

SECTION 093013
CERAMIC TILING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Ceramic tile.
 - 2. Porcelain tile.

- B. Related Requirements:

- 1. Section 079200 "Joint Sealants" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.

1.3 DEFINITIONS

- A. General: Definitions in the ANSI A108 series of tile installation standards and in ANSI A137.1 apply to Work of this Section unless otherwise specified.
- B. ANSI A108 Series: ANSI A108.01, ANSI A108.02, ANSI A108.1A, ANSI A108.1B, ANSI A108.1C, ANSI A108.4, ANSI A108.5, ANSI A108.6, ANSI A108.8, ANSI A108.9, ANSI A108.10, ANSI A108.11, ANSI A108.12, ANSI A108.13, ANSI A108.14, ANSI A108.15, ANSI A108.16, and ANSI A108.17, which are contained in its "Specifications for Installation of Ceramic Tile."
- C. Module Size: Actual tile size plus joint width indicated.
- D. Face Size: Actual tile size, excluding spacer lugs.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review requirements in ANSI A108.01 for substrates and for preparation by other trades.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Green Code Compliance Submittal (GCCS):
 - 1. For sealants, including printed statement of VOC content.
- C. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
- D. Samples for Initial Selection: For tile, grout, and accessories involving color selection.
- E. Samples for Verification:
 - 1. Full-size units of each type and composition of tile and for each color and finish required.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile manufacturer and Installer.
- C. Product Certificates: For each type of product.
- D. Product Test Reports: For tile-setting and -grouting products and certified porcelain tile.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.
 - 2. Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated.

1.8 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.

1.9 DELIVERY, STORAGE, AND HANDLING

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

1.10 FIELD CONDITIONS

- A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations for Tile: Obtain tile of each type and color or finish from single source or producer.
 1. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.
- B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from single manufacturer and each aggregate from single source or producer.
 1. Obtain setting and grouting materials, except for unmodified Portland cement and aggregate, from single manufacturer.

2.2 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.
 1. Provide tile complying with Standard grade requirements unless otherwise indicated.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced

by TCNA installation methods specified in tile installation schedules, and other requirements specified.

- C. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

Mounting: Do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation in wet areas and has a record of successful in-service performance.

2.3 TILE PRODUCTS

A. Ceramic Tile Type CT-1: Matte glazed porcelain tile.

1. Manufacturers: Subject to compliance with requirements, provide products manufactured by Daltile Corporation or approved equal product as determined by Architect from one of the following:
 - a. American Marazzi Tile, Inc.
 - b. American Olean; a division of Daltile Corporation.
 - c. Crossville, Inc.
 - d. Florida Tile, Inc.
 - e. Florim USA.
 - f. Grupo Porcelanite.
 - g. Interceramic.
 - h. Iris US.
 - i. Seneca Tiles, Inc.
2. Certification: Tile certified by the Porcelain Tile Certification Agency.
3. Basis-of-Design Product: Daltile Keystones Square series D208.
4. Face Size: Nominal 18 by 18 inches (457 by 457 mm) [12 by 24 inches (305 by 610 mm) alternate].
5. Thickness: 3/8 inch (9.5 mm).
6. Face: Plain with square edges.
7. Dynamic Coefficient of Friction: Not less than 0.42.
8. Tile Color: Suede Gray Speckle.
9. Grout Color: As selected by Architect from manufacturer's full range.
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. Cove Base Tile: 4-1/4 by 4-1/4 inches (108 by 108 mm).
 - b. Internal Corners: Field-buttet square corners.
 - c. Tapered Transition Tile: Shape designed to effect transition between thickness of tile floor and adjoining floor finishes of different thickness, tapered to provide reduction in thickness from 1/2 to 1/4 inch (12.7 to 6.4 mm) across nominal 4-inch (100-mm) dimension.

B. Ceramic Tile CT-2: Polished Glaze Ceramic Tile.

1. Basis-of-Design Product: Daltile Rittenhouse Square series 0790.
2. Face Size: 3 by 6 inches (76 by 152 mm).
3. Thickness: 5/16 inch (8 mm).
4. Face: Plain with square edges.
5. Tile Color: Arctic White.
6. Grout Color: As selected by Architect from manufacturer's full range.
7. Internal Corners: Field-buttet square corners.

C. Ceramic Tile CT-3: Polished Glaze Ceramic Tile.

1. Basis-of-Design Product: Daltile Rittenhouse Square series DH50
2. Face Size: 3 by 6 inches (76 by 152 mm).
3. Thickness: 5/16 inch (8 mm).
4. Face: Plain with square edges.
5. Tile Color: Sunflower
6. Grout Color: As selected by Architect from manufacturer's full range.
7. Internal Corners: Field-buttet square corners.

D. Ceramic Tile CT-4: Matte Glaze Ceramic Tile.

1. Basis-of-Design Product: Daltile Festiva series QF30.
2. Face Size: 3 by 6 inches (76 by 152 mm).
3. Thickness: 5/16 inch (8 mm).
4. Face: Plain with square edges.
5. Tile Color: Green Apple.
6. Grout Color: As selected by Architect from manufacturer's full range.
7. Internal Corners: Field-buttet square corners.

E. Ceramic Tile CT-5: Matte Glaze Ceramic Tile.

1. Basis-of-Design Product: Daltile Festiva series QF61.
2. Face Size: 3 by 6 inches (76 by 152 mm).
3. Thickness: 5/16 inch (8 mm).
4. Face: Plain with square edges.
5. Tile Color: Aquarius.
6. Grout Color: As selected by Architect from manufacturer's full range.
7. Internal Corners: Field-buttet square corners.

2.4 SETTING MATERIALS

A. Standard Dry-Set Mortar (Thinset): ANSI A118.1.

1. Manufacturers: Subject to compliance with requirements, provide products from 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.

2.5 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.

1. Non-Sanded Grout for Glazed Tile:

- a. **Description:**
 - i. **Factory blended, mildew resistant, non-sanded grout consisting of portland cement and additives; complying with ANSI A118.7.**
 - ii. **Provide with either latex additive in lieu of water, or with water only when grout mix contains dry polymer additive.**
- b. **Grout and latex additive shall be products of same manufacturer.**
- c. **Colors: To be selected by Architect from manufacturer's standard full color range.**
- d. **Acceptable products and manufacturers:**
 - i. **Hydroment Dry Tile Grout (Unsanded) by Bostik.**
 - ii. **Laticrete Unsanded Grout (600 Series) by Laticrete International, Inc.**
 - iii. **Keracolor U by Mapei Corporation.**

- B. 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 from 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. Mercrete by Parex USA, Inc.
 - k. Sauereisen.
 - l. Southern Grouts & Mortars.
 - m. Summitville Tiles, Inc.
 - n. TEC; H.B. Fuller Construction Products, Inc.

2. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to 140 and 212 deg F (60 and 100 deg C), respectively, and certified by manufacturer for intended use.

~~C. Grout for PregROUTed Tile Sheets: Same product used in factory to pregROUT tile sheets.~~

2.6 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. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.
- C. Floor Sealer: Manufacturer's standard product for sealing grout joints and that does not change color or appearance of grout.
 1. Manufacturers: Subject to compliance with requirements, provide products from one of the following:
 - a. Bonsal American; an Oldcastle company.
 - b. Custom Building Products.
 - c. Jamo Inc.
 - d. Southern Grouts & Mortars.
 - e. Summitville Tiles, Inc.
 - f. TEC; H.B. Fuller Construction Products, Inc.

2.7 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 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 thinset mortar or tile-setting epoxy comply with surface finish requirements in ANSI A108.01 for installations indicated.
 - a. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
 - b. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.
 3. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.
 4. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with thinset mortar or tile-setting epoxy with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.
1. Basis-of-Design Manufacturer: Subject to compliance with requirements, provide products manufactured by ARDEX GmbH or approved equal product as determined by Architect.
- B. 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 tile floors, follow procedures in the ANSI A108 series of tile installation standards for providing 95 percent mortar coverage:
- B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

- C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.
- E. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
 - 1. Where adjoining tiles on floor and base are specified or indicated to be same size, align joints.
 - 2. Where tiles are specified or indicated to be whole integer multiples of adjoining tiles on floor, base, walls, or trim, align joints unless otherwise indicated.
- F. Joint Widths: Unless otherwise indicated, install tile with 1/8 inch (3.2 mm) joint widths
- G. 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.
- H. Floor Sealer: Apply floor sealer to grout joints in tile floors according to floor-sealer manufacturer's written instructions. As soon as floor sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.

3.4 ADJUSTING AND CLEANING

- A. Remove and replace tile that is damaged or that does not match adjoining tile. Provide new matching units, installed as specified and in a manner to eliminate evidence of replacement.
- B. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Remove grout residue from tile as soon as possible.
 - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

3.5 PROTECTION

- A. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.
- B. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
- C. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

3.6 INTERIOR CERAMIC TILE INSTALLATION SCHEDULE

FLOOR TILE

- 1. Ceramic Tile Installation: TCNA F113; thinset mortar.
 - a. Ceramic Tile Type: Restroom porcelain floor tile. ~~and ceramic wall tile.~~
 - b. Thinset Mortar: Standard dry-set mortar.
 - c. Grout: ~~Unsanded cement grout~~ **Water-cleanable epoxy grout.**
- ~~2. Ceramic Tile Installation: TCNA F115; thinset mortar; epoxy grout.~~
 - ~~a. Ceramic Tile Type: Restroom ceramic wall floor tile.~~
 - ~~b. Thinset Mortar: Standard dry-set mortar.~~
 - ~~c. Grout: Water cleanable epoxy grout.~~
- ~~3. Ceramic Tile Installation: TCNA F131; water cleanable, tile setting epoxy; epoxy grout.~~
 - ~~a. Ceramic Tile Type: Restroom ceramic wall tile.~~
 - ~~b. Grout: Water cleanable epoxy grout.~~

WALL TILE

- 1. **Thin-Set Ceramic Tile on Masonry Substrates: Install tiles in accordance with manufacturer's instructions and TCNA Latex-Portland Cement Mortar Method W202 (ANSI A108.5).**
 - a. **Ceramic Tile Type: Restroom ceramic wall tile.**
 - b. **Non-Sanded Grout for Glazed Tile:**

END OF SECTION 093013