PART I - GENERAL

1.01  SUMMARY

A. Section Includes: Description of the requirements for materials and installation of ceramic tile and associated accessory items, as indicated on Drawings and necessary to provide a complete and proper installation.

B. Related Sections:
   1. Section 07901 – Joint Sealers, except as included herein.
   2. Section 09250 – Gypsum board (wall substrate).
   3. Section 10810 – Toilet Room Accessories.

1.02  QUALITY ASSURANCE

A. Standards of Manufacture: Specific reference to manufacturer’s names and products specified herein are used as standards, but this implies no right to substitute other materials or methods without written acceptance of Architect. Refer to the General Conditions for procedures governing substitutions.
   1. Provide all like products of this Section from a single manufacturer.

B. Installer Qualifications: Installation shall be done only by installation firm normally engaged in this business. Work shall be performed by qualified installers working under an experienced supervisor.

C. References and Standards (latest Edition unless noted otherwise):
   4. American national Standards Institute, (ANSI):
      a. A108.5 – “Ceramic Tile Installed with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar”.
      c. A118.01 – “Dry-Set Portland Cement Mortar”.
      d. A118.6 – “Ceramic Tile Grout”.
      e. A137.01 – “Specifications for Ceramic Tile”.
D. Design Criteria: Tile work shall be clean and durable; no discolored or crumbling joints, loose tile, or cracks shall develop. Correct to the University's satisfaction above conditions which occur within warranty period.

1.03 SUBMITTALS

A. Submit the following:

1. List of materials: Complete listing of all materials proposed for use, with manufacturer’s data. Indicate location of each.

2. Manufacturer's "Master Grade Certificate" bearing Tile Council of America (TCA) certification mark for each type of tile.

3. Samples:
   a. Samples for Initial Selection Purposes: Submit manufacturer’s color charts consisting of actual tiles or sections of tile showing full range of colors, textures and patterns available for each type of tile indicated. Include samples of grout and accessories involving color selection.
   b. Samples for Verification Purposes. Submit the following:
      1) Samples for each type of tile and for each color and texture required, not less than 12" square, on plywood or hardboard backing and grouted.
      2) Full size samples for each type of trim, accessory and for each color.

4. Certified Test Reports: Submit certified test reports from a qualified independent testing laboratory evidencing compliance of tile and tile setting products with requirements specified based on comprehensive testing of current products. Include in reports testing laboratory’s interpretation of test results relative to specified requirements.

5. Manufacturer’s maintenance instructions and recommendations for maintaining ceramic tile.

6. Maintenance Materials:
   a. Prior to final inspection, furnish the University with two percent of total quantity of each type and color of tile and grout used.
   b. Provide in either unopened manufacturer’s cartons or dustproof packaging plainly marked with type, color, and quantity of contents.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Prevent damage or contamination to materials by water, freezing, foreign matter or other causes.

B. Ensure timely delivery so products will be available at Project site when required for installation so as not to delay job progress.
1.05 JOB CONDITIONS

A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer’s recommendations.

B. Maintain temperature at not less than 50°F (10°C) in tiled areas during installation and for 7 days after completion, unless higher temperatures are required by referenced installation standard or manufacturer’s instructions.

PART II - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, tile manufacturers offering products which may be incorporated in the work include, but are not limited to, manufacturer’s identified in tile types, sizes, colors and patterns listed on the Drawings, and manufacturers of mortar, grout, and tile cleaners as follows:


2.02 MATERIALS

A. Requirements:

1. ANSI Standard for Ceramic Tile: Comply with ANSI A137.01 “American National Standard Specifications for Ceramic Tile” for types and grades of tile indicated.
   a. Furnish tile complying with “Standard Grade” requirements unless otherwise indicated.

2. ANSI Standard for Tile Installation Materials: Comply with ANSI standard referenced with products and materials indicated for setting and grouting.

3. ASTM 2048: Coefficient of friction.

4. Colors, Textures and Patterns: For tile, grout and other products requiring selection of colors, surface textures or other appearance characteristics, provide products to match characteristics indicated or, if not otherwise indicated, as selected by Architect from manufacturer’s standards.
   a. Provide tile trim and accessories which match color and finish of adjoining flat tile.

5. Mounting: Where factory-mounted tile is required, provide back- or edge-mounted tile assemblies as standard with manufacturer unless another mounting method is indicated.
B. Floor Tile: As specified on the Drawings.

C. Wall Tile: As specified on the Drawings.

D. 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:
   b. External Corners for Thinset Installations: Surface bullnose.
   c. Internal Corners: Field-butted square corners, except use coved base and cap angle pieces designed to member with stretcher shapes.
   d. Tapered Transition Tile: Shape designed to effect transition between thickness of tile floor and adjoining floor finished of different thickness, tapered to provide a reduction in thickness from ½” to ¼” across nominal 4” dimension.

E. Setting Materials: Provide materials to comply with referenced standards; as required for installation method designated.

F. Grouting Materials: Provide Commercial Portland Cement Grout; complying with ANSI A118.6; of color selected by Architect.

G. Tile Cleaner: Product specifically acceptable to manufacturer of tile and grout manufacturer for application indicated and as recommended by National Tile Promotion Federation or Ceramic Tile Institute.

2.03 MIXING MORTARS AND GROUT

A. Mix mortars and gouts to comply with requirements of referenced standards and manufacturers for accurately proportioning of materials, water or additive content, mixing equipment and mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortars and gouts of uniform quality with optimum performance characteristics for application indicated.

PART III - EXECUTION

3.01 EXAMINATION

A. Examine surfaces to receive tile work and conditions under which tile will be installed. Do not proceed with tile work until surfaces and conditions comply with requirements indicated in referenced tile installation standard.

3.02 INSTALLATION GENERAL

A. ANSI Tile Installation Standard: Comply with applicable parts of ANSI 108 series of tile installation standards included under “American National Standard Specifications for the Installation of Ceramic Tile”.

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B. TCA Installation Guidelines: TCA “Handbook for Ceramic Tile Installation”; comply with TCA installation methods indicated or, if not otherwise indicated, as applicable to installation conditions shown.

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 show, 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. Do not saw cut joints.

1. Prepare joints and apply sealants to comply with requirements of referenced standards and sealant manufacturer.

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 A108.010.

3.03 TILE INSTALLATION

A. Install types of tile designated for wall and floor application to comply with ANSI Specifications for ceramic tile.

3.04 CLEANING AND PROTECTION

A. Cleaning: Upon completion of placement and grouting, clean ceramic tile surfaces so they are free of foreign matter.

1. 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, or otherwise defective tile work.

C. Protection: 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.
1. Prohibit foot and wheel traffic from using tiled floors for at least 7 days after grouting is completed.

2. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION 09310