

SECTION 09300 – TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Tile for floor application.
 - 2. Tile for wall application
 - 3. Accessories
 - 4. Stone thresholds.
- B. Related Sections: The following sections contain requirements that relate to this Section:
 - 1. Division 3 Section "Concrete Work" for monolithic slab finishes specified for tile substrates.
 - 2. Division 4 Section "Unit Masonry" for concrete masonry units specified for tile substrates.
 - 3. Division 7 Section "Joint Sealers" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified.
- C. Samples for initial selection purposes in form of manufacturer's color charts consisting of actual tiles or sections of tile showing full range of colors, textures, and patterns available for each type and composition of tile indicated. Include samples of grout and accessories involving color selection.

1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility for Tile: Obtain each color, grade, finish, type, composition, and variety of tile from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- B. Single-Source Responsibility for Setting and Grouting Materials: Obtain ingredients of a uniform quality from one manufacturer for each cementitious and admixture component and from one source or producer for each aggregate.
- C. Installer Qualifications: Engage an experienced Installer who has successfully completed tile

installations similar in material, design, and extent to that indicated for Project.

1.5 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. Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.
- C. Handle tile with temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If despite these precautions coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

1.6 PROJECT CONDITIONS

- A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
- B. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.
- C. Maintain temperatures at 50 deg F (10 deg C) or more in tiled areas during installation and for 7 days after completion, unless higher temperatures are required by referenced installation standard or manufacturer's instructions.

1.7 EXTRA MATERIALS

- A. Deliver extra materials to Owner. Furnish extra materials that match products installed as described below, packaged with protective covering for storage and identified with labels clearly 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.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
 - 1. Floor Tile:
 - a. American Olean Tile Co., Inc.
 - b. Ceramic Technics: Phone: 770-740-0050
 - c. Mid-State Tile Co.
 - d. Monarch Tile Manufacturing, Inc.

2. Wall Tile:
 - a. American Olean Tile Co., Inc.
 - b. Mid-State Tile Co.
 - c. Monarch Tile Manufacturing, Inc.
3. Dry-Set Mortars and Grouts:
 - a. American Olean Tile Co., Inc.
 - b. DAP Inc. Div.; USG Corp.
 - c. Laticrete International Inc.
4. Latex-Emulsion-Based Latex-Portland Cement Mortars:
 - a. American Olean Tile Co., Inc.
 - b. DAP Inc. Div.; USG Corp.
 - c. Laticrete International Inc.
5. Organic Adhesives, Type I:
 - a. American Olean Tile Co., Inc.
 - b. DAP Inc. Div.; USG Corp.
 - c. Laticrete International Inc.
6. Commercial Portland Cement Grouts:
 - a. American Olean Tile Co., Inc.
 - b. Southern Grouts & Mortars, Inc.
7. Acrylic Emulsions for Latex-Portland Cement Grouts:
 - a. American Olean Tile Co., Inc.
 - b. DAP Inc. Div.; USG Corp.
 - c. Laticrete International Inc.

2.2 PRODUCTS, GENERAL

- A. ANSI Standard for Ceramic Tile: Comply with ANSI A137.1 "American National Standard Specifications for Ceramic Tile" for types, compositions, and grades of tile indicated.
 1. Furnish tile complying with "Standard Grade" requirements unless otherwise indicated.
- B. ANSI Standard for Tile Installation Materials: Comply with ANSI standard referenced with products and materials indicated for setting and grouting.
- 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. Provide selections made by Architect from manufacturer's full range of standard colors, textures, and patterns for products of type indicated.
 2. Provide tile trim and accessories that match color and finish of adjoining flat tile.
- D. Factory Blending: For tile exhibiting color variations within the ranges selected during sample submittals, blend tile in factory and package accordingly so that 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 that this type of mounting is suitable for these kinds of uses and has been successfully used on other projects.

2.3 TILE PRODUCTS

- A. Floor Tile: Provide factory-mounted flat tile complying with the following requirements and be approved by Architect/Owner:
1. 18" x 18" Porcelain tile for public areas as approved by Architect/Owner.
 2. 12" x 12" Ceramic tile for corridors, classrooms, toilets and others as per Finish Schedule as approved by Architect/Owner.
 3. Border and Accent tile to be approved by Architect/Owner.
 4. Face: Plain with cushion edges.
- B. Wall Tile: Provide flat tile in the walls of the swimming pool area complying with the following requirements:
1. Nominal Facial Dimensions: 6 inches by 6 inches or 12 inches by 12 inches as approved by Architect
 2. Nominal Thickness: 5/16 inch.
 3. Face: Plain with cushion edge.
- C. Trim Units: Provide tile trim units to match characteristics of adjoining flat tile and to comply with following requirements:
1. Size: As indicated, coordinated with sizes and coursing of adjoining flat tile where applicable.
 2. Shapes: As follows, selected from manufacturer's standard shapes:
 - a. Base for Portland Cement Mortar Installations: Coved.
 - b. Base for Thinset Mortar Installations: Coved.
 - c. External Corners for Portland Cement Mortar Installations: Bullnose shape with a radius of at least 3/4 inch unless otherwise indicated.
 - d. External Corners and Wainscot Cap for Thinset Installations: Surface bullnose.

- e. Internal Corners: Field-buttet square corners, except use coved base and cap angle pieces designed to member with stretcher shapes.

2.4 STONE THRESHOLDS

- A. General: Provide stone that is uniform in color and finish, fabricated to sizes and profiles indicated or required to provide transition between tile surfaces and adjoining finished floor surfaces.

2.5 SETTING MATERIALS

- A. Portland Cement Mortar Installation Materials: Provide materials complying with ANSI A108.1 and as specified below.
 - 1. Reinforcing Wire Fabric: Galvanized welded wire fabric, 2 inches by 2 inches - WO.3 by WO.3 (16 ASW gage or 0.0625 inch diameter); comply with ASTM A 185 and ASTM A 82 except for minimum wire size.
- B. Dry-Set Portland Cement Mortar: ANSI A118.1.
- C. Latex-Portland Cement Mortar: ANSI A118.4, composition as follows:
 - 1. Prepackaged dry mortar mix composed of portland cement, graded aggregate, and the following dry polymer additive in the form of a reemulsifiable powder to which only water is added at job site.
 - f. Dry Polymer Additive: Manufacturer's standard.
 - 2. Latex additive (water emulsion) of type described below, serving as replacement for part or all of gauging water, combined at job site with prepackaged dry mortar mix supplied or specified by latex additive manufacturer.
 - a. Latex Type: Manufacturer's standard.

2.6 GROUTING MATERIALS

- A. Dry-Set Grout: ANSI A118.6, color as indicated.
- B. Latex-Portland Cement Grout: ANSI A118.6, color as indicated, composition as follows:
 - 1. Prepackaged dry grout mix composed of portland cement, graded aggregate, and the following dry polymer additive in the form of a reemulsifiable powder to which only water is added at job site.
 - a. Dry Polymer Additive: Manufacturer's Standard.
 - 2. Latex additive (water emulsion) serving as replacement for part or all of gauging water, added at job site with dry grout mixture, with type of latex and dry grout mix as follows:
 - a. Latex Type: Manufacturer's standard.
 - b. Dry Grout Mixture: Commercial portland cement specified or supplied by latex additive manufacturer.

- 1) Application: Use dry-set grout combined with latex additive for grouting joints in floor tile unless otherwise indicated.

2.7 ELASTOMERIC SEALANTS

- A. General: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that comply with requirements of Division 7 Section "Joint Sealers," including ASTM C 920 as referenced by Type, Grade, Class, and Uses.

2.8 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with requirements of referenced standards and manufacturers including those for accurate proportioning of materials, water, or additive content; type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortars and grouts of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and areas 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, and free from oil or waxy films and curing compounds.
 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.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standard: Comply with parts of ANSI 108 series of tile installation standards included under "American National Standard Specifications for the Installation of Ceramic Tile" that apply to type of setting and grouting materials and methods indicated.
- B. TCA Installation Guidelines: TCA "Handbook for Ceramic Tile Installation"; comply with TCA installation methods indicated.
- C. Extend tile work into recesses and under or behind equipment and fixtures to form a complete covering without interruptions except as otherwise shown. 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 that plates, collars, or covers overlap tile.

- E. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. 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 shown.
 - 1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so that extent of each sheet is not apparent in finished work.
- F. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw cut joints after installation of tiles.
 - 1. Locate joints in tile surfaces directly above joints in concrete substrates.
- G. Grout tile to comply with the requirements of the following installation standards:
 - 1. For ceramic tile grouts (sand-portland cement, dry-set, commercial portland cement, and latex-portland cement grouts), comply with ANSI A108.10.

3.3 FLOOR INSTALLATION METHODS

- A. Ceramic Mosaic Tile: Install tile to comply with requirements indicated below for setting bed methods, TCA installation methods related to types of subfloor construction, and grout types:
 - 1. Portland Cement Mortar: ANSI A108.1
 - a. Bond Coat: Portland cement paste or dust coat on plastic bed or the following thin-set mortar on cured bed, ANSI A108.5, at Contractor's option:
 - 1) Latex-portland cement mortar.
 - b. Concrete Subfloors, Interior, Waterproof Membrane: TCA F121 - showers only.
 - c. Grout: Latex-portland cement.
 - 2. Latex-Portland Cement Mortar: ANSI A108.5.
 - 3. Dry-Set Portland Cement Mortar: ANSI A108.5.
 - a. Concrete Subfloors, Interior: TCA F113.
 - b. Grout: Latex-portland cement.
- B. 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.

3.4 WALL TILE INSTALLATION METHODS

- A. Install types of tile designated for wall application to comply with requirements indicated below

for setting-bed methods, TCA installation methods related to subsurface
wall conditions, and grout types:

1. Latex-Portland Cement Mortar: ANSI A108.5.
2. Dry-Set Portland Cement Mortar: ANSI A108.5.
 - a. Masonry, Interior: TCA W202.
 - b. Grout: Latex-portland cement.

3.5 CLEANING AND PROTECTION

- A. Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 1. Remove 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 printed instructions, but no sooner than 14 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 ensures that tile is without damage or deterioration at 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 kraft paper 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, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION 09300