

**SECTION 09 30 13  
TILING**

SPEC WRITER NOTES:

1. Use this section only for NCA projects.
2. Delete between //\_\_\_\_\_// if not applicable to project. Also delete any other item or paragraph not applicable in the section and renumber the paragraphs.
3. Coordinate with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, and Section 01 45 29, TESTING LABORATORY SERVICES.
4. See Tile Council of North America, Inc., "Handbook for Ceramic, Glass and Stone Tile Installation" for systems and details required.
5. Detail wall, floor, and base edge, joints with other materials, and expansion joint conditions for each system. Show locations of expansion joints on drawings.
6. If the Handbook method numbers referenced in specifications for each systems. Use date of Handbook with method number.
7. Waterproof membranes to which tile bonded specified in this section is for use on existing buildings only. Do not use for new buildings.
8. Coordinate paragraphs under Article RELATED WORK with other sections.
9. It is the responsibility of Interior Designer to coordinate colors of floor and wall tiles separately with the accent tiles. Same color tiles may not be available for walls and floors that require slip resistant tiles.

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. This section specifies ceramic, porcelain, and quarry tile, // marble thresholds and window stools, // crack isolation membranes, // tile backer board. //

**1.2 RELATED WORK**

- //A. Preformed sealant joints in tile flooring: Section 07 95 13, EXPANSION JOINT COVER ASSEMBLIES.//
- B. Sealing of joints where specified: Section 07 92 00, JOINT SEALANTS.

- C. Color, texture and pattern of field tile and trim shapes, size of field tile, // trim shapes, // and color of grout specified: Section 09 06 00, SCHEDULE FOR FINISHES.

SPEC WRITER NOTES:

- 1. Verify and coordinate the following paragraph to include reference to application of metal lath; DELETE if not applicable. Refer to paragraphs under PART 2 - PRODUCTS.

- D. Plastering: // Section 09 23 00, GYPSUM PLASTERING // Section 09 24 00, PORTLAND CEMENT PLASTERING.//

- E. Metal and resilient edge strips at joints with new // resilient flooring, // and carpeting: // Section 09 65 19, RESILIENT TILE FLOORING // Section 09 68 00, CARPETING.//

**1.3 PERFORMANCE REQUIREMENTS**

- A. Grout: Provide materials complying with SCAQMD Rule 1168; petroleum- and plastic-free grout.
- B. Finish Flooring: Provide Floor Score certification.

**1.4 SUSTAINABILITY REQUIREMENTS**

- A. Materials in this section may contribute towards contract compliance with sustainability requirements. See Section 01 81 11, SUSTAINABLE DESIGN REQUIRMENTS, for project // local/regional materials, // low-emitting materials, // recycled content, // \_\_\_\_\_// requirements.

SPEC WRITER NOTES:

- 1. Delete submittals for products not used.

**1.5 SUBMITTALS**

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Samples:
  - 1. Base tile, each type, each color, each size.
  - 2. Paver tile, each size, type, color and pattern.
  - 3. Quarry tile, each type, color, and size.
  - 4. Porcelain tile, each type, color, patterns and size.
  - 5. Wall (or wainscot) tile, each color, size and pattern.
  - 6. Trim shapes, bullnose cap and cove including bullnose cap and base pieces at internal and external corners of vertical surfaces, each type, color, and size.
- C. Product Data:

1. Ceramic and porcelain tile, marked to show each type, size, and shape required.
  2. Cementitious backer unit.
  3. Dry-set Portland cement mortar and grout.
  4. Divider strip.
  5. Reinforcing tape.
  6. Leveling compound.
  7. Latex-Portland cement mortar and grout.
  8. Commercial Portland cement grout.
  9. Slip resistant tile.
  10. Waterproofing isolation membrane.
  11. Fasteners.
- D. Certification:
1. Master grade, ANSI A137.1.
  2. Manufacturer's certificates indicating that the following materials comply with specification requirements:
    - a. Commercial Portland cement grout.
    - b. Cementitious backer unit.
    - c. Dry-set Portland cement mortar and grout.
    - d. Reinforcing tape.
    - e. Latex-Portland cement mortar and grout.
    - f. Leveling compound.

**1.6 DELIVERY AND STORAGE**

- A. Deliver materials in containers with labels legible and intact and grade-seals unbroken.
- B. Store material to prevent damage or contamination.

SPEC WRITER NOTES:

1. Update applicable publications to current issue at time of project preparation.

**1.7 APPLICABLE PUBLICATIONS**

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by the basic designation only. Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.

SPEC WRITER NOTES:

1. Remove reference citations that do not remain in Part 2 or Part 3 of edited specification.
2. Verify and make dates indicated for remaining citations the most current

at date of submittal; determine changes from date indicated on the TIL download of the section and modify requirements impacted by the changes.

B. American National Standards Institute (ANSI):

A108.1B-13	Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with dry-Set or latex-Portland Cement Mortar
A108.11-10	Interior Installation of Cementitious Backer Units
A108.5-10	Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar
A118.1-12	Dry-Set Portland Cement Mortar
A118.4-12	Latex-Portland Cement Mortar
A118.6-10	Standard Cement Grouts for Tile Installation
A118.7-10	High Performance Cement Grouts for Tile Installation
A118.10-08	Load-bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation
A137.1-12	Ceramic Tile

C. American Society for Testing and Materials (ASTM):

A185/A185M-07	Steel Welded Wire Fabric, Plain, for Concrete Reinforcing
C241/C241M-13	Abrasion Resistance of Stone Subjected to Foot Traffic
C627-10	Evaluating Ceramic Floor Tile Installation Systems Using the Robinson-Type Floor Tester
C954-11	Steel Drill Screws for the Application of Gypsum Board on Metal Plaster Base to Steel Studs from 0.033 in (0.84 mm) to 0.112 in (2.84 mm) in thickness
C979/C979M-10	Pigments for Integrally Colored Concrete
C1002-07	Steel Self-Piercing Tapping Screws for the Application of Panel Products
C1027-09	Determining "Visible Abrasion Resistance on Glazed Ceramic Tile"

C1028-07e1	Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull Meter Method
C1178 /C1178M-11	Coated Glass Mat Water-Resistant Gypsum Backing Panel
C1325-08b	Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units
D4397-10	Polyethylene Sheeting for Construction, Industrial and Agricultural Applications
D. Marble Institute of America (MIA):	Design Manual 7.2-2011
E. South Coast Air Quality Management District (SCAQMD):	SCAQMD Rule 1168 (1989/R2005) Adhesive and Sealant Applications
F. Tile Council of North America, Inc. (TCNA):	Handbook for Ceramic, Glass, and Stone Tile Installation

## **PART 2 - PRODUCTS**

### SPEC WRITER NOTES:

1. Make material requirements agree with applicable requirements specified in the referenced Applicable Publications. Update and specify only that which applies to the project. Delete non-applicable items.
2. Where tile is indicated for installation on exteriors, or in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer provides certificate that mounting is suitable for these installations and has a list of successful projects in-service performance.
3. Do not use raised profile tile for slip resistant tile.
4. Do not use glazed tile for floors.
5. Do not edit slip resistant tile paragraph.

### **2.1 TILE**

- A. Comply with ANSI A137.1, Standard Grade, except as modified:
  1. Inspection procedures listed under the Appendix of ANSI A137.1.
  2. Abrasion Resistance Classification: Tested in accordance with values listed in Table 1, ASTM C1027.
  3. Slip Resistant Tile for Floors - Coefficient of friction, when tested in accordance with ASTM C1028, required for level of performance: Not less than 0.7 (wet condition) for bathing areas.

4. Factory Blending: For tile with color variations, within the ranges selected during sample submittals blend tile in the factory and package so tile units taken from one package show the same range in colors as those taken from other packages and match approved samples.

## SPEC WRITER NOTES:

1. Use of wax as a temporary protective coating for exposed tile surfaces is required with furan mortars and grouts, latex modified mortars and grouts, and unglazed paver tile.

5. Factory-Applied Temporary Protective Coating:

- a. Protect exposed face surfaces (top surface) of tile against adherence of mortar and grout by pre-coating with a continuous film of petroleum paraffin wax, applied hot.
- b. Do not coat unexposed tile surfaces.
- c. Pre-wax tiles set or grouted with // furan or epoxy // or // latex modified mortars.//

- B. Mosaic Tile: Furnish // glass mosaic tile // glass-bonded ceramic mosaic tile // ceramic mosaic tile //. Provide tile size // 25 by 25 mm (1 by 1 inch) // 25 by 50 mm (1 by 2 inch) // 50 by 50 mm (2 by 2 inch) // \_\_\_\_\_ //.

- C. Unglazed Quarry Tile: Nominal 13 mm (1/2 inch) thick, square edges.

- D. Glazed Wall Tile: Cushion edges, glazing, as specified in Section 09 06 00, SCHEDULE FOR FINISHES.

- E. Porcelain Paver Tile: Nominal 8 mm (5/16 inch) thick, cushion edges. Produce porcelain tile by the dust pressed method made of approximately 50 percent feldspar; the remaining 50 percent to be made up of various high-quality light firing ball clays yielding a tile with a water absorption rate of 0.5 percent or less and a breaking strength of between 390 to 400 pounds.

## SPEC WRITER NOTES:

1. Coordinate trim shape requirements with tile sizes scheduled in Section 09 06 00, SCHEDULE FOR FINISHES.
2. Coordinate for tile sizes when combined with ANSI A137.1 that rounded trim shapes, will produce complete wall or floor tile patterns as per color design.
3. Rounded, cove and bullnose shapes are mandatory shapes.

4. At top of tile wainscot that finish flush with wall surfaces above shown on details use flat cap (top) shape.
5. Bullnose cap pieces of internal corner at top of wainscot set by thin set method is available only in 106 mm by 106 mm (4-1/4 by 4-1/4 inch) size; coordinate with Section 09 06 00, SCHEDULE FOR FINISHES.
6. Assure details show trim shape lay out when trim shape is not the size of adjoining tile and cove and bullnose trim shapes for installation methods specified.
7. When Section 09 06 00, SCHEDULE FOR FINISHES specifies that new tile work in existing spaces does not match existing tile work, see subsection 3.3 for existing conditions.
8. Square internal and external corners are not acceptable. Do not change requirements.

F. Trim Shapes:

1. Conform to applicable requirements of adjoining floor and wall tile.
2. Use trim shapes sizes specified in Section 09 06 00, SCHEDULE FOR FINISHES.

**2.2 CEMENTITIOUS BACKER UNITS**

- A. Use behind all wall // and ceiling tile //.
- B. Comply to ASTM C1325.
- C. Joint materials for Cementitious Backer Units:
  1. Reinforcing Tape: Vinyl coated woven glass fiber mesh tape, open weave, 50 mm (2 inches) wide. Tape with pressure sensitive adhesive backing will not be permitted.
  2. Tape Embedding Material: Latex-Portland cement mortar complying with ANSI A108.1.
  3. Joint material, including reinforcing tape, and tape embedding material, must be as specifically recommended by the backer unit manufacturer.

**2.3 FASTENERS**

- A. Screws for Cementitious Backer Units:
  1. Standard screws for gypsum board are not acceptable.
  2. Minimum 11 mm (7/16 inch) diameter head, corrosion resistant coated, with washers.
  3. ASTM C954 for steel 1 mm (0.033 inch) thick.
  4. ASTM C1002 for steel framing less than 0.0329 inch thick.

B. Washers: Galvanized steel, 13 mm (1/2 inch) minimum diameter.

**2.4 GLASS MAT WATER RESISTANT GYPSUM BACKER BOARD**

A. Confirm to ASTM C1178 for optional system instead of cementitious backer units for areas other than showers.

**2.5 SETTING MATERIALS OR BOND COATS**

A. Conform to TCA Handbook for Ceramic Tile Installation.

B. Portland Cement Mortar: ANSI A108.1B.

C. Latex-Portland Cement Mortar: ANSI A118.4.

1. For wall applications, provide non-sagging, latex-Portland cement mortar complying with ANSI A118.4.

2. Prepackaged Dry-Mortar Mix: Factory-prepared mixture of Portland cement; dry, re-dispersible, ethylene vinyl acetate additive; and other ingredients to which only water needs to be added at Project site.

D. Dry-Set Portland Cement Mortar: ANSI A108.5 and ANSI A118.1; floor installation only.

1. Contractor Option: Latex-Portland cement mortar.

**2.6 GROUTING MATERIALS**

A. Coloring Pigments:

1. Pure mineral pigments, lime-proof and nonfading, complying with ASTM C979.

2. Addition of coloring pigments to grout must be by the manufacturer; job colored grout is not acceptable.

3. Use is required in Commercial Portland Cement Grout, Dry-Set Grout, and Latex-Portland Cement Grout.

B. Dry-Set Grout: ANSI A118.6 color as specified.

C. Latex-Portland Cement Grout: ANSI A118.7 color as specified.

1. Unsanded grout mixture for joints 3.2 mm (1/8 inch) and narrower.

2. Sanded grout mixture for joints 3.2 mm (1/8 inch) and wider.

D. Grout Sealer: Grout manufacturer's standard silicone product for sealing grout joints and that does not change color or appearance of grout.

**2.7 PATCHING AND LEVELING COMPOUND**

A. Portland cement base, polymer-modified, self-leveling compound, manufactured specifically for resurfacing and leveling concrete floors. Products containing gypsum are not acceptable.

SPEC WRITER NOTES:

1. Include marble when limited to items specified and no other marble is used

on project. Include marble in new section on marble if other marble items occur. Do not use synthetic marble unless abrasive hardness is 10 or more.

## 2.8 MARBLE

- A. Soundness Classification in accordance with MIA Design Manual.
- B. Thresholds:
  1. Group A, Minimum abrasive hardness (Ha) of 10.0 per ASTM C241.
  2. Honed finish on exposed faces.

### SPEC WRITER NOTES:

1. See MIA Design Manual for thin stock.
  2. Coordinate details for beveled edges where marble thresholds project above adjacent flooring with 19 mm (3/4 inch) minimum thickness and 6 mm (1/4 inch) minimum thickness at beveled edge.
  3. Detail joint with other materials, and show where used.
  4. Detail thresholds not more than 12.7 mm (1/2 inch) above adjoining finished floor surfaces, with transition edges beveled on a slope of no greater than 1:2 on existing floor slabs provide 13 mm (1/2 inch) about ceramic tile surface with beveled edges.
3. Thickness and contour as shown.
  4. Fabricate from one piece without holes, cracks, or open seams; full depth of wall or frame opening by full width of wall or frame opening; 19 mm (3/4-inch) minimum thickness and 6 mm (1/4-inch) minimum thickness at beveled edge.
  5. Set not more than 13 mm (1/2-inch) above adjoining finished floor surfaces, with transition edges beveled on a slope of no greater than 1:2. On existing floor slabs provide 13 mm (1/2-inch) above ceramic tile surface with bevel edge joint top flush with adjacent floor.
  6. Provide one piece full width of door opening; notch thresholds to match profile of door jambs.

### SPEC WRITER NOTES:

1. Coordinate with details to show joints with other materials and show location where used.

## 2.9 METAL DIVIDER STRIPS

- A. Provide terrazzo type divider strips; heavy top type strip with 5 mm (3/16 inch) wide top and 38 mm (1-1/2 inch) long leg.

### TILING

- C. Embedded leg perforated and deformed for keying to mortar.
- D. Aluminum or brass as specified in Section 09 06 00, SCHEDULE FOR FINISHES.

#### **2.10 WATER**

- A. Clean, potable and free from salts and other injurious elements to mortar and grout materials.

##### SPEC WRITER NOTES:

1. Review USDA Biopreferred Categories for listed materials within the scope of the following paragraph and include additional requirements, unless justification for non-use exists.

#### **2.11 CLEANING COMPOUNDS**

- A. Specifically designed for cleaning masonry and concrete and which will not prevent bond of subsequent tile setting materials including patching and leveling compounds and elastomeric waterproofing membrane and coat.
- B. Materials containing acid or caustic material not acceptable.

#### **2.12 FLOOR MORTAR BED REINFORCING**

- A. ASTM A185 welded wire fabric without backing, MW3 x MW3 (2 x 2-W0.5 x W0.5).

#### **2.13 WATERPROOF AND CRACK ISOLATION MEMBRANE**

- A. Type: Fabric-reinforced, fluid-applied membrane.
- B. Provide manufacturer's standard product that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated; include reinforcement and accessories recommended by manufacturer.

#### **2.14 POLYETHYLENE SHEET**

- A. Polyethylene sheet conforming to ASTM D4397.
- B. Nominal thickness: 0.15 mm (six mils).
- C. Use sheet width to minimize joints.

### **PART 3 - EXECUTION**

#### **3.1 ENVIRONMENTAL REQUIREMENTS**

- A. Maintain environmental temperature and humidity within all manufacturers' recommendations.

#### **3.2 ALLOWABLE TOLERANCE**

- A. Variation in plane of sub-floor, including concrete fills leveling compounds and mortar beds:
  1. Not more than 1 in 500 (1/4 inch in 10 feet) from required elevation where Portland cement mortar setting bed is used.

2. Not more than 1 in 1000 (1/8 inch in 10 feet) where dry-set Portland cement, and latex-Portland cement mortar setting beds and chemical-resistant bond coats are used.

B. Variation in Plane of Wall Surfaces:

1. Not more than 1 in 400 (1/4 inch in eight feet) from required plane where Portland cement mortar setting bed is used.
2. Not more than 1 in 800 (1/8 inch in eight feet) where dry-set or latex-Portland cement mortar or organic adhesive setting materials is used.

### 3.3 SURFACE PREPARATION

SPEC WRITER NOTES:

1. Read the requirements of the "Forward, Explanation and Notes" of ANSI A108.1, A and B and the referenced ANSI specifications for the installation of ceramic tiles.
2. Coordinate specifications and details for existing conditions.
3. Clarify and use the term "thin set" on drawings and in the specifications.
4. Details are required to show interface conditions and joints with other materials, especially for different conditions such as new construction and existing conditions.

A. Cleaning New Concrete or Masonry:

1. Chip out loose material, clean off all oil, grease dirt, adhesives, curing compounds, and other deterrents to bonding by mechanical method, or by using products specifically designed for cleaning concrete and masonry.
2. Use self-contained power blast cleaning systems to remove curing compounds and steel trowel finish from concrete slabs where ceramic tile will be installed directly on concrete surface with thin-set materials.
3. Steam cleaning or the use of acids and solvents for cleaning will not be permitted.

B. Patching and Leveling:

1. Mix and apply patching and leveling compound in accordance with manufacturer's instructions.
2. Fill holes and cracks and align concrete floors that are out of required plane with patching and leveling compound.
  - a. Thickness of compound as required to bring finish tile system to elevation shown.

- b. Float finish // except finish smooth for elastomeric waterproofing. //
  - c. At substrate expansion, isolation, and other moving joints, allow joint of same width to continue through underlayment.
3. Apply patching and leveling compound to concrete and masonry wall surfaces that are out of required plane.
  4. Apply leveling coats of material compatible with wall surface and tile setting material to wall surfaces, other than concrete and masonry that are out of required plane.
- C. Mortar Bed for Slopes to Drains:
1. Slope compound to drain where drains are shown.
  2. Install mortar bed in depressed slab sloped to drains not less than 1 in 200 (1/16 inch per foot).
  3. Allow not less than 50 mm (2 inch) depression at edge of depressed slab.
  4. Screed for slope to drain and float finish.
  5. Cure mortar bed for not less than seven days. Do not use curing compounds or coatings.
- D. Additional preparation of concrete floors for tile set with waterproof and crack isolation membrane to be in accordance with the manufacturer's printed instructions.
- E. Walls:
1. In showers or other wet areas cover studs with polyethylene sheet.
    - SPEC WRITER NOTES:
      1. Where full height tile walls or tile wainscots are required on new metal lath surfaces, specify scratch and leveling coats applied as specified below.
      2. Coordinate with Paragraph 1.2, and with specification Section 09 23 00, GYPSUM PLASTERING and 09 24 00, PORTLAND CEMENT PLASTERING for metal lath installation with this section for tile set in Portland cement, scratch and leveling coat on metal lath.
      3. Use of Cementitious Backer unit is preferred in showers or other wet areas.
  2. Apply patching and leveling compound to concrete and masonry surfaces that are out of required plane.

3. Apply leveling coats of material compatible with wall surface and tile setting material to wall surfaces, other than concrete and masonry that are out of required plane.
4. Apply waterproof membrane in accordance with manufacturer's printed instructions.

SPEC WRITER NOTES:

1. Use paragraph F. when alterations occur in existing work and removal of existing finish flooring and walls occurs.

F. Existing Floors and Walls:

1. Remove all foreign material from slab intended for tiling. Prepare surface by grinding, chipping, self-contained power blast cleaning or other suitable mechanical methods to completely expose uncontaminated concrete or masonry surfaces. Follow safety requirements of ANSI A10.20.

SPEC WRITER NOTES:

1. See "Handbook for Ceramic Tile Installation" for details for plumbing items, expansion joints, and where waterproof membranes occur.

### **3.4 CEMENTITIOUS BACKER UNITS**

- A. Remove polyethylene wrapping from cementitious backer units and separate to allow for air circulation. Allow moisture content of backer units to dry down to a maximum of 35 percent before applying joint treatment and tile.
- B. Install in accordance with ANSI A108.11 except as specified otherwise.

### **3.5 GLASS MAT WATER-RESISTANT GYPSUM BACKER BOARD**

- A. Install in accordance with manufacturer's instructions.

### **3.6 MARBLE**

- A. Secure thresholds and stools in position with minimum of two stainless steel dowels.
- B. Set in dry-set Portland cement mortar or latex-Portland cement mortar bond coat.

### **3.7 METAL DIVIDER STRIPS**

- A. Install metal divider strips in floor joints between ceramic and quarry tile floors and between tile floors and adjacent flooring of other materials where the finish floors are flush unless shown otherwise.
- B. Set divider strip in mortar bed to line and level centered under doors or in openings.

//C. At preformed sealant joint: Refer to Section 07 95 13, EXPANSION JOINT COVER ASSEMBLIES.

### 3.8 CERAMIC TILE - GENERAL

- A. Comply with ANSI A108 series of tile installation standards in "Specifications for Installation of Ceramic Tile" applicable to methods of installation.
- B. Comply with TCNA Installation Guidelines:

#### SPEC WRITER NOTES:

1. Modify and edit setting bed materials to suit job conditions.
2. For new work set floor tile on mortar bed minimum thickness of 32 mm (1-1/4 inches), increased to provide positive slopes to drains.
3. Use with reinforcing over cleavage or waterproof membranes.
4. Tile in depressed slab areas may also be set in dry-set or latex-Portland cement mortar over "set-up" mortar fills.
5. 75 mm (3 inches) depressed floor slabs are required for floor mortar beds.
6. For existing areas where floors cannot be cut for depressed mortar beds and a waterproof membrane is required, consider an elastomeric bond coat over an elastomeric membrane with waterproof isolation membrane system option.
7. Note requirement for drying period (14 to over 60 days) for latex-Portland cement mortar setting beds. Latex (except acrylic) will re-emulsify if exposed to water when not thoroughly dry. Do not use latex-Portland cement in water pools.
8. Coordinate to show on drawing, details of each different method of setting at wall, cap strip and base. Show details and extent of expansion joints, waterproofing, and location of areas to be sloped and differences in elevation of floors, top of drains, curbs, and similar features.
9. Clearly define, or show on drawings, where each different setting method is to be used if not clearly defined in Section 09 06 00, SCHEDULE FOR FINISHES finish schedule remarks.
10. For design of various systems see Tile Council of North America Inc., "Handbook for Ceramic, Glass, and Stone Tile Installation."

11. Thin-set tile can only follow slope of sub-floor or contour of walls as only a minimum amount of adjustment can be made.
12. Do not install building expansion joints in ceramic tile floors over waterproof membranes.

C. Installing Mortar Beds for Floors:

1. Install mortar bed to not damage waterproof or crack isolation membrane; 32 mm (1-1/2 inch) minimum thickness.
2. Install floor mortar bed reinforcing centered in mortar fill.
3. Screed finish to level plane or slope to drains where shown, float finish.
4. For thin set systems cure mortar bed not less than seven days; do not use curing compounds or coatings.
5. For tile set with Portland cement, paste over plastic mortar bed coordinate to set tile before mortar bed sets.

D. Setting Beds or Bond Coats:

1. Where recessed or depressed floor slabs are filled with Portland cement mortar bed, set ceramic mosaic floor tile with latex-Portland cement mortar over cured mortar bed except as specified otherwise, ANSI A108-1B, TCNA System F111 or F112.

SPEC WRITER NOTES:

1. List or specify locations where elastomeric bond coat systems occurs by room number and name and coordinate with specification Section 09 06 00, SCHEDULE FOR FINISHES.
  2. Use only for existing buildings where a depressed slab cannot be installed and a curb is not acceptable.
  3. Insure details show and identify these system including joints with adjacent materials.
  4. Do not use in new buildings.
2. Set trim shapes in same material specified for setting adjoining tile.

E. Workmanship:

1. Comply with all ANSI 108, 118, 136, and 137 requirements.
2. Joints:
  - a. Keep all joints in line, straight, level, perpendicular and of even width unless shown otherwise.
  - b. Make joints 2 mm (1/16 inch) wide for glazed wall tile and mosaic tile work.

- c. Make joints in quarry tile work not less than 6 mm (1/4 inch) nor more than 9 mm (3/8 inch) wide; finish joints flush with surface of tile.
  - d. Make joints in paver tile, porcelain type; maximum 3 mm (1/8 inch) wide.
3. Back Buttering: For installations indicated below, obtain 100 percent mortar coverage by complying with applicable special requirements for back buttering of tile in referenced ANSI A108 series of tile installation standards:
- a. Tile wall installations in wet areas.
  - b. Tile wall installations composed of tiles 200 by 200 mm (8 by 8 inches or larger).

### **3.9 GROUTING**

- A. Grout Type and Location: Refer 09 06 00, SCHEDULE OF FINISHES.
- B. Workmanship:
  - 1. Install and cure grout in accordance with the applicable standard.
  - 2. Portland Cement grout: ANSI A108.1.
  - 3. Epoxy Grout: ANSI A108.1.
  - 4. Dry-set grout: ANSI A108.1.

### **3.10 MOVEMENT JOINTS**

- A. Prepare tile expansion, isolation, construction and contraction joints for installation of sealant. Refer to Section 07 92 00, JOINT SEALANTS.
- B. TCA details EJ 171.

### **3.11 CLEANING**

- A. Thoroughly sponge and wash tile.
- B. Polish glazed surfaces with clean dry cloths.
- C. Methods and materials used must not damage or impair appearance of tile surfaces.
- D. The use of acid or acid cleaners on glazed tile surfaces is prohibited.
- E. Clean tile as recommended by the manufacturer of the grout and bond coat.
- F. Apply grout sealer.

### **3.12 PROTECTION**

- A. Keep traffic off tile floor, until grout and setting material is firmly set and cured.
- B. Where traffic occurs over tile floor, cover tile floor with not less than 9 mm (3/8 inch) thick plywood, wood particle board, or hardboard

securely taped in place. Do not remove protective cover until time for final inspection. Clean tile of any tape, adhesive and stains.

### **3.13 TESTING FINISH FLOOR**

- A. Test floors in accordance with ASTM C627 to show compliance with codes 1 through 10.

### **3.14 INTERIOR CERAMIC TILE INSTALLATION SCHEDULE**

- A. Interior Floor Installations, Concrete Subfloor:
  - 1. Ceramic Tile Installation: TCNA F112 and ANSI A108.1B; cement mortar bed (thickset) bonded to concrete.
    - a. Bond Coat for Cured-Bed Method: // Dry-set// Latex-// Medium-bed, latex-// Portland cement mortar.
    - b. Grout: // Sand-Portland cement// Standard sanded cement// Standard unsanded cement// High-performance sanded// High-performance unsanded// grout.
  - 2. Ceramic Tile Installation: TCNA F113; thin-set mortar.
    - a. Bond Coat for Cured-Bed Method: // Dry-set // Latex- // Medium-bed, latex- // Portland cement mortar.
    - b. Grout: // Sand-Portland cement // Standard sanded cement // Standard unsanded cement // High-performance sanded // High-performance unsanded// grout.
  - 3. Ceramic Tile Installation: TCNA F125A; thin-set mortar on waterproof and crack isolation membrane.
    - a. Thin-set Mortar: // Latex-// Medium-bed, latex-// Portland cement mortar.
    - b. Grout: // Sand-Portland cement // Standard sanded cement // Standard unsanded cement // High-performance sanded // High-performance unsanded// grout.
- B. Interior Wall Installations, Masonry or Concrete:
  - 1. Ceramic Tile Installation: TCNA W202; thin-set mortar.
    - a. Bond Coat for Cured-Bed Method: // Dry-set // Latex- // Medium-bed, latex- // Portland cement mortar.
    - b. Grout: // Sand-Portland cement // Standard sanded cement // Standard unsanded cement // High-performance sanded // High-performance unsanded// grout.
- C. Interior Wall Installations, Wood or Metal Studs or Furring:
  - 1. Ceramic Tile Installation: TCNA W244C or TCNA W244F; thin-set mortar on cementitious backer units or fiber-cement backer board over vapor-retarder membrane.

- a. Thin-set Mortar: // Dry-set // Latex- // Portland cement mortar.
  - b. Grout: // Sand-Portland cement // Standard sanded cement // Standard unsanded cement // High-performance sanded // High-performance unsanded// grout.
2. Ceramic Tile Installation: TCNA W245 or TCNA W248; thin-set mortar on glass-mat, water-resistant gypsum backer board.
- a. Thin-Set Mortar: // Dry-Set // Latex- // Portland cement mortar.
  - b. Grout: // Sand-Portland cement // Standard sanded cement // Standard unsanded cement // High-performance sanded // High-performance unsanded// grout.
- D. Shower Receptor and Wall Installations:
1. Ceramic Tile Installation: TCNA B415; thin-set mortar on waterproof membrane over cementitious backer units over vapor-retarder membrane.
- a. Thin-set Mortar: // Dry-set // Latex- //Portland cement mortar.
  - b. Grout: // Sand-Portland cement // Standard sanded cement // Standard unsanded cement // High-performance sanded // High-performance unsanded// grout.
2. Ceramic Tile Installation: TCNA B421; thin-set mortar on waterproof membrane over solid backing.
- a. Thin-set Mortar: Latex-Portland cement mortar.
  - b. Grout: // Sand-Portland cement // Standard sanded cement // Standard unsanded cement // High-performance sanded // High-performance unsanded// grout.

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