SECTION 09 30 00 - TILING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Ceramic mosaic tile.
2. Quarry tile.
3. Paver tile.
4. Glazed wall tile.
5. Stone thresholds installed as part of tile installations.
6. Waterproof membrane for thin-set tile installations.
7. Crack-suppression membrane for thin-set tile installations.
8. Metal edge strips installed as part of tile installations.

1.2 SUBMITTALS

A. Product Data: For each product indicated.

B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints.

C. Samples:

1. Each type, composition, color, and finish of tile.
2. Assembled samples with grouted joints for each type, composition, color, and finish of tile.
3. Stone thresholds in 6-inch lengths.

D. LEED Submittals:

1. Credit EQ 4.1: Manufacturers' product data for adhesives and sealants, including printed statement of VOC content.

1.3 QUALITY ASSURANCE

A. Mockups: Build mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of 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.

1.4 Quality Standard: current version of Tile Council of North America "Handbook for Ceramic Tile Installation".

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
   1. Products: Subject to compliance with requirements, provide one of the products specified.
   2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 TILE PRODUCTS

A. Manufacturers:
   1. American Olean; Div. of Dal-Tile International Corp.
   2. Daltile; Div. of Dal-Tile International Inc.
   3. Summitville Tiles, Inc.
   4. United States Ceramic Tile Company.

B. ANSI Ceramic Tile Standard: Provide Standard grade tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.

C. Unglazed Ceramic Mosaic Tile: Factory-mounted flat tile as follows:

   1. Composition: Impervious natural clay or porcelain.
   2. Surface: [**Smooth, without**] [**Slip-resistant, with**] abrasive admixture.
   3. Module Size: [**1 by 1 inch**] [**1 by 2 inches**] [**2 by 2 inches**].
   4. Nominal Thickness: 1/4 inch.
   5. Face: [**Plain**] with cushion edges.

D. Glazed Ceramic Mosaic Tile: Factory-mounted flat tile as follows:

   1. Composition: Porcelain.
   2. Module Size: [**1 by 1 inch**] [**1 by 2 inches**] [**2 by 2 inches**].
   3. Thickness: 1/4 inch.
   4. Face: Plain with cushion edges.
   5. Finish: [**Bright, opaque**] [**Mat, opaque**] [**Semimat, opaque**] [**Crystalline**] <**Insert description**> glaze.

E. Unglazed Quarry Tile: Square-edged flat tile as follows:

   1. Wearing Surface: abrasive with aggregate embedded in the surface
   2. Facial Dimensions: [**6 by 6 inches**] [**7-5/8 by 7-5/8 inches**].
   3. Thickness: [**3/8 inch**] [**1/2 inch**].
   4. Face: Plain.

F. Glazed Wall Tile: Flat tile as follows:

1. Module Size: [**4-1/4 by 4-1/4 inches**].
2. Thickness: 5/16 inch.
3. Face: Plain with modified square edges or cushion edges.
4. Finish: [**Bright, opaque**] [**Mat, opaque**] [**Semimat, opaque**] glaze.
5. Mounting: Factory back-mounted.

G. Glazed Wall Tile Trim Units: Matching characteristics of adjoining flat tile and coordinated with sizes and coursing where applicable.

1. Base: Coved, module size [**4-1/4 by 4-1/4 inches**] [**6 by 6 inches**].
2. Wainscot Cap: Bullnose, module size [**4-1/4 by 4-1/4 inches**] [**6 by 6 inches**] [**6 by 2 inches**].
3. External Corners: Surface bullnose.
4. Internal Corners: Field-butted square corners except with coved base and cap angle pieces designed to fit with stretcher shapes.

H. Ceramic Mosaic Trim Units: Matching characteristics of adjoining flat tile and coordinated with sizes and coursing where applicable.

1. Base Cove: Cove, module size [1 by 1 inch], [2 by 1 inch].
2. Wainscot Cap: Surface bullnose, module size [**1 by 1 inch**] [**2 by 1 inch**] [**2 by 2 inches**].
3. External Corners: Surface bullnose, module size [**1 by 1 inch**] [**2 by 1 inch**].
4. Internal Corners: Cove, module size [**1 by 1 inch**] [**2 by 1 inch**].
5. 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 across nominal 4-inch dimension.

I. Quarry Tile Trim Units: Matching characteristics of adjoining flat tile and coordinated with sizes and coursing where applicable.

1. Base: Coved[**with surface bullnose top edge**], facial dimensions [**6 by 6 inches**] [**8 by 3-7/8 inches**].
2. Wainscot Cap: Surface bullnose, facial dimensions [**6 by 6 inches**] [**8 by 3-7/8 inches**].

2.3 ACCESSORY MATERIALS

A. Thresholds: Fabricate to provide transition between adjacent floor finishes. Bevel edges at 1:2 slope, limit height of bevel to 1/2 inch or less, and finish bevel to match face of threshold.

1. 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.

a. Description: Uniform, fine- to medium-grained white stone with gray veining.

B. Waterproofing and Crack-Suppression Membranes for Thin-Set Tile Installations: Manufacturer's standard product that complies with ANSI A118.10, selected from the following.

1. Chlorinated-Polyethylene-Sheet Product: Nonplasticized, chlorinated polyethylene faced on both sides with nonwoven polyester fabric, 0.030-inch nominal thickness.

    a. Product: Noble Company (The); Nobleseal TS.

    b. Or approved equal

2. Fabric-Reinforced, Fluid-Applied Product: Liquid-latex rubber, with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), with fabric reinforcement.

    a. Available Products:

        1) Custom Building Products; Trowel & Seal Waterproofing and Anti-Fracture Membrane.
        2) LATICRETE International Inc.; Laticrete 9235 Waterproof Membrane.
        3) MAPEI Corporation; PRP M19.
        4) Summitville Tiles, Inc.; S-9000.
        5) Or approved equal

3. Latex-Portland Cement Product: Flexible mortar with acrylic-latex additive.

    a. Products:

        1) Boiardi Products Corporation; Elastiment 323.
        2) MAPEI Corporation; PRP 315.
        3) Southern Grouts & Mortars, Inc.; Southcrete 1100.
        4) TEC Specialty Products Inc.; TA-324, Triple Flex.
        5) Or approved equal

2.4 SETTING AND GROUTING MATERIALS

A. Manufacturers:

1. Atlas Minerals & Chemicals, Inc.
2. Boiardi Products Corporation.
3. Bonsal, W. R., Company.
4. Bostik.
5. C-Cure.
6. Custom Building Products.
7. DAP, Inc.
8. Jamo Inc.
9. LATICRETE International Inc.
10. MAPEI Corporation.
11. Southern Grouts & Mortars, Inc.
12. Summitville Tiles, Inc.
13. TEC Specialty Products Inc.
14. or approved equal

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

1. Prepackaged dry-mortar mix combined with liquid-latex additive.
2. For wall applications, provide nonsagging mortar.

C. Chemical-Resistant, Water-Cleanable, Tile-Setting and -Grouting 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).

D. Water-Cleanable, Tile-Setting Epoxy Adhesive: 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).

E. Polymer-Modified Tile Grout: ANSI A118.7, color as indicated.

1. Polymer Type: Liquid-latex form for addition to prepackaged dry-grout mix.

F. Grout for Pregrouted Tile Sheets: Same silicone rubber used in factory to pregrout tile sheets.

2.5 MISCELLANEOUS MATERIALS

A. Elastomeric Sealants: Elastomeric sealants of base polymer and characteristics indicated that comply with applicable requirements in Division 07 Section "Joint Sealants."

1. Use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. One-Part, Mildew-Resistant Silicone: 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 in-service exposures of high humidity and extreme temperatures.

a. Products:

1) Dow Corning Corporation; Dow Corning 786.
2) GE Silicones; Sanitary 1700.
3) Pecora Corporation; Pecora 898 Sanitary Silicone Sealant.
4) Tremco, Inc.; Tremsil 600 White.
5) Or approved equal

B. Cementitious Backer Units: see Section 09 29 00

C. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials. Verify required compressive strength for conditions of installation.

1. As manufactured by same manufacturer as setting compound
2. Ardex Engineered cements
3. or approved equal

D. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints that does not change color or appearance of grout.

PART 3 - EXECUTION

3.1 PREPARATION

A. Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.

B. Fill cracks, holes, and depressions with trowelable leveling and patching compound according to tile-setting material manufacturer's written instructions.

C. Remove protrusions, bumps, and ridges by sanding or grinding.

D. Blending: For tile exhibiting color variations, use factory blended tile or blend tiles at Project site before installing.

E. Field-Applied Temporary Protective Coating: Where 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.

3.2 INSTALLATION, GENERAL

A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.

B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods indicated in ceramic tile installation schedules.

C. 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.

D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Grind cut edges of tile abutting trim, finish, or built-in items. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.

F. Lay out tile wainscots to next full tile beyond dimensions indicated.

G. Expansion Joints: Locate expansion joints and other sealant-filled joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.

   1. Locate joints in tile surfaces directly above joints in concrete substrates.

2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

H. Grout tile to comply with requirements of ANSI A108.10, unless otherwise indicated.

I. Install waterproofing to comply with ANSI A108.13 and waterproofing manufacturer's written instructions to produce waterproof membrane of uniform thickness bonded securely to substrate.

1. Do not install tile over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

J. For installations indicated below, follow procedures in ANSI A108 Series tile installation standards for providing 95 percent mortar coverage.
1. Tile floors in wet areas.
2. Tile floors composed of tiles 8 by 8 inches or larger.
3. Tile floors composed of rib-backed tiles.

K. Install tile on floors with the following joint widths:

1. Ceramic Mosaic Tile: 1/16 inch.
2. Quarry Tile: 1/4 inch.

L. Stone Thresholds: Install stone thresholds at locations indicated; set in same type of setting bed as abutting field tile, unless otherwise indicated.

1. Set thresholds in latex-portland cement mortar for locations where mortar bed would otherwise be exposed above adjacent nontile floor finish.

M. Metal Edge Strips: Install at locations indicated or where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with top of tile.

N. Install tile on walls with the following joint widths:

1. Ceramic Mosaic Tile: 1/16 inch.
2. Glazed Wall Tile: 1/16 inch.

O. Apply grout sealer to 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 that has gotten on tile faces by wiping with soft cloth.

3.3 FLOOR TILE INSTALLATION SCHEDULE

A. Exterior floor installation on concrete; cement mortar bed (thickset) bonded to concrete; TCA F101.

1. Bond Coat/Thin-Set Mortar: Latex- portland cement mortar.
2. Grout: Polymer-modified sanded grout.

B. Exterior floor installation on concrete; thin-set mortar; TCA F102.

1. Thin-Set Mortar Latex- portland cement mortar.
2. Grout: Polymer-modified sanded grout.

C. Interior floor installation on concrete; thin-set mortar; TCA F113.

1. Thin-Set Mortar: Latex- portland cement mortar.
2. Grout: Polymer-modified sanded grout.

D. Interior floor installation on concrete; water-cleanable epoxy adhesive; TCA F116.

1. Grout: polymer modified, unsanded grout.

E. Interior floor installation on waterproof crack-suppression membrane over concrete; thin-set mortar; TCA F122.

1. Thin-Set Mortar: Latex-portland cement mortar.
2. Grout: Polymer-modified unsanded grout.

3.4 WALL TILE INSTALLATION SCHEDULE

A. Exterior or interior wall installation over masonry or concrete; thin-set mortar; TCA W202.

1. Thin-Set Mortar: Latex- portland cement mortar.
2. Grout: Polymer-modified unsanded grout.

B. Interior wall installation; thin-set mortar; over cementitious backer units; TCA W244.

1. Thin-Set Mortar: Latex- portland cement mortar.
2. Grout: Polymer-modified unsanded grout.

C. Interior bathtub wall installation; thin-set mortar; over cementitious backer units; TCA B412.

1. Thin-Set Mortar: Latex- portland cement mortar.
2. Grout: Polymer-modified unsanded grout.

D. Interior wall and shower-receptor installation; thin-set mortar; over cementitious backer units; TCA B415 and TCA W244.

1. Thin-Set Mortar: Latex- portland cement mortar.
2. Grout: Polymer-modified unsanded grout.

END OF SECTION 09 30 00