 inch).
- D. Polyethylene Sheet: Polyethylene faced on both sides with fleece webbing; 0.2-mm (0.008-inch) 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 fabric reinforcement facing; 1 -mm (0.040-inch) 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. [Boiardi Products Corporation, a QEP company](#); Elastiment 340 Sound Control Sheet Membrane Waterproofing and Anti-Fracture/Crack Suppression System.
 - b. [National Applied Construction Products, Inc.](#); Strataflex.
 - c. **<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 Corporation, a QEP company](#); Elastiment 344 Reinforced Waterproofing and Anti-Fracture/Crack Suppression Membrane.
 - b. [Bonsal American, an Oldcastle company](#); B 6000 Waterproof-Crack Isolation Membrane with B 6000 Mesh.
 - 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 400] [Mapelastic HPG with MAPEI Fiberglass Mesh]**.
 - g. [Merkrete Systems, Parex USA, Inc.](#); Hydro-Guard 2000.
 - h. [Southern Grouts & Mortars, Inc.](#); Southcrete 1100 Crack Suppression.
 - i. [Summitville Tiles, Inc.](#); S-9000.
 - j. **<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. [Ardex Americas](#); Ardex S 1-K One-Component Waterproofing Compound.
 - b. [Boiardi Products Corporation, a QEP company](#); Elastiment 644 Membrane Waterproofing System.
 - c. [Bonsal American, an Oldcastle company](#); B 6000 Waterproof-Crack Isolation Membrane.

- d. [Bostik, Inc.](#); [Durabond D-222 Duraguard Membrane] [Bostik GoldPlus].
 - e. [C-Cure](#); Pro-Red Waterproofing Membrane 963.
 - f. [Custom Building Products](#); RedGard Waterproofing and Crack Prevention Membrane.
 - g. [Jamo Inc.](#); Waterproof.
 - h. [Laticrete International, Inc.](#); Laticrete [Hydro Ban] [Hydro Barrier].
 - i. [MAPEI Corporation](#); [Mapelastic AquaDefense] [Mapelastic HPG].
 - j. [Merkrete Systems, Parex USA, Inc.](#); [Hydro-Guard 1] [Hydro-Guard SP1].
 - k. [National Applied Construction Products, Inc.](#); SubSeal Liquid Waterproofing Membrane.
 - l. [Southern Grouts & Mortars, Inc.](#); Southcrete 1132.
 - m. [TEC, H. B. Fuller Construction Products Inc.](#); HydraFlex - Waterproofing Crack Isolation Membrane.
 - n. **<Insert manufacturer's name; product name or designation>**.
- H. Latex-Portland Cement Waterproof Mortar: Flexible, waterproof 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. [Ardex Americas](#); Ardex 8+9 Waterproofing Compound.
 - b. [Boiardi Products Corporation, a QEP company](#); Elastiment 323 Cement Based Waterproofing, Anti-Fracture/Crack Suppression Membrane.
 - c. [C-Cure](#); UltraCure 971.
 - d. [MAPEI Corporation](#); Mapelastic 315.
 - e. [TEC, H. B. Fuller Construction Products Inc.](#); Triple Flex Waterproofing, Crack Isolation Membrane & Mortar.
 - f. **<Insert manufacturer's name; product name or designation>**.
- I. Waterproofing and Tile-Setting Adhesive: One-part, fluid-applied product[, with a VOC content of 65 g/L or less.], that complies with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," 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. Boiardi Products Corporation, a QEP company; [Elastiment 324 Waterproofing, Anti-Fracture/Crack Suppressant and Tile Setting Adhesive] [Elastiment 326 100% Solids Polyurethane Waterproofing Membrane & Tile Setting Adhesive].
 - b. Bostik, Inc.; Hydroment Ultra-Set Advanced.
 - c. <Insert manufacturer's name; product name or designation>.

2.6 CRACK ISOLATION MEMBRANE

- A. General: Manufacturer's standard product[, selected from the following,] that complies with ANSI A118.12 for [standard performance] [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; 0.76-mm (0.030-inch) 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: PVC heat-fused on both sides to facings of nonwoven polyester; 1-mm (0.040-inch) 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. Compotite Corporation; Composeal Gold.
 - b. <Insert manufacturer's name; product name or designation>.
- D. Polyethylene Sheet: Polyethylene faced on both sides with fleece webbing; 0.2-mm (0.008-inch) 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; 4-mm (3/16-inch) 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; 1mm (0.040-inch) 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. Boiardi Products Corporation, a QEP company; Elastiment 340 Sound Control Sheet Membrane Waterproofing and Anti-Fracture/Crack Suppression System.
 - b. Custom Building Products; Crack Buster Pro Crack Prevention Mat Underlayment.
 - c. National Applied Construction Products, Inc.; ECB Anti-Fracture Membrane.
 - d. MAPEI Corporation; Mapeguard 2.
 - e. **<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 Corporation, a QEP company; Elastiment 344 Reinforced Waterproofing and Anti-Fracture/Crack Suppression Membrane.
 - b. Bonsal American, an Oldcastle company; B 6000 Waterproof-Crack Isolation Membrane with B 6000 Mesh.
 - 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**] [**Crack Suppression Kit**].
 - f. [MAPEI Corporation](#); Mapelastic HPG with MAPEI Fiberglass Mesh.
 - g. [Merkrete Systems, Parex USA, Inc.](#); Hydro-Guard 2000.
 - h. [Southern Grouts & Mortars, Inc.](#); Southcrete 1100 Crack Suppression.
 - i. [Summitville Tiles, Inc.](#); S-9000.
 - j. **<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 GoldPlus**].
 - b. [C-Cure](#); [**CureLastic 949**] [**Pro-Red Waterproofing Membrane 963**].
 - c. [Custom Building Products](#); [**RedGard Waterproofing and Crack Prevention Membrane**] [**FractureFree Crack Prevention Membrane**].
 - d. [Jamo Inc.](#); Waterproof.
 - e. [Laticrete International, Inc.](#); Laticrete [**Hydro Ban**] [**Hydro Barrier**].
 - f. [MAPEI Corporation](#); [**Mapelastic AquaDefense**] [**Mapelastic CI**].
 - g. [Merkrete Systems, Parex USA, Inc.](#); [**Fracture Guard 5000**] [**Fracture Guard FD**] [**Hydro-Guard 1**] [**Hydro-Guard SP1**].
 - h. [Southern Grouts & Mortars, Inc.](#); Southcrete 1132.
 - i. [TEC, H. B. Fuller Construction Products Inc.](#); HydraFlex - Waterproofing Crack Isolation Membrane.
 - j. **<Insert manufacturer's name; product name or designation>**.
- I. Latex-Portland Cement Crack-Resistant Mortar: 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. [Ardex Americas](#); Ardex 8+9 Waterproofing Compound.

- b. [Boiardi Products Corporation, a QEP company](#); Elastiment 323 Cement Based Waterproofing, Anti-Fracture/Crack Suppression Membrane.
 - c. [C-Cure](#); UltraCure 971.
 - d. [MAPEI Corporation](#); Mapelastic 315.
 - e. [TEC, H. B. Fuller Construction Products Inc.](#); Triple Flex Waterproofing, Crack Isolation Membrane & Mortar.
 - f. **<Insert manufacturer's name; product name or designation>**.
- J. Crack Isolation Membrane and Tile-Setting Adhesive: One-part, fluid-applied product[, with a VOC content of 65 g/L or less.], that complies with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers,") intended for use as both a crack isolation membrane 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. [Boiardi Products Corporation, a QEP company](#); **[Elastiment 324 Waterproofing, Anti-Fracture/Crack Suppressant and Tile Setting Adhesive] [Elastiment 326 100% Solids Polyurethane Waterproofing Membrane & Tile Setting Adhesive]**.
 - b. [Bostik, Inc.](#); Hydroment Ultra-Set Advanced.
 - c. **<Insert manufacturer's name; product name or designation>**.

2.7 SETTING MATERIALS

- A. Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.02.
- B. Dry-Set Portland Cement Mortar (Thinset): ANSI A118.1.
 - 1. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [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 Corporation; 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; H. B. Fuller Construction Products Inc.](#)
 - l. **<Insert manufacturer's name>.**
3. For wall applications, provide nonsagging mortar.
- C. Latex-Portland Cement Mortar (Thinset): ANSI A118.4.
- 1. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [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. [Ardex Americas.](#)
 - b. [Boiardi Products Corporation; 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. [Merkrete Systems; Parex USA, Inc.](#)

- k. [Southern Grouts & Mortars, Inc.](#)
 - l. [Summitville Tiles, Inc.](#)
 - m. [TEC; H. B. Fuller Construction Products Inc.](#)
 - n. **<Insert manufacturer's name>**.
3. Provide prepackaged, dry-mortar mix to which only water must be added at Project site.
 4. Provide prepackaged, dry-mortar mix combined with liquid-latex additive at Project site.
 5. For wall applications, provide nonsagging mortar.
- D. EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar (Thinset): ANSI A118.11.
1. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [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. [Ardex Americas.](#)
 - 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; H. B. Fuller Construction Products Inc.](#)
 - l. **<Insert manufacturer's name>**.
 3. Provide prepackaged, dry-mortar mix to which only water must be added at Project site.
 4. Provide prepackaged, dry-mortar mix combined with liquid-latex additive at Project site.

- E. Water-Cleanable, Tile-Setting Epoxy: ANSI A118.3[.][, with a VOC content of 65 g/L or less.][, that complies with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."]
1. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [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. Merkrete Systems; Parex USA, Inc.
 - j. Southern Grouts & Mortars, Inc.
 - k. Summitville Tiles, Inc.
 - l. TEC; H. B. Fuller Construction Products Inc.
 - m. **<Insert manufacturer's name>**.
- F. Organic Adhesive: ANSI A136.1, Type I[.][, with a VOC content of 65 g/L or less.][, that complies with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."]
1. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [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. [Ardex Americas](#); Ardex D 14 Type 1 Premixed Tile Adhesive
 - 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; H. B. Fuller Construction Products Inc.](#)
 - l. **<Insert manufacturer's name>**.

2.8 GROUT MATERIALS

- A. Sand-Portland Cement Grout: ANSI A108.10, consisting of white or gray cement and white or colored aggregate as required to produce color indicated.
- B. Standard Cement Grout: ANSI A118.6.
 1. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [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 Corporation; 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; H. B. Fuller Construction Products Inc.
- l. **<Insert manufacturer's name>.**

C. High-Performance Tile Grout: ANSI A118.7.

1. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [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. Ardex Americas.
 - b. Boiardi Products Corporation; 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. Southern Grouts & Mortars, Inc.
 - k. Summitville Tiles, Inc.
 - l. TEC; H. B. Fuller Construction Products Inc.
 - m. **<Insert manufacturer's name>.**

3. Polymer Type: Dry, redispersible form, prepackaged with other dry ingredients.
 4. Polymer Type: 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**].
1. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [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. Boiardi Products Corporation; 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. Merkrete Systems; Parex USA, Inc.
 - k. Southern Grouts & Mortars, Inc.
 - l. Summitville Tiles, Inc.
 - m. TEC; H. B. Fuller Construction Products Inc.
 - n. **<Insert manufacturer's name>**.
- E. Grout for PregROUTed Tile Sheets: Same product used in factory to pregROUT tile sheets.

2.9 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.

1. Manufacturers: Subject to compliance with requirements, [**provide products by the following**] [**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. Blanke Corporation.
 - b. Ceramic Tool Company, Inc.
 - c. Schluter Systems L.P.
 - d. <Insert manufacturer's name>.
- C. Grout Sealer: Manufacturer's standard 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. Custom Building Products; [**Surfaceguard Sealer**] [**Grout and Tile Sealer**] [**Grout Sealer**].
 - c. Jamo Inc.; [**Surfaceguard Sealer**] [**Grout and Tile Sealer**] [**Grout Sealer**].
 - d. Southern Grouts & Mortars, Inc.; [**Grout Sealer**] [**Clear Penetrating Sealer & Grout Release**].
 - e. Summitville Tiles, Inc.; [**SL-15, Invisible Seal**] [**SL-99, Summitseal II**].
 - f. TEC, H. B. Fuller Construction Products Inc.; [**Grout Guard Plus Penetrating Grout Sealer**] [**Grout Guard Penetrating Grout Sealer**] [**Guard All Invisible Penetrating Sealer**].
 - g. <Insert manufacturer's name; product name or designation>.
 2. Grout sealers shall comply with requirements of FloorScore certification.
 3. Grout sealers shall comply with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Small-Scale Environmental Chambers."

PART 3 - EXECUTION

3.1 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 the Work.
 - 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] [thinset mortar]** comply with surface finish requirements in ANSI A108.01 for installations indicated.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with **[adhesives] [or] [thinset 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 1:50 (1/4 inch per foot) 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.

3.3 CERAMIC TILE INSTALLATION

- A. Comply with TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" for TCNA 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 TCNA 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 consisting of tiles 200 by 200 mm (8 by 8 inches) or larger.
 - f. Tile floors consisting 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. Where accent tile differs in thickness from field tile, vary setting bed thickness so that tiles are flush.
- F. 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.
- G. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
- 1. Ceramic Mosaic Tile: [1.6 mm (1/16 inch)] [3.2 mm (1/8 inch)].
 - 2. Quarry Tile: [6.4 mm (1/4 inch)] [9.5 mm (3/8 inch)].
 - 3. Pressed Floor Tile: [6.4 mm (1/4 inch)] [9.5 mm (3/8 inch)].
 - 4. Glazed Wall Tile: [1.6 mm (1/16 inch)] [3.2 mm (1/8 inch)].
 - 5. Porcelain Tile: [6.4 mm (1/4 inch)] [9.5 mm (3/8 inch)].
- H. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.
- I. 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.
- J. 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 (thinset).
 - 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.

- K. 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].
- L. 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.
- M. Install panels 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.]**
- N. Install waterproofing to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness that is bonded securely to substrate.
- O. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness that is bonded securely to substrate.

3.4 EXTERIOR CERAMIC TILE INSTALLATION SCHEDULE

- A. Exterior Floor Installations:
 - 1. Ceramic Tile Installation **<Insert designation>**: TCNA F101 and **[ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C]**; 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]**.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Bond Coat for Cured-Bed Method: Latex-portland cement mortar.
 - c. Grout: **[Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [High-performance sanded] [High-performance unsanded]** grout.
 - 2. Ceramic Tile Installation **<Insert designation>**: TCNA F102; thinset mortar **[on concrete] [over waterproof membrane on concrete] [over waterproof membrane on concrete where indicated and on concrete where membrane is not indicated]**.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Thinset Mortar: Latex-portland cement mortar.

- c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

B. Exterior Roof/Deck Floor Installations:

1. Ceramic Tile Installation <Insert designation>: [TCNA F103] [TCNA F103B] and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C]; cement mortar bed (thickset) over drainage material on roof membrane.
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Bond Coat for Cured-Bed Method: Latex-portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.
2. Ceramic Tile Installation <Insert designation>: TCNA F104; thinset mortar [on concrete] [over waterproof membrane on concrete] [over waterproof membrane on concrete where indicated and on concrete where membrane is not indicated].
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Thinset Mortar: Latex-portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

C. Exterior Wall Installations, Masonry or Concrete:

1. Ceramic Tile Installation <Insert designation>: TCNA W201 and [ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C]; cement mortar bed (thickset) on metal lath[over vapor-retarder membrane].
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Bond Coat for Wet-Set Method: [**Dry-set**] [**Latex-**] portland cement mortar.
 - c. Bond Coat for Cured-Bed Method: Latex-portland cement mortar.
 - d. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.
2. Ceramic Tile Installation <Insert designation>: TCNA W202; thinset mortar[over waterproof membrane].
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Thinset Mortar: Latex-portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

D. Exterior Wall Installations, Wood or Metal Studs:

1. Ceramic Tile Installation **<Insert designation>**: TCNA W244E; thinset mortar **[over waterproof membrane on cementitious backer units] [on cementitious backer units over vapor-retarder membrane]**.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Thinset Mortar: Latex-portland cement mortar.
 - c. Grout: **[Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [High-performance sanded] [High-performance unsanded]** grout.

3.5 INTERIOR CERAMIC TILE INSTALLATION SCHEDULE

A. Interior Floor Installations, Concrete Subfloor:

1. Ceramic Tile Installation **<Insert designation>**: TCNA F111 and **[ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C]**; cement mortar bed (thickset) with cleavage membrane.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Bond Coat for Cured-Bed Method: **[Dry-set] [Latex-]** portland cement mortar.
 - c. Grout: **[Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [High-performance sanded] [High-performance unsanded]** grout.
2. Ceramic Tile Installation **<Insert designation>**: TCNA F112 and **[ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C]**; cement mortar bed (thickset) bonded to concrete.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Bond Coat for Cured-Bed Method: **[Dry-set] [Latex-]** portland cement mortar.
 - c. Grout: **[Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [High-performance sanded] [High-performance unsanded]** grout.
3. Ceramic Tile Installation **<Insert designation>**: TCNA F113; thinset mortar.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Thinset Mortar: **[Dry-set] [Latex-]** portland cement mortar.
 - c. Grout: **[Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [High-performance sanded] [High-performance unsanded] [Water-cleanable epoxy]** grout.
4. Ceramic Tile Installation **<Insert designation>**: TCNA F114 and **[ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C]**; cement mortar bed (thickset) with cleavage membrane; epoxy grout.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.

- b. Bond Coat for Cured-Bed Method: **[Dry-set] [Latex-]** portland cement mortar.
 - c. Grout: Water-cleanable epoxy grout.
- 5. Ceramic Tile Installation **<Insert designation>**: TCNA F115; thinset mortar; epoxy grout.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Thinset Mortar: **[Dry-set] [Latex-]** portland cement mortar.
 - c. Grout: Water-cleanable epoxy grout.
- 6. Ceramic Tile Installation **<Insert designation>**: TCNA F116; **[organic adhesive] [water-cleanable, tile-setting epoxy]**.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Grout: **[Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [High-performance sanded] [High-performance unsanded] [Water-cleanable epoxy]** grout.
- 7. Ceramic Tile Installation **<Insert designation>**: TCNA F121 and **[ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C]**; cement mortar bed (thickset) on waterproof membrane.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Bond Coat for Cured-Bed Method: **[Dry-set] [Latex-]** portland cement mortar.
 - c. Grout: **[Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [High-performance sanded] [High-performance unsanded]** grout.
- 8. Ceramic Tile Installation **<Insert designation>**: TCNA F122; thinset mortar on waterproof membrane.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Thinset Mortar: Latex-portland cement mortar.
 - c. Grout: High-performance **[sanded] [unsanded]** grout.
- 9. Ceramic Tile Installation **<Insert designation>**: TCNA F125A; thinset mortar on crack isolation membrane.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Thinset Mortar: Latex-portland cement mortar.
 - c. Grout: **[Standard sanded cement] [Standard unsanded cement] [High-performance sanded] [High-performance unsanded] [Water-cleanable epoxy]** grout.
- 10. Ceramic Tile Installation **<Insert designation>**: TCNA F131; water-cleanable, tile-setting epoxy; epoxy grout.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Grout: Water-cleanable epoxy grout.

11. Ceramic Tile Installation <Insert designation>: TCNA F132; water-cleanable, tile-setting epoxy on cured cement mortar bed [**bonded to concrete subfloor**] [**installed over cleavage membrane**]; epoxy grout.
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Grout: Water-cleanable epoxy grout.

B. Interior Floor Installations, Wood Subfloor:

1. Ceramic Tile Installation <Insert designation>: TCNA F121 and [**ANSI A108.1A**] [**ANSI A108.1B**] [**ANSI A108.1C**]; cement mortar bed (thickset) on waterproof membrane.
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Bond Coat for Cured-Bed Method: [**Dry-set**] [**Latex-**] portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.
2. Ceramic Tile Installation <Insert designation>: TCNA F141 and [**ANSI A108.1A**] [**ANSI A108.1B**] [**ANSI A108.1C**]; cement mortar bed (thickset) with cleavage membrane.
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Bond Coat for Cured-Bed Method: [**Dry-set**] [**Latex-**] portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.
3. Ceramic Tile Installation <Insert designation>: TCNA F142; organic adhesive.
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.
4. Ceramic Tile Installation <Insert designation>: TCNA F143; water-cleanable, tile-setting epoxy; epoxy grout.
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Grout: Water-cleanable epoxy grout.
5. Ceramic Tile Installation <Insert designation>: TCNA F144; [**thinset mortar**] [**water-cleanable epoxy adhesive**] on [**waterproof membrane over**] cementitious backer units or fiber-cement backer board.
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Thinset Mortar: [**Dry-set**] [**Latex-**] portland cement mortar.

- c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.
 - 6. Ceramic Tile Installation **<Insert designation>**: TCNA F150 or TCNA F160; thinset mortar on exterior-glue plywood.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Thinset Mortar: EGP (exterior glue plywood) latex-portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.
- C. Interior Radiant Heat Floor Installations, Concrete Subfloor:
- 1. Ceramic Tile Installation **<Insert designation>**: TCNA RH110; thinset mortar [**on crack isolation membrane**]; hydronic piping installed in concrete.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Thinset Mortar: Latex-portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.
 - 2. Ceramic Tile Installation **<Insert designation>**: TCNA RH117 and [**ANSI A108.1A**] [**ANSI A108.1B**] [**ANSI A108.1C**]; cement mortar bed (thickset) with hydronic piping installed in mortar bed.
 - a. Ceramic Tile Type: **<Insert stone tile-type designation>**.
 - b. Bond Coat for Cured-Bed Method: [**Latex-portland cement mortar**] [**Medium-bed, latex-portland cement mortar**].
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.
 - 3. Ceramic Tile Installation **<Insert designation>**: TCNA RH112; thinset mortar [**on crack isolation membrane**]; hydronic piping encapsulated in cementitious self-leveling underlayment.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Cementitious Self-Leveling Underlayment: Specified in Section 035416 "Hydraulic Cement Underlayment."
 - c. Thinset Mortar: Latex-portland cement mortar.
 - d. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.
 - 4. Ceramic Tile Installation **<Insert designation>**: TCNA RH115; thinset mortar; electric radiant system encapsulated in thinset mortar.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.

- b. Thinset Mortar: Latex-portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.
5. Ceramic Tile Installation <**Insert designation**>: TCNA RH116; thinset mortar [**on crack isolation membrane**]; electric radiant system encapsulated in cementitious self-leveling underlayment.
- a. Ceramic Tile Type: <**Insert tile-type designation**>.
 - b. Cementitious Self-Leveling Underlayment: Specified in Section 035416 "Hydraulic Cement Underlayment."
 - c. Thinset Mortar: Latex-portland cement mortar.
 - d. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.
- D. Interior Radiant Heat Floor Installations, Wood Subfloor:
1. Ceramic Tile Installation <**Insert designation**>: TCNA RH123; thinset mortar[**on crack isolation membrane**]; hydronic piping encapsulated in cementitious self-leveling underlayment.
- a. Ceramic Tile Type: <**Insert tile-type designation**>.
 - b. Cementitious Self-Leveling Underlayment: Specified in Section 035416 "Hydraulic Cement Underlayment."
 - c. Thinset Mortar: Latex-portland cement mortar.
 - d. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.
2. Ceramic Tile Installation <**Insert designation**>: TCNA RH130; thinset mortar on exterior-glue plywood; electric radiant system encapsulated in thinset mortar.
- a. Ceramic Tile Type: <**Insert tile-type designation**>.
 - b. Thinset Mortar: EGP (exterior glue plywood) latex-portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.
3. Ceramic Tile Installation <**Insert designation**>: TCNA RH135; thinset mortar on cementitious backer units or fiber-cement backer board; electric radiant system encapsulated in thinset mortar.
- a. Ceramic Tile Type: <**Insert tile-type designation**>.
 - b. Thinset Mortar: Latex-portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

4. Ceramic Tile Installation <Insert designation>: TCNA RH140; thinset mortar[**on crack isolation membrane**]; electric radiant system encapsulated in cementitious self-leveling underlayment.
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Cementitious Self-Leveling Underlayment: Specified in Section 035416 "Hydraulic Cement Underlayment."
 - c. Thinset Mortar: Latex-portland cement mortar.
 - d. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

5. Ceramic Tile Installation <Insert designation>: TCNA RH141 and [**ANSI A108.1A**] [**ANSI A108.1B**] [**ANSI A108.1C**]; cement mortar bed (thickset) with hydronic piping installed in mortar bed.
 - a. Ceramic Tile Type: <Insert stone tile-type designation>.
 - b. Bond Coat for Cured-Bed Method: [**Latex-portland cement**] [**Medium-bed, latex-portland cement**] mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

- E. Interior Wall Installations, Masonry or Concrete:
 1. Ceramic Tile Installation <Insert designation>: TCNA W202; thinset mortar.
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Thinset Mortar: [**Dry-set**] [**Latex-**] portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

 2. Ceramic Tile Installation <Insert designation>: TCNA W211 and [**ANSI A108.1A**] [**ANSI A108.1B**] [**ANSI A108.1C**]; cement mortar bed (thickset) bonded to substrate.
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Bond Coat for Wet-Set Method: [**Dry-set**] [**Latex-**] portland cement mortar.
 - c. Bond Coat for Cured-Bed Method: [**Dry-set**] [**Latex-**] portland cement mortar.
 - d. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

 3. Ceramic Tile Installation <Insert designation>: TCNA W221 and [**ANSI A108.1A**] [**ANSI A108.1B**] [**ANSI A108.1C**], cement mortar bed (thickset) on metal lath [**over cleavage membrane**] [**over waterproof membrane**].
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Bond Coat for Wet-Set Method: [**Dry-set**] [**Latex-**] portland cement mortar.

- c. Bond Coat for Cured-Bed Method: **[Dry-set] [Latex-]** portland cement mortar.
 - d. Grout: **[Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [High-performance sanded] [High-performance unsanded] [Water-cleanable epoxy]** grout.
4. Ceramic Tile Installation **<Insert designation>**: TCNA W222 and **[ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C]**; one-coat cement mortar bed (thickset) on metal lath **[over cleavage membrane] [over waterproof membrane]**.
- a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Bond Coat for Wet-Set Method: **[Dry-set] [Latex-]** portland cement mortar.
 - c. Bond Coat for Cured-Bed Method: **[Dry-set] [Latex-]** portland cement mortar.
 - d. Grout: **[Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [High-performance sanded] [High-performance unsanded]** grout.
5. Ceramic Tile Installation **<Insert designation>**: TCNA W223; organic adhesive.
- a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Grout: **[Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [High-performance sanded] [High-performance unsanded]** grout.

F. Interior Wall Installations, Wood or Metal Studs or Furring:

1. Ceramic Tile Installation **<Insert designation>**: TCNA W221 and **[ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C]**; cement mortar bed (thickset) **[over cleavage membrane] [over waterproof membrane]** on solid backing.
- a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Bond Coat for Wet-Set Method: **[Dry-set] [Latex-]** portland cement mortar.
 - c. Bond Coat for Cured-Bed Method: **[Dry-set] [Latex-]** portland cement mortar.
 - d. Grout: **[Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [High-performance sanded] [High-performance unsanded] [Water-cleanable epoxy]** grout.
2. Ceramic Tile Installation **<Insert designation>**: TCNA W222 and **[ANSI A108.1A] [ANSI A108.1B] [ANSI A108.1C]**; one-coat cement mortar bed (thickset) **[over cleavage membrane] [over waterproof membrane]** on solid backing.
- a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Bond Coat for Wet-Set Method: **[Dry-set] [Latex-]** portland cement mortar.
 - c. Bond Coat for Cured-Bed Method: **[Dry-set] [Latex-]** portland cement mortar.

- d. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.
3. Ceramic Tile Installation <Insert designation>: TCNA W223; organic adhesive on solid backing.
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.
 4. Ceramic Tile Installation <Insert designation>: TCNA W231/W241 and [**ANSI A108.1A**] [**ANSI A108.1B**] [**ANSI A108.1C**]; cement mortar bed (thickset).
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Bond Coat for Wet-Set Method: [**Dry-set**] [**Latex-**] portland cement mortar.
 - c. Bond Coat for Cured-Bed Method: [**Dry-set**] [**Latex-**] portland cement mortar.
 - d. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.
 5. Ceramic Tile Installation <Insert designation>: TCNA W242; organic adhesive on gypsum board.
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.
 6. Ceramic Tile Installation <Insert designation>: TCNA W243; thinset mortar on gypsum board.
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Thinset Mortar: [**Dry-set**] [**Latex-**] portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.
 7. Ceramic Tile Installation <Insert designation>: TCNA W244C or TCNA W244F; thinset mortar on cementitious backer units or fiber-cement backer board[**over vapor-retarder membrane**].
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Thinset Mortar: [**Dry-set**] [**Latex-**] portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

8. Ceramic Tile Installation **<Insert designation>**: TCNA W245 or TCNA W248; thinset mortar on glass-mat, water-resistant gypsum backer board.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Thinset Mortar: **[Dry-set]** **[Latex-]** portland cement mortar.
 - c. Grout: **[Sand-portland cement]** **[Standard sanded cement]** **[Standard unsanded cement]** **[High-performance sanded]** **[High-performance unsanded]** **[Water-cleanable epoxy]** grout.

- G. Bathtub Wall Installations with No Shower Head, Wood or Metal Studs or Furring:
 1. Ceramic Tile Installation **<Insert designation>**: TCNA B413; **[thinset mortar]** **[organic adhesive]** on water-resistant gypsum board.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Thinset Mortar: **[Dry-set]** **[Latex-]** portland cement mortar.
 - c. Grout: **[Sand-portland cement]** **[Standard sanded cement]** **[Standard unsanded cement]** **[High-performance sanded]** **[High-performance unsanded]** grout.

- H. Bathtub/Shower Wall Installations, Wood or Metal Studs or Furring:
 1. Ceramic Tile Installation **<Insert designation>**: TCNA B411 and **[ANSI A108.1A]** **[ANSI A108.1B]** **[ANSI A108.1C]**; cement mortar bed (thickset) over vapor-retarder membrane.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Bond Coat for Wet-Set Method: **[Dry-set]** **[Latex-]** portland cement mortar.
 - c. Bond Coat for Cured-Bed Method: **[Dry-set]** **[Latex-]** portland cement mortar.
 - d. Grout: **[Sand-portland cement]** **[Standard sanded cement]** **[Standard unsanded cement]** **[High-performance sanded]** **[High-performance unsanded]** grout.
 2. Ceramic Tile Installation **<Insert designation>**: TCNA B412; **[thinset mortar]** **[organic adhesive]** **[water-cleanable, tile-setting epoxy]** on cementitious backer units or fiber-cement backer board.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Thinset Mortar: **[Dry-set]** **[Latex-]** portland cement mortar.
 - c. Grout: **[Sand-portland cement]** **[Standard sanded cement]** **[Standard unsanded cement]** **[High-performance sanded]** **[High-performance unsanded]** **[Water-cleanable epoxy]** grout.
 3. Ceramic Tile Installation **<Insert designation>**: TCNA B419; thinset mortar on coated glass-mat, water-resistant gypsum backer board.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Thinset Mortar: Latex-portland cement mortar.

- c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

I. Shower Receptor and Wall Installations:

1. Ceramic Tile Installation <Insert designation>: TCNA B414 and [**ANSI A108.1A**] [**ANSI A108.1B**] [**ANSI A108.1C**]; cement mortar bed (thickset) over vapor-retarder membrane.
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Bond Coat for Wet-Set Method: [**Dry-set**] [**Latex-**] portland cement mortar.
 - c. Bond Coat for Cured-Bed Method: [**Dry-set**] [**Latex-**] portland cement mortar.
 - d. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

2. Ceramic Tile Installation <Insert designation>: TCNA B415; [**thinset mortar**] [**organic adhesive**] [**water-cleanable, tile-setting epoxy**] on [**waterproof membrane over cementitious backer units or fiber-cement backer board**] [**cementitious backer units or fiber-cement backer board over vapor-retarder membrane**].
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Thinset Mortar: [**Dry-set**] [**Latex-**] portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

3. Ceramic Tile Installation <Insert designation>: TCNA B420; thinset mortar on [**waterproof membrane over coated glass-mat, water-resistant gypsum backer board**] [**coated glass-mat, water-resistant gypsum backer board over vapor-retarder membrane**].
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Thinset Mortar: Latex-portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

4. Ceramic Tile Installation <Insert designation>: TCNA B421; thinset mortar on waterproof membrane over solid backing.
 - a. Ceramic Tile Type: <Insert tile-type designation>.
 - b. Thinset Mortar: Latex-portland cement mortar.
 - c. Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

5. Ceramic Tile Installation **<Insert designation>**: TCNA B422; thinset mortar on waterproof membrane with integrated bonding flange for bonded membranes.
 - a. Ceramic Tile Type: **<Insert tile-type designation>**.
 - b. Thinset Mortar: **[Dry-set] [Latex-]** portland cement mortar.
 - c. Grout: **[Sand-portland cement] [Standard sanded cement] [Standard unsanded cement] [High-performance sanded] [High-performance unsanded]** grout.

END OF SECTION 093013