



SECTION 093000

TILE SETTING

Suggested Specification for Ceramic Tiling of Pools and Water Features

PART 1 GENERAL

NOTE: THE USER MAINTAINS ALL RESPONSIBILITY FOR VERIFYING THE APPLICABILITY AND SUITABILITY OF THE TECHNICAL SERVICE OR INFORMATION PROVIDED.

1.01 SECTION INCLUDES

- A. Tile
 - 1. Color Body Porcelain
 - 2. Glazed Porcelain
 - 3. Glass Tile
 - 4. Mosaics
 - 5. Natural Stone Tile
- B. Surface Preparation Products:
 - 1. Patching and Leveling
 - 2. Waterproof membrane
 - 3. Crack isolation membrane
- C. Setting Materials: Mortars
 - 1. Polymer Modified Thin Set Mortar
 - 2. Polymer Modified Medium Bed Mortar
 - 3. Unmodified mortar and additive
- D. Setting Material Additives
 - 1. Unmodified mortar additive
- E. Setting Materials: Grouts and sealants
 - 1. High Performance Cement Grouts
 - 2. Epoxy Grout
 - 3. Flexible sealant.

1.02 RELATED REQUIREMENTS

- A. Section 03 54 00 - Cast Underlayment.

1.03 REFERENCE STANDARDS

- A. ANSI A108/A118/A136 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium).

- B. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar.
- C. ANSI A108.1b - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar.
- D. ANSI A108.1c - Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex-Portland Cement.
- E. ANSI A108.2 - American National Standard General Requirements: Materials, Environmental and Workmanship.
- F. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive.
- G. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar.
- H. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy.
- I. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout.
- J. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout.
- K. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework.
- L. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units.
- M. ANSI A108.12 - American National Standard for Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar.
- N. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone.
- O. ANSI A108.19 - American National Standard Specifications for Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method Bonded with Modified Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar.
- P. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive.
- Q. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar.
- R. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation.
- S. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units.
- T. ANSI A118.10 - American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile And Dimension Stone Installation.
- U. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation.
- V. ANSI A118.15 - American National Standard Specifications for Improved Modified Dry-Set Cement Mortar 2012.
- W. ANSI A137.1 - American National Standard Specifications for Ceramic Tile.
- X. ANSI A137.2 - American National Standard Specifications for Glass Tile.
- Y. ANSI A137.3 - American National Standard Specifications for Gauged Porcelain Tile and Gauged Porcelain Tile Panels/Slabs

- Z. ASTM C373 - Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-Tile Fired Ceramic Whiteware Products.
- AA. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include installation instructions.
- C. LEED or 'green' requirements: MAS Certified Green compliance certificates for CDPH VOC Emissions for cement-based tile setting mortars/grouts and surface preparation products
- D. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
- E. Storage and handling requirements and recommendations.
- F. Samples: Mount tile and apply grout on two plywood panels, minimum 18 by 18 inches (457 by 457 mm) in size illustrating pattern, color variations, and grout joint size variations.
- G. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- H. Installer's Qualification Statement:
Submit documentation of National Tile Contractors Association (NTCA) or Tile Contractors' Association of America (TCAA) accreditation.
Submit documentation of completion of apprenticeship and certification programs.
- I. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 016000 - Product Requirements, for additional provisions.
 - 2. Extra Tile: 10 square feet (1 square meters) of each size, color, and surface finish combination.

1.05 QUALITY ASSURANCE

- A. Maintain one copy of and ANSI A108/A118/A136/A137 and TCNA on site.
- B. Installer Qualifications:
Company specializing in performing tile installation, with minimum of three years of documented experience. Accredited Five-Star member of the National Tile Contractors Association (NTCA) or Trowel of Excellence member of the Tile Contractors' Association of America (TCAA), or
Ceramic Tile Education Foundation (CTEF): Certified Tile Installer (CTI), or
Advanced Certifications for Tile Installers (ACT): Certification in the installation of membranes, mortar bed (mud) floors, mortar (mud) walls, shower receptors, large format tile, and grouts.
- C. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

1.06 FIELD CONDITIONS

- A. Maintain ambient and substrate temperature above 50 degrees F (10 degrees C) and below 100 degrees F (38 degrees C) during installation and curing of setting materials.

1.07 PRE-INSTALLATION CONFERENCE

- A. Convene one week prior to commencing work of this section
- B. Require attendance of setting material manufacturer, tile supplier, tile installer and installers of related work. Review installation procedures and coordination required with related work. Meeting agenda includes but is not limited to:
 - 1. Surface preparation
 - 2. Tile installation procedure

3. Mortar and Grouting material and procedure
4. Cleaning products and maintenance

1.08 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 of ANSI A137.1 for labeling sealed tile packages.
- B. Prevent damage or contamination to materials by water, freezing, foreign matter and other causes.
- C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.09 WARRANTY

- A. Tile Manufacturer's Warranty: Provide manufacturer's standard limited product warranty.
- B. The manufacturer of the installation materials shall supply a Lifetime limited system warranty upon completion of the installation, when installed per manufacturer's installation instructions, shall maintain the bond between the tile and approved substrate (as listed on the Product Data Sheet), under normal use.

PART 2 PRODUCTS

2.01 TILE

NOTE TO SPECIFIER: edit for each tile type

- A. Manufacturers: All Tile Setting and Surface Prep products to be produced by same manufacturer for system warranty. **Recommended in writing by manufacturer for use in pools and water features.**
- B. Quarry Tile, Type [___]: ANSI A137.1 standard grade.
 1. Moisture Absorption: Over 3.0 but not more than 5.0 percent as tested in accordance with ASTM C373.
 2. Size: 4 by 8 inch (102 by 203 mm), nominal.
 3. Thickness: 1/2 inch (12.7 mm), nominal.
 4. Products:
- C. Porcelain Tile, Type [_____]: ANSI A137.1 standard grade.
 1. Moisture Absorption: 0 to 0.5 percent as tested in accordance with ASTM C373.
 2. Size: 6 by 6 inch (152 by 152 mm), nominal.
 3. Thickness: 3/8 inch (9.5 mm).
 4. Products:
 5. Moisture Absorption: 0 to 0.5 percent as tested in accordance with ASTM C373.
 6. Thickness: 1/4 inch (6.4 mm).
 7. Edges: Square.
 8. Products:
- D. Glass Tile, Type [_____]: ANSI A137.2 standard grade.

2.02 MORTARS

- A. Provide setting materials, surface prep and crack isolation/waterproofing membranes from same manufacturer.
- B. Manufacturers:

1. **BASIS OF DESIGN:** TEC/H.B. Fuller Construction Products, Inc; www.tecspecialty.com; Aurora, IL 60504; Toll Free Tel: 800-832-9002

C. Improved Latex-Portland Cement Mortar Bond Coat: **Exceeds ANSI A118.4E, A118.11 and A118.15E**; ISO C2ES1P2

1. Applications: **Use for thin-bed installation of 1" x 1" or 2" x 2" mosaics, standard size tile, and glass tile.** Only install when the temperature is between 40-95°F. Polymer-modified with a patented bonding formula that provides unparalleled bond strength over plywood, cementitious surfaces and other substrates. Use this type of bond coat where indicated. Not for installing green marble, other moisture-sensitive stone tile or resin-backed marble; use TEC AccuColor EFX Epoxy Grout and Mortar. Not made for large format tile nor gauged porcelain panels.
2. Products:
 - a. **BASIS OF DESIGN:** [TEC Super Flex Ultra-Premium Thin Set Mortar](http://www.tecspecialty.com): www.tecspecialty.com.
3. Lifetime Product Warranty
4. Absorbs 1/16" in-plane movement
5. Porcelain Tile Shear Strength: Equal to or Greater than **700** psi

D. Improved Latex-Portland Cement Mortar Bond Coat: **Exceeds ANSI A118.4TE, A118.11 and A118.15TE**; ISO C2TES1P2

1. Large and Heavy Tile Mortar or "LHT Mortar".
2. Applications: High-performance, polymer-modified, A118.15 mortars that provides ultra-long open time and extra smooth and creamy troweling. It is ideal for large and heavy tile, standard and mosaic tile, gauged porcelain panels and uncoupling membrane applications. Can be used for interior/exterior, and building facades. (**Note: TEC TotalFlex 150 mortar not to be used with glass tile submerged; intermittent water exposure only**)
3. Products:
 - a. **BASIS OF DESIGN:** [TEC 3N1 Performance Mortar](http://www.tecspecialty.com): www.tecspecialty.com.
 - b. Bostik
 - c. Merkrete
 - (1) Lifetime Product Warranty
 - (2) Open Time: 80-90 minutes
 - (3) Pot Life: 2-3 hours
 - (4) Initial Cure @ 72F: 16-24 hours
 - (5) Final Cure: 21 days
 - (6) 30lb bag provides same coverage as 50 pounds of traditional latex modified mortar
 - (7) Porcelain Tile Shear Strength: Equal to or Greater than **440** psi
- a. [TEC TotalFlex 150 Universal Polymer-Modified Mortar](http://www.tecspecialty.com): www.tecspecialty.com
- b. Bostick
- c. Merkrete
 - (1) **Not for Glass Tile applications outdoors.**
 - (2) **Not for Submerged glass tile**
 - (3) 32lb bag provides same coverage as 50 pounds of traditional latex modified mortar
 - (4) **Indoor Wall Glass Tile (if applicable):** Clear Glass tiles with no backing with maximum area of 16 in²; 12" x 12" Matted Mosaic Tiles with clear or painted Mesh backing; 12" x 12" Matted Subway Tiles with Mesh backing; Glass tiles with painted backing up to 16 in²
 - (5) Open Time: up to 60 minutes

- (6) Pot Life: 3-4 hours
- (7) Initial Cure @ 72F: 9-12 hours
- (8) Final Cure: 21 days
- (9) Lifetime Product Warranty
- (10) Porcelain Tile Shear Strength: Equal to or Greater than **494** psi

4. Unmodified Portland Cement Mortar Bond Coat:

- a. Applications: Use this type of bond coat where indicated (**Thick Setting Beds**). Use with mortar additive in place of water for enhanced performance characteristics.

5. Mortar Additive: Use in place of water in unmodified thin set or specialty mortars to provide enhanced performance characteristics. Highly recommended as an admixture for scratch and brown coats. Mixed with unmodified mortar, absorbs 1/16" in-plane movement; ANSI A118.4/A118.11. Rated for extra heavy commercial traffic

- a. Products:

(1) **BASIS OF DESIGN:** [TEC Xtra Flex Acrylic Latex Additive: www.tecspecialty.com](http://www.tecspecialty.com).

2.03 GROUTS

- A. Provide setting and grout materials from same manufacturer.

- B. Manufacturers:

- 1. **BASIS OF DESIGN:** H.B. Fuller Construction Products, Inc: www.tecspecialty.com.
- 2. Bostik
- 3. Merkrete

- C. High Performance Polymer Modified Cement Grout: ANSI A118.7 polymer modified cement grout.

- 1. Applications: Use this type of grout where indicated .
- 2. For grout joints from 1/16" to 1/2" wide (1.6 mm to 12 mm)
- 3. Color(s): As indicated on drawings.

- a. Products:

(1) **BASIS OF DESIGN:** H.B. Fuller Construction Products, Inc; [TEC Power Grout: www.tecspecialty.com](http://www.tecspecialty.com).

(2) Bostik

(3) Merkrete

SPECIFIER NOTE: When used in pools, do not allow pH to drop below 7.0. If owner does not maintain calcium deficient water chemistry, as well as the use of acids to shock pools could result in damaging cement grout over time. See TEC AccuColor EFX 100% Solids Epoxy as alternative.

- 4. [Lifetime Limited Product Warranty](#): specifically protects against grout efflorescence and color shading
- 5. Shrink/Crack Resistant
- 6. Residential to Extra Heavy Commercial Applications; virtually any environment, including high traffic and wet conditions (not commercial kitchens that use enzymatic cleaners)
- 7. Color uniform
- 8. 28 Day Compressive Strength: 10,300 psi minimum
- 9. 28 Day Water Absorption: 1.1% maximum

- D. Epoxy Grout: ANSI A118.3 **100% solids**, chemical resistant and water-cleanable epoxy grout.

- 1. Color(s): As indicated on drawings.

2. Do not use a "hybrid" epoxy grout that is not meant to be used with harsh chemicals or areas exposed to aggressive cleaning regimens.
3. Products:
 - a. **BASIS OF DESIGN:** H.B. Fuller Construction Products, Inc; [TEC AccuColor EFX Epoxy Special Effects Grout](#): www.tecspecialty.com.
 - b. Bostik
 - c. Merkrete

2.04 MAINTENANCE MATERIALS

- A. Tile Sealant: Gunnable, 100% silicone; moisture and mildew resistant type. Shall meet ASTM C920 – Type S, NS, Class 50
 1. Applications: Between tile and plumbing fixtures. Swimming pool applications or submerged applications – use polyethylene backer rod or tape and allow 14 days to cure before filling pool.
 2. Products:
 - a. **BASIS OF DESIGN:** H. B. Fuller Construction Products: [TEC AccuColor 100 Silicone Sealant](#).
 - b. Bostick
 - c. Merkrete

2.05 ACCESSORY MATERIALS

- A. **Cementitious** Waterproofing and Crack Isolation Membrane: For use pre-treating cracks, joints, etc in substrate and as first layer waterproofing membrane. Exceeds ANSI A118.10 and ANSI A118.12.

NOTE: If water testing is desired/required prior to tile installation, allow membrane to cure at least 72 hours.

 1. In-plane Crack Resistance: No failure at 1/8" inch gap, minimum.
 2. IAPMO approved
 3. Waterproofing and crack isolation membrane
 4. Trowel Applied Type
 5. Material: Cementitious.
 6. Waterproofing Thickness: 45 mils thickness over entire surface.
 7. Products:
 - a. **BASIS OF DESIGN:** H.B. Fuller Construction Products, Inc; [TEC Triple Flex Waterproofing Crack Isolation Membrane](#): www.tecspecialty.com.
 - b. Bostik
 - c. Merkrete
- B. **Acrylic Emulsion** Waterproofing and Crack Isolation Membrane: Ready-to-Use, specifically designed for bonding to cementitious substrate under medium bed or thin-set tile; exceeds ANSI A118.10 and ANSI A118.12.
 8. Crack Resistance: No failure at 1/4" inch (6.35 mm) gap, minimum.
 9. IAPMO approved
 10. Waterproofing membrane: Two coats of 25 mils wet film thickness each over the entire surface..
 11. Flood Testing (where applicable): Conduct testing after 2 hours under ideal conditions (depending on temperature, relative humidity, substrate porosity and air flow)
 12. Fluid, Spray or Trowel Applied Type
 13. Material: Synthetic rubber or Acrylic.
 14. Thickness: One coat at 50 mils wet thickness or two coats at 25 mils wet thickness each to obtain maximum 1/4" crack isolation.
 15. Products:
 - a. **BASIS OF DESIGN:** H.B. Fuller Construction Products, Inc; [TEC HydraFlex Waterproofing Crack Isolation Membrane](#): www.tecspecialty.com.
 - b. Bostik
 - c. Merkrete

- B. Patch: Cement-based underlayment that is designed specifically for deep fills, ramping, and leveling concrete and plywood subfloors (dry areas only) from featheredge up to 1 1/2" (38 mm) in a single application, up to 5" (12 cm) with proper aggregate. It can be applied with a steel trowel, float and/or screed to produce a smooth, level surface. Cures to a walkable surface in approximately 60 minutes.
1. Applications: Floor Flatness.
 2. Install Floor Covering: 1 1/2 hours
 3. Compressive Strength, 28 Day: Equal to or Greater than 4,200 psi minimum
 4. Flexural Strength, 28 Day: Equal to or Greater than 1100 psi.
 5. Products:
 - a. **BASIS OF DESIGN:** H. B. Fuller Construction Products: [TEC Fast-Set Deep Patch](http://www.tecspecialty.com).
 - b. Bostik
 - c. Merkrete
- C. Backer Board: Cementitious type complying with ANSI A118.9; high density, glass fiber reinforced, 1/2 inch (12.7 mm) thick; 2 inch (51 mm) wide coated glass fiber tape for joints and corners.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine surfaces, which are to receive tile. Fiberglass pools are not suitable substrates.
- B. Do not proceed with work until defects or conditions which would adversely affect quality, execution and permanence of finished tile work are corrected.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Surface Preparation for Tile and Stone Work.

1. General:
 - a. All supporting surfaces shall be structurally sound, solid, stable, level, plumb, and true. Deviations from dimensions, contours or slopes in the concrete, Shotcrete or Gunitite must not exceed 1/2" or encroach on the required thickness of the mortar bed and tilework in order to provide exact dimensional requirements in length and width and specified tolerance.
 - b. The pool tank surface must be free of grease, oil, wax, curing compounds, or other bond inhibiting coatings. Shotblast or sandblast if necessary.
 - c. Per Tile Council of North America (TCNA) requirements, the flatness requirements for tiles with at least one side longer than 15" must be **1/8" in 10 ft.** and no more than 1/16" in 2 ft. when measured from the high points.
 - d. The flatness requirements for tiles that do not have a side longer than 15" must be **1/4" in 10 ft.** and no more than 1/16" in 1 ft. when measured from the high points.
 - e. Mechanically abrade and scarify the substrate to completely remove all paint, loosely bonded topping, loose particles and construction debris.
 - f. Neutralize any trace of strong acid or alkali.
 - g. All substrates shall be dry. The moisture content shall not exceed 50 percent.
 - h. Turn off all forced ventilation and radiant heating systems and protect work against drafts during installation and for a period of at least 72 hours after completion. Use indirect auxiliary heaters to maintain the temperatures in the area at the recommended workable level. Vent area to prevent damage to tile work from carbon dioxide build-up.
 - i. Presswood, particleboard, chipboard, masonite, gypsum floor patching compounds, asbestos board, Luan and similar dimensionally unstable materials are not acceptable substrates.

- j. Before work commences examine the areas to be covered and report any flaw or adverse condition in writing to the architect and to the general contractor. Do not proceed with work until surfaces and conditions comply with the requirements indicated in ANSI A108 standard.
2. Concrete:
 - a. Concrete and Masonry surfaces must comply with ANSI A108.01 Section 3.2
 - b. All concrete substrates shall be at least 28 days old, completely cured and free of hydrostatic conditions, and/or moisture problems.

3.03 INSTALLATION

- A. Surface Prep: Install all materials in accordance with manufacturer's instructions.
 1. Pre-treat all concrete cracks, joints, changes in plane, drains, penetrations, jets, etc. with cementitious Waterproofing and Crack Isolation Membrane.
 2. After pre-treating all cracks, joints, etc, install layer of cementitious Waterproofing and Crack Isolation Membrane according to manufacturer's instructions.
 3. Then, apply unmodified Portland Cement Mortar Bond Coat and additive. TCNA requires the floor have 1¼" mortar bed and the walls have ¾" thickness. The walls must be plumb, and the floors must meet the requirements of the tile as stated earlier. It is important to add just enough unmodified mortar to the additive to produce a dry-pack consistency. This allows maximum compaction during tamping and maximum strength. Allow this mortar bed to cure for a minimum of 7 days.
 4. After at least 7 days for mortar bed to cure, apply an Acrylic Emulsion waterproofing and crack isolation membrane. Two coats of 25 mils wet thickness are required when waterproofing. The second coat must be applied perpendicular to the first coat. After application of the second coat, wait 2 to 12 hours, dependent on ambient conditions, prior to flood testing.
- B. Mortar: Install tile using TCNA methods indicated on the drawings.
 1. P602 for Concrete Tank that are not watertight and tiles to be installed with a bonded Waterproofing Membrane and a Bonded Mortar Bed. (see CAD drawing below)
 2. For tiles with all edges 15 inches or less, install tile with Ultra-Premium Thin Set Mortar that exceeds ANSI A118.4E, A118.11, and A118.15E specifications and flexible enough to handle 1/16" in-plane movement of the tile. The exceptional bond strength and flexible characteristics make it the ideal choice for exterior pools and water features or interior with direct sunlight. ANSI A118.15 mortars have a greater resistance to shock and impact which will help in freeze/thaw conditions.
 3. For tiles with at least one edge 15 inches or longer, install tile with premium, Large and Heavy Tile Mortar (LHT) which exceeds ANSI A118.4, A118.11, and A118.15: non-sag and non-slump to support heavy tile weighing up to 6 lbs./ft² on vertical and horizontal applications. Confirm correct mortar if using glass tile outdoors by reading the product data sheet.
 4. When installing tiles remember to "key in" the mortar to promote adhesion. Check for coverage within the first few tiles to make sure the correct trowel is being used and periodically throughout the installation. If 95% coverage isn't being achieved, switch trowels or back-butter the tiles. Allow 16-24 hours for the mortar to cure before grouting.
- C. Expansion joints, control joints, etc., must be located in compliance with TCNA EJ171 and filled with appropriate materials.
 1. Joints must be carried through layers of installation materials including tile, setting bed, mortar bed and reinforcing wire. Refer to TCNA Handbook, EJ171 and ANSI AN-3.8 for details on placement, size and specifications of materials.
 2. Seams around all protrusions, fittings and between the tile and coping should be filled with appropriate sealant/caulk.

F. Grouts: Install **grout** in accordance with Grout ANSI A108.10 standard and manufacturer's directions.

NOTE to Specifier: Maintaining proper pool water balance is critical to ensure an attractive and long-lasting tile installation. Cement-based grouts, mortars, plumbing, and the concrete pool shell can be degraded if pool water is not regularly checked and adjusted to within recommended ranges. Achieving proper pool water balance includes maintaining pH and calcium hardness. Pool water must be maintained at a pH of 7.2-7.8. If the pH drops below 7.0 the cement grout and mortar will etch and degrade. When the pH is above 8.0 mineral deposits will form on the tiles. If the calcium hardness level drops too low, the pool water will leach calcium out of the cement grouts and mortar resulting in degradation over time. Regular water quality checks and adjustments are required to ensure the water is balanced and safe.

TEC offers a complete chemical resistant, 100% solids epoxy grout, TEC® AccuColor EFX® Epoxy Special Effects Grout that is less sensitive to pool chemistry variations. It exceeds ANSI A118.3 Specifications for Epoxy Mortar and Grout.

1. Fully pack all joints and remove excess grout. Allow grout to firm up before cleanup. This will usually take about 15-30 minutes depending on ambient conditions. Check for firmness by lightly touching the grout with your finger. If there is no transfer to your finger, you may proceed with clean up. Once grouting is finished, you **must wait 21 days before filling the pool with water.**

G. Filling pool or water feature with water:

1. Completed tile installation must **cure 21 days before filling with water.** Tile installation should be protected from the elements during curing.
2. **Water should be added to the pool or water feature at a rate of 1 inch per hour. Adding at a faster rate may damage tile assembly.**

3.01 PROTECTION

- A. Do not permit traffic over finished floor surface for 4 days after installation in areas where cement grout is applied. For 100% epoxy grout areas, job may be opened to light traffic (but not other trades) and intermittent water exposure 24 hours after grouting. Complete cure and stain resistance will be achieved in 7 days.

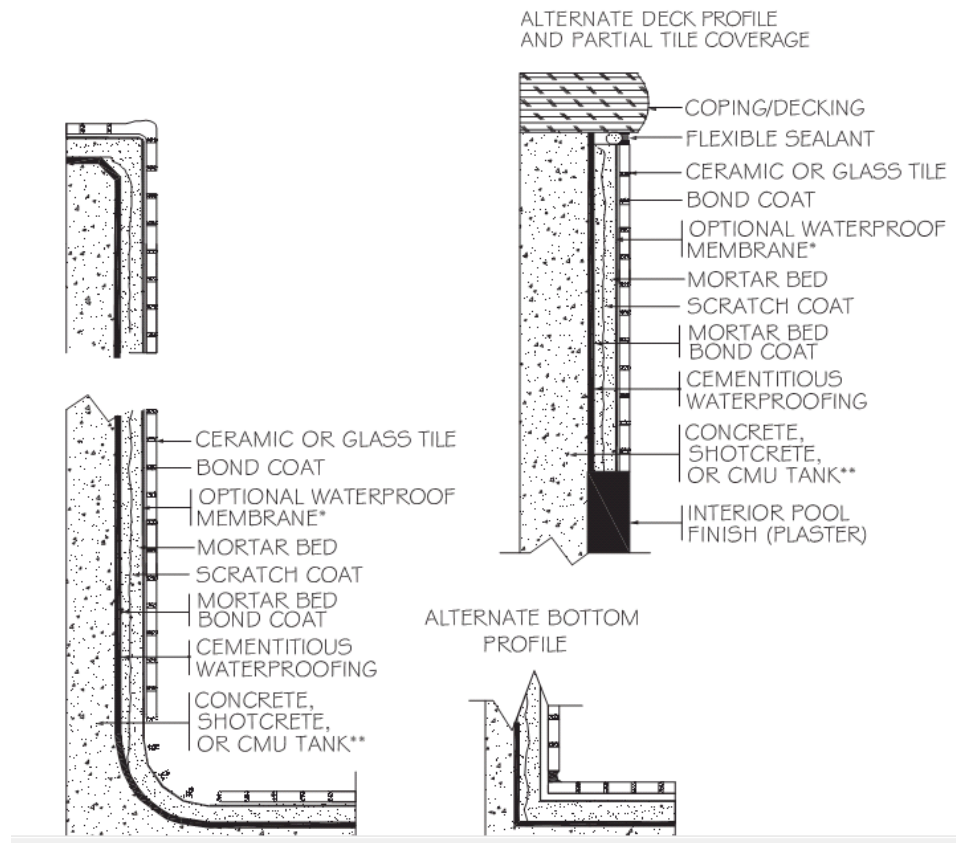
TEC: THE USER MAINTAINS ALL RESPONSIBILITY FOR VERIFYING THE APPLICABILITY AND SUITABILITY OF THE TECHNICAL SERVICE OR INFORMATION PROVIDED.

END OF SECTION

Courtesy of TCNA

P602-20

- Concrete, Shotcrete, or CMU Pool Tank
- Cementitious Waterproofing
- Bonded Mortar Bed
- Ceramic Tile, Glass Tile



To learn more, visit [TECSpecialty.com](https://www.tecspecialty.com)



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