SECTION 093000 - TILING

PART 1 GENERAL

1.01 SECTION INCLUDES:
The work of this section shall include all labor, materials, equipment, accessories and services required and necessary to furnish and install all ceramic tile as indicated or specified.

1.02 QUALITY ASSURANCE
All materials, preparation, installation and services provided shall comply with provisions of the following ANSI and TCA standards and specifications:

A. A108.5 Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar.
B. A118.1 Dry-Set Portland Cement Mortar.
C. A118.4 Latex-Portland Cement Mortar.
D. A137.1 Specifications for Ceramic Tile.
E. Tile Council of America, Inc. (TCA) - "Handbook for Ceramic Tile Installation".

1.03 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Supply tile cartons grade-sealed by manufacturer in accordance with TCA 137.1, with grade-seals unbroken.
B. Manufactured mortars and grouts to contain hallmarks certifying compliance with reference standards and be types recommended by Tile Manufacturer for application.
C. Deliver mastic grout ready for use.
D. Deliver dry-set mortar in sealed, moisture-proof containers.
E. Extra Stock
   Provide cartons of each type and tile. Supply extra two percent of total quantity of each tile used for Owner's future maintenance requirements. Place in clean marked cartons for Owner's emergency repair use.

1.04 SUBMITTALS
For each type, finish, and color of tile to be furnished, submit Product Data Sheets, material samples, and cleaning, protection and maintenance procedures.

PART 2 PRODUCTS

2.01 MATERIALS
A. Ceramic Tile - See Finish Schedule for color, manufacture and size of ceramic tile.
B. Floor Tile - Shall have a non-slip surface with a static antistatic coefficient of friction greater than .50 (ASTM D2047-75).
C. Unglazed Ceramic Tile - Standard Grade per ANSI A137.1 Section 5.1, unglazed porcelain in 1/4 inch thickness with cushion edges. Provide all necessary shapes and trimmers of similar tile for curbs, depressions and corners. Mount tile using factory applied silicone back joint mounting system.
D. Wall Tile
   1. Tile Trim Shapes and Bases - Provide trim units and shapes of same color, finish and type as surrounding tile. Include bases, bullnose caps, stops, beads, coves, returns, trimmers and other shapes indicated or required to produce a completely finished tile installation. Observe following general requirements:
      a. Walls - Continuous tile behind wall mounted mirrors (where applicable).
      b. Walls - Out-corners round.
      c. Walls - In-corners square.
      d. Walls - Bullnose cap on wainscot (where applicable), except provide regular flat tile where ceramic mosaic wall surface is flush with finished wall above.
      e. Floors - Cove base required.
f. Curbs - Bullnose and cove as required for smooth rounded surfaces.
g. Jambs - Bullnose where tile work projects from jamb.

F. Tile Setting Materials
1. Portland Cement - ASTM C150, Type I or II, gray or white as required.
2. Hydrated Lime - ASTM C206 or C207, Type S.
3. Sand - ASTM C144 for mortar or grout as required.
4. Water - Clean and drinkable.
5. Dry-Set Mortars - Conform to ANSI A118.1.

G. Grouting Materials
1. Tile Walls - Commercial, white Portland Cement type grout, wet or dry-cure formulation as appropriate, shall be used unless specified otherwise in finish schedule.
2. Ceramic Floors - Commercial, colored, sanded Portland Cement type.
3. Color Grout Pigment - Provide nonfading mineral oxides or carbon black emulsion of type not affected by lime or cement, and will not stain tile.
4. Sealants - Provide white, fungicidal and mildew resistant one-part silicone rubber sealant meeting Fed. Spec. TT-S-001543, Class A or B.

H. Glass Mesh Mortar Unit and Underlayment Materials shall be installed in all shower areas. Glass Mesh Mortar Unit shall be Aggregated Portland Cement board with vinyl-coated, woven glass-fiber mesh on both front and back surfaces. Thickness to be either 7/16" or 1/2". Edges to be square cut and finished smooth.

I. Joint Reinforcement - 2" wide glass-fiber, open-weave tape.

J. Fasteners - 1 1/4" Type S screws or 1 1/2" galvanized roofing nails.

K. Sealers
1. Porcelain unglazed floor tile, Cerama Seal, Silox 8, manufactured by Hydroment.
2. Floor grout, Cerama Seal, Silox 8, manufactured by Hydroment.

PART 3 EXECUTION

3.01 INSTALLATION

A. Environmental Conditions
1. Maintain temperature at 50°F minimum during tile work and for seven days after completion.
2. Provide adequate lighting for good grouting and cleanup.

B. Ceramic Tile Installation - Install tile conforming to following standards:
1. Dry-set Portland Cement mortar - ANSI A108.5.
2. Latex-Portland Cement mortar - ANSI A108.5. (Installation method is same as Dry-set Portland Cement method, ANSI A108.5.).

C. Mastic Grout - Comply with mastic Grout Manufacturer's instructions and ANSI A108.4.

D. Silicon Rubber Sealant - Comply with Sealant Manufacturer's instructions.

E. Floor Installation - Use TCA thin-set setting bed F113-85 for thin-set latex Portland Cement mortar bond coat.


G. Laying Out Work - Lay out work so no floor tile less than half size occurs. For heights stated in feet and inches, maintain full courses to produce nearest attainable heights without cutting tile, unless specifically noted otherwise on contract documents. Align joints in wall tile vertically and horizontally, except where other patterns are indicated. Align joints in floor tile at right angles to each other and straight with walls conforming to patterns selected. Obtain exact locations of expansion joints before installing tile. Grounds, anchors, plugs, hangers, bucks, electrical and mechanical work in or behind tile shall be installed prior to proceeding with tile work.
H. Acceptance of Surfaces to Receive Tile - Prior to installing tile, inspect sub-surfaces verifying surfaces are free from coatings, curing membranes, oil, grease, wax, dust and other contaminate. Start of tile installation implies acceptance of sub-surfaces to receive tile. Maximum variations of sub-surface shall not exceed those specified in the TCA methods.

3.02 GENERAL INSTALLATION

A. Provide joints for grouting in accordance with material manufacturer's requirements. Rub cut tile edges with a fine stone.
B. Damp cure dry-set grout in accordance with manufacturer's recommendations.
C. Mix grout to creamy consistency and thoroughly force into joints filling entire depth. Provide joint surfaces with uniform, smooth and continuously level joints. Mix only as much grout as can be used in one hour.
D. Before setting wall tile using thin-set method, apply primer sealing and leveling coat over surfaces to receive tile.
E. Do not install tile over smooth concrete backing material. Sandblast smooth concrete surfaces giving a rough mechanical key for tile setting bed. No chemical bonding agents will be permitted on exterior concrete surfaces.
F. Expansion Joints and Sealants
   1. Conform to above specified reference standards and TCA Spec. EJ711-85. Provide sealant at joints between tile and door frames and other metal accessories. Provide expansion joint sealant on peripheries of walls and columns. Seal joints with silicone rubber sealant where tile butts into metal structures such as doors jambs and other materials that have different expansion coefficients. All structural joints in building shall have expansion joints extending through tile and sealed with silicone sealant. In no case shall tile be carried over expansion joints without a joint in tile.

3.03 CLEANING AND PROTECTION

A. Cleaning - Clean tile surfaces thoroughly on completion of grouting. Remove grout haze, observing Tile Manufacturer's recommendations for use of chemical cleaners. Rinse tilework thoroughly with clean water before and after using chemical cleaners. Polish surface of tilework with soft cloth.
B. Sealing after floor tile has been cleaned, seal tile and grout in accordance with manufacturers written installation instructions. Cure grout minimum of three days if penetrating sealer is used. Cure grout a minimum of twenty one days if a surface sealer is used.
C. Protection from Construction Dirt - Apply to clean, completed tile walls and floors a protective coat of neutral cleaner solution, one part cleaner to one part water. In addition, cover tile floor with heavy duty, non-staining construction paper, masked in place. Before final acceptance of tilework, remove paper and rinse protective coat of neutral cleaner from tile surfaces and wax and seal joints.
D. Protection from Traffic - Prohibit foot and wheel traffic from using newly tiled floors for at least seven days. Place large, flat boards in walkways and wheelways for seven days, where use of newly tiled floor is unavoidable.

END SECTION