

SECTION 093100 – TILING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. SC State Agency Forms as Follows:
 - 1. SE-311 Invitation for Minor Construction Quotes
 - 2. SE-331 Quote Form
 - 3. SE-375 Notice of Award Minor Construction Contract
 - 4. SE-377 Minor Construction Contract
 - 5. SE-381 Change Order to Minor Construction Contract
 - 6. SE-391 Notice to Proceed – Minor Construction Contract
 - 7. SE-395 Assessment of Contract Liquidated Damages

1.2 SUMMARY

- A. Section Includes:
 - 1. Porcelain tile and accessories.
 - 2. Self-leveling and bonding underlayments.
 - 3. Liquid applied waterproofing and crack isolation membranes.

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 which are contained in "American National Standard 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 PERFORMANCE REQUIREMENTS

- A. Static Coefficient of Friction: Provide products with the following values as determined by testing identical products per ASTM C 1028:
 - 1. Level Surfaces: Minimum 0.6.

1.5 QUALITY ASSURANCE

- A. Source Limitations for Tile: Obtain tile of type, color, and finish from specified manufacturer.
 - 1. Obtain specified tile 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 specified manufacturer.

- C. Source Limitation for Other Products: Obtain each of these following products specified in this Section from a single manufacturer for each product:
1. Waterproof membrane
 2. Crack isolation membrane
 3. Self-leveling underlayment
 4. Setting materials
- D. Mockups: Install minimum 8' x 8' floor area mockups for each area specified to receive tile to verify selections as specified and to demonstrate aesthetic effects and pattern layouts in order to establish quality standards for materials and execution.
1. Notify Owner once mock-up is complete and ready for inspection.
 2. After Owner's approval the mockup may become part of the completed Work.
- E. Preinstallation Conference: Conduct conference at Project site.
1. Review requirements in ANSI A108.01 for substrates and for preparation by other trades.
 2. **Owner is responsible for removal of existing floor finishes and of all adhesives. All slabs shall be thoroughly inspected by tile installer and/or tile technical reps to ensure slab is acceptable for tile and accessory installations per this specification. Should conditions exist that will not produce a first class installation, tile installer shall notify Owner of necessary corrective action needed prior to commencement of work under this specification. Once tile installer starts work, he/she certifies that the existing slabs are acceptable for a first-class installation and will meet all criteria under this specification and if circumstances later occur contrary to the above, all liabilities and corrective action necessary to rectify shall be the total responsibility of the installer.**

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 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 liquid materials in unopened containers and protected from freezing.
- D. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

1.7 PROJECT CONDITIONS

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

1.8 EXTRA MATERIALS

- 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 1 percent of amount installed for each type, composition, color, pattern, and size indicated.
2. Grout: Furnish quantity of grout equal to 2 percent of amount installed for each type, composition, and color indicated.

PART 2 - PRODUCTS

2.1 TILE PRODUCTS

CERAMIC TILE

- A. Provide porcelain tile and accessories complying with Tile Council of North America Specification 137.1, in style, colors and patterns as specified below. No substitutions permitted.
- B. Manufacturer: Garden State Tile
www.gstile.com
Manufacturer's Rep: Pauline Haber
shaber@gstile.com
(843) 323-5768

1. Location / Type:

- a. Auditorium: Travertini 2.0
Crema Naturale Rettificato
Sizes: 17.52" x 35.12" and 11.61" x 23.23"
Install in combination stacked bond and running bond accent band patterns per attached drawings within this specification
- b. Bistro: Travertini 2.0
Crema Naturale Rettificato
Size: 11.61" x 23.23"
Install 1/3 off set running bond pattern per attached drawings within this specification

2.2 WATERPROOF MEMBRANE

- A. General: Trowel applied waterproof membrane per manufacturer's specification below to existing concrete slabs where tile is noted to be installed, meeting the requirements of ANSI A118.10. No substitutions permitted.
- B. Manufacturer: Laticrete International, Inc.
1 Laticrete Park North
Bethany, CT 06524-3423
www.laticrete.com
1-800-243-4788; Ext. 1235

1. Product: Vaporban – Primer ER

2.3 CRACK ISOLATION MEMBRANE

- A. General: Trowel applied crack isolation membrane that complies with ANSI A118.12

per manufacturer's specification for standard performance atop waterproof membrane as specified above. No substitutions permitted.

- B. Manufacturer: Laticrete International, Inc.
1 Laticrete Park North
Bethany, CT 06524-3423
www.laticrete.com
1-800-243-4788; Ext. 1235

1. Hydro Ban waterproofing anti-fracture membrane

2.4 SELF-LEVELING UNDERLAYMENT (No substitutions permitted)

- A. Manufacturer: Laticrete International, Inc.
1 Laticrete Park North
Bethany, CT 06524-3423
www.laticrete.com
1-800-243-4788; Ext. 1235

1. Product: NXT Level

2.5 SETTING MATERIALS (No substitutions permitted)

- A. Manufacturer: Laticrete International, Inc.
1 Laticrete Park North
Bethany, CT 06524-3423
www.laticrete.com
1-800-243-4788; Ext. 1235

1. Product: Multimax - Lite

2.6 GROUT MATERIALS (No substitutions permitted)

- A. Manufacturer: Custom Building Products 1-800-272-8789
www.custombuildingproducts.com

- B. Water-Cleanable Epoxy Grout: ANSI A118.3.

1. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to 140 deg F and 212 deg F, respectively, and certified by manufacturer for intended use.

- C. Grout Colors: Provide grout color as follows:

1. #172 Urban Putty

2.7 TILE ACCESSORY SYSTEMS AND COMPONENTS

- A. General: Install systems as noted for the given installations.

1. Transition strips abutting adjoining finish floor materials.

- B. Products:
1. Manufacturer: Schluter Systems, Inc. www.schluter.com
 2. Types as follows: Tile contractor shall confirm from field inspection that the following specified transition strip types will meet installation criteria for given conditions and provide for a smooth transition between substrates. Notify Architect if alternate product types are needed.
 - a. Auditorium
 1. Entry off foyer: type "Schiene"
 2. Exterior door thresholds: type "Reno-V"
 3. Interior doors/transition to other floor materials: type "Reno-V"
 - b. Bistro
 1. Entry doors off corridors: type "Schiene"
 2. Transition to other floor materials: type "Reno-V"
 3. Finish: Satin anodized aluminum

2.8 SEALANTS AND ACCESSORIES

- A. General: Provide sealants, primers, backer rods, and other sealant accessories that comply with the following requirements
1. Use primers, backer rods, and sealant accessories recommended by sealant manufacturer.
- B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints unless otherwise indicated.
- C. Multipart, Pourable Urethane Sealant for Use T: ASTM C 920; Type M; Grade P; Class 25; Uses T, M, A, and, as applicable to joint substrates indicated, O.
1. VOC Content: Sealants applied on site and in the building interior (defined as inside the weatherproofing system) shall comply with VOC content limits.

2.9 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayment's and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Temporary Protective Coating: Either product indicated below that is formulated to protect exposed surfaces of tile against adherence of mortar and grout; compatible with tile, mortar, and grout products; and easily removable after grouting is completed without damaging grout or tile.
1. Petroleum paraffin wax, fully refined and odorless, containing at least 0.5 percent oil with a melting point of 120 to 140 deg F per ASTM D 87.
 2. Grout release in form of manufacturer's standard proprietary liquid coating that is specially formulated and recommended for use as temporary protective coating for tile.
- C. 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.
1. VOC Content: Cleaners applied on site and in the building interior (defined as inside the weatherproofing system) shall comply with VOC content limits requirements.

- D. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints that is acceptable to manufacturer of grout and that does not change color or appearance of grout.
 - 1. VOC Content: Sealers applied on site and in the building interior (defined as inside the weatherproofing system) shall comply with VOC content limits requirements.

2.10 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.

2.11 TILE EXPANSION JOINT INSERTS

- A. General: Install aluminum movement joint profile at locations noted on drawings.
- B. Products:
 - 1. Manufacturer: Schluter Systems, Inc. www.schluter.com
 - 2. Movement joint profile: Dilex-BWS surface joint profile with rigid PVC anchoring legs and a 3/16" wide, soft CPE movement zone. Height of profile to be determined by tile contractor based on tile specified and setting methods.
 - 3. Color shall be type SP "Sand Pebble."
- C. Installation
 - 1. Locate precisely the existing concrete slab control joint in center of room and install, if needed, a peel and stick membrane (Protecto-wrap; Dal-cim) over joint for added protection if specified aluminum joint profile does not align with layout noted for such.
 - 2. Complete installation of aluminum joint profile per manufacturer's specifications.

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, and 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 thin-set mortar 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 thin-set mortar with trowelable leveling and patching compound specifically recommended by tile- setting material manufacturer.
- 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.
- C. Field-Applied Temporary Protective Coating: When recommended by manufacturer to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

3.3 TILE INSTALLATION

- A. Comply with TCNA's "Handbook for Ceramic 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 the following installations, follow procedures in the ANSI A108 Series of tile installation standards for providing 95 percent mortar coverage:
 - a. Tile floors in wet areas.
 - b. Tile floors composed of tiles 8 by 8 inches or larger.
 - c. Tile floors composed of rib-backed tiles.
- 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. Jointing Pattern: Lay tile in patterns per attached drawings included in this specification 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. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
 2. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.
 3. 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.
- E. Joint Widths: Unless otherwise indicated, install tile with the minimum joint width as recommended by tile manufacturer. Confirm minimum width with Owner and Architect prior to installation.
- F. Metal Trim: Install in accordance with manufacturer's written instructions. Provide in locations where exposed edge of tile flooring meets other flooring that finishes flush with or below top of tile and no threshold is indicated.
- G. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints in accordance with ANSI and TCNA recommendations. 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.
 2. Prepare joints and apply sealants to comply with requirements under this specification.
- H. Grout Sealer: Apply grout sealer to cementitious grout joints in tile floors according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.

3.4 WATERPROOFING AND CRACK ISOLATION MEMBRANE INSTALLATION

- A. Install waterproofing and crack isolation membrane and/or membranes to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness and bonded securely to substrate.
- B. Do not install tile or setting materials over crack isolation membrane until membrane has cured.

3.5 CLEANING AND PROTECTING

- A. Cleaning: On completion of placement and grouting, clean all porcelain tile surfaces so they are free of foreign matter.
1. Remove latex-portland cement 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. 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. Remove temporary protective coating by method recommended by coating manufacturer and that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent drain clogging.

- B. Protect installed tile work with kraft paper or other heavy covering during installation period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.
- C. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

3.6 INTERIOR TILE INSTALLATION

- A. Interior Floor Installations, Concrete Subfloor:
 - 1. Tile Council of North America Installation Method # F205-19 consisting of concrete primer, cementitious self-leveling underlayment, waterproof and crack isolation membranes, bond coat and porcelain tile exceeding 15" in length.
 - a. Tile Type: Colorbody porcelain.
 - b. Mortar: Latex-portland cement mortar.
 - c. Grout: Water-cleanable epoxy.
- B. Tile Patterns for Auditorium and Bistro Per Attached Drawing Layouts Following This Specification (two sheets).

END OF SECTION - 093100