

SECTION 09310 - TILE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Porcelain tile.
 - 2. Decorative Tiles
 - 3. Underlayment.
 - 4. Metal Edge Strips.

1.2 DEFINITIONS

- A. Module Size: Actual tile size (minor facial dimension as measured per ASTM C 499) plus joint width indicated.
- B. Facial Dimension: Actual tile size (minor facial dimension as measured per ASTM C 499).
- C. Facial Dimension: Nominal tile size as defined in ANSI A137.1.

1.3 PERFORMANCE REQUIREMENTS

- A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the values indicated as determined by testing identical products per ASTM C 1028.

1.4 SUBMITTALS

- A. Product Data: For each type of tile, mortar, grout, and other products specified.
- B. Shop Drawings: For the following:
 - 1. Widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
- C. Tile Samples for Selection: Manufacturer's color charts consisting of actual tiles or sections of tiles showing the full range of colors, textures, and patterns available for each type and composition of tile indicated. Include Samples of accessories involving color selection.
- D. Grout Samples for Selection: Manufacturer's color charts consisting of actual sections of grout showing the full range of colors available for each type of grout indicated.
- E. Samples of Accessories: Of each item listed below, prepared on Samples of size and construction indicated. Where products involve normal color and texture variations, include Sample sets showing the full range of variations expected.
 - 1. Metal edge strips in 6-inch (150-mm) lengths.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has completed tile installations similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Source Limitations for Tile: Obtain each color, grade, finish, type, composition, and variety of tile from one source with resources to provide products from the same production run for each contiguous area of consistent quality in appearance and physical properties without delaying the Work.
- C. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement of ANSI A137.1 for labeling sealed tile packages.
- B. Store tile and Cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Store liquid latexes and emulsion adhesives in unopened containers and protected from freezing.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install tile until construction in spaces is completed and ambient temperature and humidity conditions are being maintained to comply with referenced standards and manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers and Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, those indicated in the following paragraphs of Part 2.

2.2 PRODUCTS, GENERAL

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

1. Provide tile complying with Standard Grade requirements, unless otherwise indicated.
 2. For facial dimensions of tile, comply with requirements relating to tile sizes specified in Part 1 "Definitions" Article.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI standards referenced in "Setting Materials" and "Grouting Materials" articles.
- C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:
1. As selected by Architect from manufacturer's full range.
- D. Factory Blending: For tile exhibiting color variations within the ranges selected during Sample submittals, blend tile in the factory and package so tile units taken from one package show the same range in colors as those taken from other packages and match approved Samples.
- E. Mounting: Where factory-mounted tile is required, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless another mounting method is indicated.
1. Where tile is indicated for installation in swimming pools, on exteriors, or in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for these kinds of installations and has a record of successful in-service performance.

2.3 TILE PRODUCTS

- A. Porcelain Tile: T1, T4 Provide flat tile complying with the following requirements:
1. Composition: Porcelain.
 2. Facial Dimensions: 12 by 12 and 18 by 18.
 3. Thickness: 1/4-inch.
 4. Face: Plain with cushion edges.
 5. Static Coefficient of Friction: Level Surfaces, minimum 0.6.
 6. Tile Type/Products: Available products include the following:
 - a. Daltile, Glazed porcelain, Aspen Lodge.
 - b. Colors: As indicated in the Interior Finish Legend.
 7. Provide tile base & trim – refer to finish legend.
- B. Decorative Tile: T2 Provide tile complying with the following requirements:
1. Composition: Mosaic field tile
 2. Facial dimensions: 11 3/4" x 12 1/2".
 3. Tile products: Available products include the following:
 - a. Daltile, Stone radiance.
 - b. Finishes: As indicated in the Interior Finish Legend.
 - c. Colors: As indicated in the Interior Finish Legend.
- C. Decorative Tile T3: Provide tile complying with the following requirements:
1. Composition: Through body porcelain
 2. Facial Dimensions: 12" x 24".
 3. Tile Products:

- a. Marazzi, Percorsi bianco mesh mounted mosaic
- b. Finishes: as indicated on finish legend
- c. Colors: as indicated on finish legend.

2.4 SETTING MATERIALS

- A. Proma Prosuperlite Mortar: ANSI A118.4, composed as follows:
 1. Prepackaged dry-mortar mix.
 - a. For wall applications, provide nonsagging mortar that complies with Paragraph F-4.6.1 in addition to the other requirements in ANSI A118.4.

2.5 GROUTING MATERIALS

- A. Polymer-Modified Tile Grout: ANSI A118.7, color as indicated.
 1. Polymer Type: Acrylic resin in liquid-latex form for addition to prepackaged dry-grout mix.
 - a. Unsanded grout mixture for joints **1/8-nch (3.2 mm)** and narrower.

2.6 ELASTOMERIC SEALANTS

- A. General: Provide manufacturer's standard sanded acrylic caulking containing a mildew-cide or antimicrobial protection.
- B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints, unless otherwise indicated.
- C. Products: Available products include the following:
 1. Keracaulk™ S by Mapei
 2. CeramaSeal by Bostik Findley

2.7 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: Aluminum strips, **1/8-nch (3.2 mm)** wide at top edge with integral provision for anchorage to mortar bed or substrate, unless otherwise indicated.
 1. Provide Schiene by Schluter or approved substitute.
- C. Crack Suppression for Thin Set Tile:
 1. Sheet or trowelable membrane designed to bridge small cracks for tile setting applications. Provide one of the following products:
 - a. Laticrete 9235 Waterproof & Anti-Fracture Membrane
 - b. Nobleseal CIS
 - c. Hydroment Ultra-Set

d. Mapei PRP M19

D. Metal edge trim: Schluter rondec to be used at wall tile applications

2.8 MIXING MORTARS AND GROUT

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

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
 - 1. Verify that substrates for setting tile are firm; dry; clean; free from oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 series of tile installation standards for installations indicated.
 - 2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
 - 3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust latter in consultation with Architect.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove coatings, including curing compounds, and other substances that contain soap, wax, oil, or silicone and are incompatible with tile-setting materials by using a terrazzo or concrete grinder, a drum sander, or a polishing machine equipped with a heavy-duty wire brush.
- B. Use trowelable leveling and patching compounds per tile-setting material manufacturer's written instructions to fill minor cracks.
- C. Blending: For tile exhibiting color variations within the ranges selected during Sample submittals, verify that tile has been blended in the factory and packaged so tile units taken from one package show the same range in colors as those taken from other packages and match

approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

- D. Cracks and Control Joints for Thin-Set Tile:
 - 1. Install crack suppression materials a minimum of 12-inches wide over cracks and control joints. Install in accordance with manufacturer's instructions.

3.3 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 series of tile installation standards in "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 a 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. 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.
- E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are the 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.
 - 1. For tile mounted in sheets, make joints between tile sheets the same width as joints within tile sheets so joints between sheets are not apparent in finished work.
- F. Grout tile to comply with the requirements of the following tile installation standards:
 - 1. For ceramic tile grouts (sand-Portland cement, commercial Portland cement, and latex-Portland cement grouts), comply with ANSI A108.10.
 - 2. For chemical-resistant epoxy grouts, comply with ANSI A108.6.
 - 3. For chemical-resistant furan grouts, comply with ANSI A108.8.
- G. Joint Sealants: Install sealant in floor tile joint directly above control joints and crack suppression material. Install sealant in tile joint at perimeter edges of floor tile and tile base or dissimilar base materials.

3.4 FLOOR TILE INSTALLATION

- A. General: Install tile to comply with requirements in the Ceramic Tile Floor Installation Schedule, including those referencing TCA installation methods and ANSI A108 series of tile installation standards.

- B. Joint Widths: Install tile on floors with the following joint widths:
 - 1. Porcelain Tile: **1/16-nch.**
- C. 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.

3.5 WALL TRIM INSTALLATION

- A. Install types of tile designated for wall installations to comply with requirements in the Ceramic Tile Wall Installation Schedule, including those referencing TCA installation methods and ANSI setting-bed standards.
- B. Joint Widths: Install tile on walls with the following joint widths:
 - 1. Wall Trim: **1/16-nch.**

3.6 CLEANING AND PROTECTING

- A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Remove epoxy and latex-Portland cement grout residue from tile as soon as possible.
 - 2. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Protect metal surfaces, cast iron, and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.
- B. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.
- C. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure tile is without damage or deterioration at the time of Substantial Completion.
 - 1. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with carpet pad or other heavy covering during construction period to prevent staining, damage, and wear.
 - 2. Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed.
- D. Before final inspection, rinse neutral cleaner from tile surfaces.

3.7 TILE FLOOR INSTALLATION SCHEDULE

- A. Tile Floor Installation: Where interior floor installations of this designation are indicated, comply with the following:
 - 1. Tile Type: Porcelain tile.
 - 2. Installation Method: TCA F113 (thin-set mortar bonded to concrete subfloor).
 - 3. Setting Bed and Grout: ANSI A108.5 with the following mortar and grout:
 - a. Latex-Portland cement mortar.

- b. Unsanded polymer-modified tile grout.
- B. Tile Floor Installation: Where interior floor installations of this designation are indicated, comply with the following:
- 1. Tile Type: Porcelain tile.
 - 2. Installation Method: TCA F150/160 (thin-set mortar on exterior-glue plywood).
 - 3. Setting Bed and Grout: ANSI A108.5 with the following mortar and grout:
 - a. EGP latex-Portland cement mortar.
 - b. Unsanded polymer-modified tile grout.

3.8 TILE WALL INSTALLATION SCHEDULE

- A. Wall Trim Installations: Where interior wall installations of this designation are indicated, comply with the following:
- 1. Tile Type: Porcelain and mosaic trim.
 - 2. Installation Method: TCA W243 (thin-set mortar bonded to gypsum board on metal studs).
 - 3. Setting Bed and Grout: ANSI A108.5 with the following mortar and grout:
 - a. Prisma pro superlite mortar.
 - b. Unsanded polymer-modified tile grout.

END OF SECTION 09310