**SUGGESTED SPECIFICATION FOR CERAMIC TILING – INCLUDING LARGE FORMAT TILE AND GAUGED PORCELAIN TILE/PANELS SETTING MATERIALS AND ACCESSORIES**

**Part 2 Products**

**2.01 FLOOR TILE**

.1  Ceramic Tile[, Type FT1]: To [ISO 10545] [ANSI A108/A118/A136.1] [CAN/CGSB-75.1], and as follows:

.1  Size: [\_\_\_\_\_\_] x [\_\_\_\_\_\_] x [\_\_\_\_\_\_]mm thick [nominal].

.2  Appearance: [Plain] [Granular] [Mottled] [Solid] [Polished] [\_\_\_\_\_\_]

.3  Pattern: [Textured] [Non-textured] [slate] [stone] [random] [\_\_\_\_\_\_]

.2  Ceramic Mosaic Tile [, Type CMT1]: To [ISO 13006] [ANSI A137.1] [CAN/CGSB-75.1], and as follows:

.1  Pre-spaced tile adhered to paper or open weave fabric with a water-soluble adhesive. Materials with paper or fabric (synthetic or organic) adhered to back of tiles are not acceptable.

.2  Size: [25] x [25] x [\_\_\_\_\_\_]mm thick [nominal]

.3  Appearance: [Plain] [Granular] [Mottled] [Solid] [Polished] [\_\_\_\_\_\_]

.4  Pattern: [Textured] [Non-textured] [slate] [stone] [random]

**2.02 WALL TILE**

**SPEC NOTE:** ANSI A137.2 describes glass tile.

.1  Ceramic Tile[, Type WT1]: To [ISO 10545] [ANSI A108/A118/A136.1] [CAN/CGSB-75.1], and as follows:

.1  Size: [\_\_\_\_\_\_] x [\_\_\_\_\_\_] x [\_\_\_\_\_\_] mm thick [nominal].

.2  Appearance: [Plain] [Granular] [Mottled] [Solid] [Polished] [\_\_\_\_\_\_]

.3  Pattern: [Textured] [Non-textured] [slate] [stone] [random] [\_\_\_\_\_\_]

**2.03 BASE TILE**

.1  Base [, Type TB1]:

.1  Profile: [Coved] [Straight], [with factory finished top edge] [top edge ready for applied trim].

.2  Type: Size, colour, and texture to match adjacent flooring material.

.3  Height: [100 mm] [150 mm] [200 mm] [As indicated on Drawings.]

**2.04 TILE TRIMS**

.1  Tile Trim Shape Sizes: Same size as adjacent [wall] tile, except where indicated otherwise.

**2.05 MORTARS**

.1  Provide surface preparation, waterproofing/crack isolation membrane, mortar, and grout materials from same manufacturer.

.2  Manufacturers:

.1  **BASIS OF DESIGN: TEC/ H.B. Fuller Construction Products, Inc**; <http://www.tecspecialty.com>; Aurora, IL 60504; Toll Free Tel: 800-832-9002; Email: request info (james.weldon@hbfuller.com)

.2  Merkete, by Parex USA, Inc.

.3  Bostik Inc.

.3  Polymer Modified Large and Heavy Tile (including Gauged Porcelain panels) Mortar and Standard Size Tile Mortar: **ANSI A118.4 and ANSI A118.11**; ISO 13007 C2TEP1.

**SPEC NOTE:** These two mortars below can be used on 98% of projects. Most indoor/outdoor, floors and walls, submerged applications, standard size tile, large format tile, gauged panels, indoor glass tile (walls only) up to up to 300mm x 300mm Matted Mosaic Tiles with clear or painted Mesh backing; 300mm x 300mm Matted Subway Tiles with Mesh backing and/or glass tiles with painted backing up to 103 cm2.

The main difference from ANSI A118.4 (“C”) mortar to A118.15 mortar (“D” below) is an increase in the requirements for bond strengths. ANSI A118.15 is for harsher environments but can be used anywhere. If you desire ANSI A118.15 mortar only, then delete “C” mortar which is less expensive.

Applications: Use this type of bond coat in all areas not indicated otherwise.

.1 **Products**:

.1  **BASIS OF DESIGN: H.B. Fuller Construction Products, Inc; TEC TotalFlex 110 Silica Free Universal Polymer-Modified Mortar:**[**www.tecspecialty.com**](http://www.tecspecialty.com)**.**

.1  Porcelain Tile 28 day: Equal to or greater than 2.7 MPa

.2  Gray or White

.3  Lightweight bags for installer comfort (15kg bag vs 18kg bags)

.4  Non-sag/Non-Slump performance for Large and Heavy Tile.

.5  **Thixotropic – better for vertical surfaces without slipping**

.6  **Pot Life: 3-4 hours**

.7  **Open Time: Up to 60 minutes**

.8  **Time to Grout: 9-12 hours**

.9  **Initial Cure: 9-12 hours**

.10  Product Warranty: Lifetime limited. Will be free from substantial manufacturing defects and will not break down or deteriorate under normal use

.1 Applications: Use this type of bond coat where indicated (harsh conditions; or when you need ANSI A118.15 mortar for other reasons).

.2 **Products**:

.1  **H.B. Fuller Construction Products, Inc**; [**TEC Ultimate 6 Plus Large Tile Mortar**](https://www.tecspecialty.com/products/mortars-additives/ultimate-6-plus/):  [www.tecspecialty.com](http://www.tecspecialty.com).

.1  Porcelain Tile 28 day: Equal to or greater than 3.3 MPa

.2  White

.3  Lightweight bags for installer comfort achieving same coverage (18kg bag vs 23kg bags)

.4  Non-sag/Non-Slump performance for Large and Heavy Tile.

.5  **Pot Life: 2-3 hours**

.6  **Open Time: 30 minutes**

.7  **Time to Grout: 6 hours minimum**

.8  **Initial Cure: 6 hours**

.9  Product Warranty: Lifetime limited. Will be free from substantial manufacturing defects and will not break down or deteriorate under normal use

.4  Improved Latex-Portland Cement Mortar Bond Coat:  **ANSI A118.15,** ANSI A118.4 and ANSI A118.11; ISO C2TES1P1

**SPEC NOTE:** The main difference from ANSI A118.4 (“C”) mortar to A118.15 mortar (“D” below) is an increase in the requirements for bond strengths. ANSI A118.15 is for harsher environments but can be used anywhere. If you desire ANSI A118.15 mortar only, then delete “C” mortar which is less expensive.

This mortar offers ANSI A118.15 and can be used on 98% of projects. Most indoor/outdoor, floors and walls, submerged applications, standard size tile, large format tile, gauged panels, indoor glass tile (walls only) up to up to 300mm x 300mm Matted Mosaic Tiles with clear or painted Mesh backing; 300mm x 300mm Matted Subway Tiles with Mesh backing and/or glass tiles with painted backing up to 103 cm2 (16 sq in).

.1 Applications: Use this type of bond coat where indicated (harsh conditions; or when you need ANSI A118.15 mortar for other reasons).

.2 **Products**:

.1  **H.B. Fuller Construction Products, Inc; TEC TotalFlex 150 Silica Free Universal Polymer-Modified Mortar:**[**www.tecspecialty.com**](http://www.tecspecialty.com)**.**

.1  High-performance, polymer-modified, silica free **A118.15** mortar 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, submerged applications, and building facades.

.2  Non-sag for walls/Non-Slump for floors

.3  Lightweight bags for installer comfort (18kg bag vs 23kg bags)

.4  Non-sag/Non-Slump performance for Large and Heavy Tile.

.5  **Pot Life: 3-4 hours**

.6  **Open Time: Up to 60 minutes**

.7  **Time to Grout: 9-12 minimum**

.8  **Initial Cure: 9-12 hours**

.9  Lifetime Product Warranty

.10 Porcelain Tile: Equal to or Greater than 3.4 MPa

**2.06 GROUTS**

.1  Provide surface preparation, waterproofing/crack isolation membrane, mortar, and grout materials from same manufacturer.

.2  Manufacturers:

.1  **BASIS OF DESIGN: TEC/ H.B. Fuller Construction Products, Inc**; <http://www.tecspecialty.com>; Aurora, IL 60504; Toll Free Tel: 800-832-9002; Email: request info (james.weldon@hbfuller.com)

.2  Merkete, by Parex USA, Inc.

.3  Bostik Inc.

.3  High Performance Polymer Modified Grout:  ANSI A118.7 polymer modified cement grout.

**SPEC NOTE:** This High-Performance Cement grout offers a Lifetime Limited Product Warranty that specifically protects against efflorescence and color shading. Water absorption is the best in the industry at a low 1.1% and its compressive strength is 71 MPa; more than double of all competitive grouts in this ‘high performance” category.

.1 **Products**:

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

.1  [Lifetime Limited Product Warranty](https://www.tecspecialty.com/hbfuller-media/2038/tec_powerplusgroutpluslimitedpluslifetimepluswarranty_r0916.pdf)**: Warranting efflorescence and color shading specifically**

.2  Shrink/Crack Resistant

.3  Residential to Extra Heavy Commercial Applications; virtually any environment, including high traffic and wet conditions (not commercial kitchens that use enzymatic cleaners)

.4  Color uniform

.5  28 Day Compressive Strength**: 71 MPa minimum**

.6  28 Day Water Absorption: 1.1% maximum

**SPEC NOTE:** This High-Performance Cement grout below offers a 5-year Limited Product Warranty. Color accurate and resistant to efflorescence. Water absorption is only < 3% absorption, and its compressive strength is 45 MPa, more than of all competitive grouts in this ‘high performance” category**.**

.2  **H.B. Fuller Construction Products, Inc;** [**TEC AccuColor Plus Grout**](chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https:/www.tecspecialty.com/hbfuller-media/3392/pds_tec_450_accucolorplus_r0221.pdf)**:**[**www.tecspecialty.com**](http://www.tecspecialty.com)

.1  Five Year Limited Warranty

.2  Shrink/Crack Resistant

.3  Residential to Extra Heavy Commercial Applications; virtually any environment, including high traffic and wet conditions (not commercial kitchens that use enzymatic cleaners)

.4  Colour uniform

.5  28 Day Compressive Strength**: 45 MPa minimum**

.6  28 Day Water Absorption: <3% maximum

.7 **Efflorescence resistant and color accurate**

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

**SPEC NOTE:** THIS 100% SOLIDS EPOXY GROUT IS A TRUE ANSI A118.3 GROUT/MORTAR THAT CAN BE USED FOR RESIDENTIAL AND COMMERCIAL INCLUDING COMMERCIAL KITCHENS WHERE ENZYMATIC CLEANERS ARE USED AND WILL DESTORY CEMENT GROUTS. Any other areas where these cleaners or harsh chemicals are not used, TEC Power Grout would be an excellent suggestion. Check competitive brands of ANSI A118.3 “Epoxy” Grouts for ability to be used in commercial kitchens where fat fryers are used. Read the data sheets. Look for ‘IG” or Industrial Grade epoxy grout which is equal to TEC EFX epoxy grout.

.1  [Color](https://www.tecspecialty.com/for-architects/)(s):   as indicated on drawings. {12 Stock Colors available; other color are available Made To Order with minimum order quantities.

.2  For grouting installations in Foodservice Operations such as commercial kitchens where enzymatic cleaners are used.

.3  Do not use a "hybrid" epoxy grout that is not meant to be used with harsh chemicals or areas exposed to aggressive cleaning regimens in bathrooms/gang showers or commercial kitchens.

.4  **Products:**

**.1 BASIS OF DESIGN**: **H.B. Fuller Construction Products;** [**TEC AccuColor EFX Epoxy Special Effects Grout**](https://www.tecspecialty.com/products/grouts/accucolor-efx-epoxy-special-effects-grout/)**:**  [www.tecspecialty.com](http://www.tecspecialty.com).

**2.07 MAINTENANCE MATERIALS**

.1  Tile Sealant:  Gunnable, 100% silicone; moisture and mildew resistant type. Shall meet ASTM C920 – Type S, NS, Class 50

.1  Products:

.1 **BASIS OF DESIGN**: **H.B. Fuller Construction Products Inc;** [**TEC AccuColor 100 Silicone Sealant**](https://www.tecspecialty.com/products/caulks-sealants/accucolor-100-100-silicone-sealant/)**.**

**2.08 ACCESSORY MATERIALS**

.1  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.

.1  Crack Resistance: No failure at 6.35 mm (1/4" inch)gap, min.

.2  IAPMO approved

.3  Waterproofing membrane: Two coats required; perpendicular; 1.17–1.27mm (46-50 mils) wet film thickness over entire surface.

.4  Flood Testing (where applicable): Conduct testing after 2 hours under ideal conditions (depending on temperature, relative humidity, substrate porosity and air flow)

.5  **Approved over control (saw cut) joints – no need to locate tile or stone field movement joints directly over control joints (full coverage only)**

.6  Fluid or Trowel Applied Type

.1  Material: Synthetic rubber or Acrylic.

.2  Thickness: 1.27mm (50 mils) total in one or two coats, minimum, wet film thickness(WFT) to obtain maximum 6mm (¼”) crack resistance.

.3  Thickness: 0.64mm (25 mils) total in one or two coats, minimum, wet film thickness(WFT) to obtain maximum 3mm (⅛”) crack resistance.

.4  Products:

.1  **BASIS OF DESIGN**: **H.B. Fuller Construction Products, Inc;** [**TEC HydraFlex Waterproofing Crack Isolation Membrane**](https://www.tecspecialty.com/products/surface-preparation/hydraflex-waterproofing-crack-isolation-membrane/):  [www.tecspecialty.com](http://www.tecspecialty.com).

.2  Merkrete

.3  Bostik

.2  Self-Leveling Underlayment: calcium aluminate-based, self-leveling underlayment that provides a smooth surface for large format tile.

.1  Applications: Floor Flatness.

.1  Tile Installation time: 4 hours

.2  Compressive Strength, 28 Day: 38 MPa minimum

.3  Flexural Strength, 28 Day: Greater than 7.6 MPa.

.4  Products:

.1  **BASIS OF DESIGN: ​H. B. Fuller Construction Products**, **Inc**;[**TEC Level Set 300**](https://www.tecspecialty.com/products/surface-preparation/level-set-300-self-leveling-underlayment/) **self-leveling underlayment​**

.2  Merkrete

.3  Bostik

**3    EXECUTION**

**3.01 EXAMINATION**

.1  Verification of Conditions:

.1  Verify substrate and backing surface flatness tolerances. Section [03 30 00 – Cast-in-Place Concrete] establishes a flatness requirement for [FF25 for slabs on grade] [and] [FF20 for suspended slabs] for in-place concrete and is considered the starting flatness for work of this Section. Final measurement for flatness and levelness using mortar bed or self-levelling screed materials described in this Section will be measured in same manner as specified in Section [03 30 00 – Cast-in-Place Concrete] to achieve the following:

**SPEC NOTE:** Edit the list below to include only tile types applicable to the project.

.1  Small Format Floor Tile: Tiles less than 100 mm x 100 mm require floor flatness as specified in Section [03 30 00 - Cast-in-Place Concrete].

.2  Standard Format Floor Tile: Tiles from 100 mm x 100 mm and with all sides less than 380 mm require floor flatness measured to a minimum of FF35; equivalent to 5 mm with no more than 2 gaps under a 3000 mm straightedge measurement.

.3  Large Format Floor Tile: Tiles with any side greater than 380 mm require floor flatness measured to a minimum of FF50; equivalent to 3 mm with no more than 2 gaps under 3000 mm straightedge measurement.

.4  Wall Tiles: Provide wall levelling similar to that specified for floors for tiles having similar sizes listed above.

.2  Pre-Installation Testing: [Test concrete substrates in accordance with ASTM F2170] [and] [Test moisture content of wood subfloor before installing flooring using electronic moisture test equipment], and as follows:

.1  Notify [Departmental Representative] [DCC Representative] [Consultant] a minimum of [72] hours before beginning examination and preparation.

.2  Do not install flooring over concrete slabs until slabs have cured [90] [28] days, and are sufficiently dry to bond with adhesive, as determined by flooring manufacturer’s recommended bond and moisture test methods, and as follows:

.1  Confirm manufacturer’s acceptable relative humidity before testing.

**SPEC NOTE:** Concrete slab testing is especially critical where low VOC or water-based adhesives are specified.

.2  Conduct moisture tests on concrete slabs, one test per [\_\_\_\_\_\_] m2 of floor area

.3  Maintain a minimum substrate temperature of 13 degrees C during testing.

.3  Examine substrates and conditions where tile will be installed for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

.1  Verify that substrates for bonding tile are firm, dry, clean, and free from oil, waxy films, and curing compounds.

.2  Verify substrates are within starting flatness tolerances as specified in Section [03 30 00 – Cast-in-Place Concrete], and are ready for application of levelling materials specified in this Section.

.3  Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar products located in, behind, or through tiling is complete.

.4  Verify that joints and cracks in substrates align with tile movement joint locations indicated on Drawings. Adjust joints in consultation with [Departmental Representative] [DCC Representative ] [Consultant] to align.

**3.02 PREPARATION**

.1  Thoroughly clean substrate surfaces. Remove grease, oil, dust film, concrete surface film forming products, concrete curing agents, and other contaminants that could reduce adhesion within bonding systems, and as follows:

.1  Clean the back of each tile before installation to remove surface contaminants and cutting residue, firing release dust, and other debris detrimental to bond and final surface appearance.

.2  [Cleavage] [Crack Suppression] [Waterproofing] Membrane: Install membrane in accordance with TTMAC Tile Installer Technical Manual and membrane manufacturer’s instructions.

.3  Surface Levelling: Apply [Levelling Bed Mortar] [or] [Self-Levelling Mortar] to make backing surfaces flat and true to tolerances in plane listed for performance requirements, with additional requirements as follows:

.1  Install levelling materials at slight substrate irregularities.

.2  Provide self-levelling materials for thicknesses less than 8 mm where thinset tile methods are used.

.3  Provide mortar bed levelling materials for thicknesses 8 mm and greater.

.4  Install cleavage membrane over [structural concrete slabs] [and] [suspended concrete slabs] [; apply 6-mm-thick sand bed under cleavage membrane where membrane is applied over a rough surface].

**SPEC NOTE:** When wood subfloors are not applicable to the project, delete the following paragraph. Coordinate floor stiffness requirements for materials specified in Section 06 08 99 – Rough Carpentry for Minor Works or Section 06 10 53 – Miscellaneous Rough Carpentry.

.4  Securely screw underlayment to subfloor with smooth face up. Install sheets with 6-mm gap to allow for expansion and contraction of subfloor materials.

**3.03 INSTALLATION – WATERPROOFING MEMBRANE**

.1  Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.

.2  Install in compliance with ANSIA108.1, ANSI A108.13, and ANSI A108.17..1  Terminate Work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

.3  Required wet film thickness is 1.2 to 1.3 mm (46 to 50 mils) over entire surface.

.4  Pre-fill all concrete crack and plywood gaps up to 3 mm (1/8 inch) wide as expansion joints..1  Cut, drill, and fit tile to accommodate work of other Subcontractors penetrating and abutting work of this Section.

.5  Apply membrane to entire surface using a 6 to 12 mm (1/4 to 1/2 inch) nap roller, 5mm (3/16 inch) v-notch trowel, or airless sprayer.

.6  Apply in two coats, 0.64 mm (25 mil) wet film thickness each. Cure first coat approximately 1 hour before applying second coat at right angles to first coat.

**3.04 INSTALLATION – CRACK ISOLATION MEMBRANE IN FULL COVERAGE**

.1  Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.

.2  Cracks and Generic Movement Joints

.3  Place movement joints per TTMAC \_\_\_\_\_

.4  Expansion, Isolation and Construction Joints:

.1  Ensure cracks or joints are clean and free of all debris.

.2  Install compressible backer rod.

.3  Compress specified sealant into the joint per sealant manufacturer's instructions, leaving it flush with surface.

.4  After sealant has cured, cover joint with bond breaker tape.

.5  Apply membrane as directed.

.6  After installing membrane over entire surface ensuring 1.3 mm (50 mil) wet film thickness and required cure time, place bond breaker tape over the joint and install tile without bridging the joint.

.7  Caulk joint with specified sealant.

**3.05 INSTALLATION - GENERAL**

.1  Perform tile work in accordance with TTMAC Tile Installer Technical Manual, parts of ANSI A108 Series of tile installation standards that apply to types of bonding and grouting materials, and to methods required for complete tile installation as minimum requirements.

.2  Extend tile work into recesses and under equipment and fixtures, to create a complete uninterrupted floor covering.

.1  Terminate Work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

.2  Do not split tile.

.3  Make cut edges smooth, even, and free from chips.

.3  Fit tile around corners, fitments, fixtures, drains, and other built-in objects.

.4  Accurately form intersections and returns. Cut and drill tile without marring visible surfaces:

.1  Cut, drill, and fit tile to accommodate work of other Subcontractors penetrating and abutting work of this Section.

.2  Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints.

.5  Lay tile in pattern [indicated on Drawings] [and] as follows:

.1  Align joints when adjoining tiles on floor, base, walls, and trim are the same size.

.2  Lay out tile Work and centre tile sites in both directions in each space or on each wall area.

.3  Centre tile patterns between control and movement joints; notify [Departmental Representative] [DCC Representative] [Consultant] for further instructions where tile patterns do not align with control or movement joints.

.6  Cut tile accurately and without damage.

.7  Smooth exposed cut edges with abrasive stone, where visible.

.8  Minimum tile width is [half] [one-third] unit size unless specifically indicated otherwise on Drawings.

.9  Adjust tile layout to minimize tile cutting.

.10 Provide uniform joint widths.

**SPEC NOTE:** Include the following paragraph for mosaic tile.

.11 Make joints between tile sheets the same width as joints within tile sheets so joints between sheets are not apparent in finished Work. Align tile sheet patterns.

**SPEC NOTE:** Include the following paragraph where applicable.

.12 Slope floor tile towards floor drains in thick-bed mortar installations.

.13 Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so that plates, collars, and covers overlap tile.

.14 Make joints between tile uniform, plumb, straight, true, and flush with adjacent tile.

.15 Maximum Surface Tolerance: [1:800].

.16 Lay out tiles so perimeter tiles are at least 1/2 of a full size.

.17 Sound tiles after setting and replace hollow-sounding units to obtain full bond.

.18 At termination of wall tile, provide [edge strip] [\_\_\_\_\_\_][shape tile trim].

.19 Install transition strips at junction of tile flooring and dissimilar floor finishes.

**SPEC NOTE:** Include the following paragraph if tile is set in mortar bed.

.20 Wait a minimum of 24 hours after installation of tiles, before grouting.

.21 Installation – Bonding Bed: Set tile in place while bond coat is wet and tacky.

.1  Apply a coat of mortar with pressure using the trowel’s flat side to key the mortar into the substrate. Apply additional mortar, combing it in a single direction parallel to the tile’s shortest dimension, with the trowel’s notched side.

.2  Provide sufficient bond coat to achieve at least 80% contact for tiles smaller than 300 mm x 300 mm [and areas with Residential or Light loadbearing performance requirements] with bonding material evenly dispersed and pressed into back of tile. Perform back buttering for larger tiles and installations having moderate or higher loadbearing performance requirements.

.3  Place tiles firmly into the wet mortar. Push tiles back and forth in a direction perpendicular to trowel lines, to collapse the mortar ridges and help achieve maximum coverage.

.4  Verify that corners and edges are fully supported by bonding material. Periodically pick up freshly installed tile and inspect.

.5  Set tiles to prevent lippage greater than 1 mm over a 3 mm grout joint.

.6  Keep two-thirds of grout joint depth free of bonding materials.

.7  Clean excess bonding materials from tile surface before bonding materials’ final set.

.8  Sound tiles after bonding materials have cured. Replace hollow sounding tiles before grouting.

.22 Back Buttering: Achieve 100% mortar coverage of tile in accordance with [TTMAC Tile Installer Technical Manual] [TCNA Handbook for Ceramic, Glass, and Stone Tile Installation] and ANSI A108 series standards for the following applications:

**SPEC NOTE:** Edit the list below to suit project requirements.

.1  Glass tile.

.2  Tile at exterior locations.

.3  Tile at shower areas.

.4  Tile in sauna room.

.5  Tile surrounding bathtub.

.6  Tile in laundry room.

.7  Tile in swimming pool.

.8  Tile installed with chemical-resistant mortars and grouts.

.9  Tile where either side is 300 mm or larger.

.10 Tile with a raised or textured back.

.11 Tile installation area is rated for Heavy or Extra Heavy Duty.

.12 Porcelain tiles with more than 20% of the tile back covered with firing release dust. Back buttered tiles with adhesive mortar rated for ASTM C627, Extra Heavy Duty rating.

.23 Install transition strips [at locations indicated on Drawings and] where floor tiling edge abuts a different floor finish. Provide sloped profile transition strips where uneven transitions occur [between 6 mm and 13 mm].

.24 Install reducer strips [at locations indicated on Drawings and ] where tile abuts concrete flooring that will not receive an additional floor finish.

**3.06 INSTALLATION – INTERIOR FLOORS – THIN-SET METHODS**

**SPEC NOTE:** TTMAC Methods listed below are suggestions only. Your specific project and needs may dictate a different TTMAC Method that is not included on this specification. Consult the latest TTMAC Handbook at https://www.tcnatile.com/products-and-services/publications/218-english-publications/188-handbook.html

.1  Over interior concrete substrates, install in accordance with TTMAC (HB) Method \_\_\_\_, dry-set or latex-Portland cement bond coat, with high performance cement grout, unless otherwise indicated.

.1  Where waterproofing membrane is indicated, install in accordance with TTMAC (HB) Method ¬¬¬\_\_\_\_, with latex-Portland cement grout.

.2  Install tile-to-tile floor movement joints in accordance with TTMAC (HB) Method \_\_\_\_\_ unless not required for control joints by crack isolation liquid membrane manufacturer.

.3  Install tile in accordance with TTMAC \_\_\_\_\_ with crack isolation fluid membrane.

.1  Ceramic Tile Type: As indicated on drawings.

.2  Mortar: Improved modified dry-set mortar.

.3  Cement Grout: High Performance grout

**3.05 INSTALLATION - FLOORS – THINSET TILE OVER CONCRETE SLABS (TYPICAL AND AT KITCHENS)**

.1  Over interior concrete substrates, install in accordance with TTMAC (HB) Method \_\_\_\_, unless otherwise indicated.

.1  Where waterproofing membrane is indicated, with high performance cement grout or no mention of grout type, install in accordance with TTMAC (HB) Method \_\_\_\_.

.2  Mortar Bed Thickness: 15.9 mm (5/8 inch), unless otherwise indicated.

.3  Grout Installation: Do not begin grouting tiles until they are firmly set and, in no case, in less than 24 hours after they have been installed. Remove spacers, if any, prior to grouting. Fill joints of cushion edged tile to the depth of the cushion; fill joints of square edge tile flush with the tile surface. Do not permit mortar, mounting mesh, or spacer material to show through grouted joints. Provide hard finished grout, which is uniform in color, smooth, and without voids, pinholes, or low spots. Tool surfaces with shallow concave profile.

**3.06 THINSET TILE OVER WATERPROOF MEMBRANE (TOILET ROOMS AND AT KITCHENS):**

.1  Install in accordance with the mortar manufacturer's recommendations and requirements indicated below for setting bed methods, installation methods related to types of subfloor construction, and grout installation methods and grout types. Where recommendations and methods conflict, the manufacturer's recommendations shall apply.

.1  Mortar: Latex-Portland Cement Mortar: ANSI A108.5.

.2  Concrete Subfloors, Interior: TTMAC \_\_\_\_ (on ground) and \_\_\_\_ (above ground).

.1  Grout Installation: Do not begin grouting tiles until they are firmly set and, in no case, in less than 24 hours after they have been installed. Remove spacers, if any, prior to grouting. Fill joints of cushion edged tile to the depth of the cushion; fill joints of square edge tile flush with the tile surface. Do not permit mortar, mounting mesh, or spacer material to show through grouted joints. Provide hard finished grout, which is uniform in color, smooth, and without voids, pinholes, or low spots. Tool surfaces with shallow concave profile.

**3.09 THINSET TILE OVER CRACK ISOLATION MEMBRANE:**

.1  Install in accordance with the mortar manufacturer's recommendations and requirements indicated below for setting bed methods, installation methods related to types of subfloor construction, and grout installation methods and grout types. Where recommendations and methods conflict, the manufacturer's recommendations shall apply.

.1  Mortar: Latex-Portland Cement Mortar: ANSI A108.5.

.2  Concrete Subfloors, Interior: TTMAC \_\_\_\_

.1  Grout Installation: Do not begin grouting tiles until they are firmly set and, in no case, in less than 24 hours after they have been installed. Remove spacers, if any, prior to grouting. Fill joints of cushion edged tile to the depth of the cushion; fill joints of square edge tile flush with the tile surface. Do not permit mortar, mounting mesh, or spacer material to show through grouted joints. Provide hard finished grout, which is uniform in color, smooth, and without voids, pinholes, or low spots. Tool surfaces with shallow concave profile.

**3.10 INSTALLATION - SHOWERS AND BATHTUB WALLS**

.1  At tiled shower receptors install in accordance with TTMAC (HB) Method \_\_\_\_, mortar bed floor, and Method \_\_\_\_, thin-set over cementitious backer unit walls.

.2  Grout with high performance cement grout as specified above.

**3.11 INSTALLATION – WALL TILE**

.1  Over interior concrete and masonry install in accordance with TTMAC (HB) Method \_\_\_\_, thin-set with dry-set or latex-Portland cement bond coat.

.2  Over wood studs without backer install in accordance with TTMAC (HB) Method \_\_\_\_, mortar bed, with membrane where indicated.

.3  Over metal studs without backer install in accordance with TTMAC (HB) Method \_\_\_\_, mortar bed, with membrane where indicated.

**3.12 INSTALLATION – GAUGED PROCELAIN PANELS**

.1  Substrate variation shall not exceed 3mm (1/8 inch) in 3 meters (10 feet) and 1.5mm (1/16 inch) in 610mm (24 inches) from the required plane.

.2  Interior Walls and Floors: Install per gauged porcelain tile/panel manufacturer's recommendations and ANSI A108.19.

NOTE: See for installation information from TEC <https://www.tecspecialty.com/hbfuller-media/1429/tec_gaugedporcelaintps_installationguide_r0917_web1.pdf>

NOTE: The edges of the gauged porcelain tile panels are not eased or beveled making them susceptible to damage from heavy rolling loads and impact. Full and flush grout joints should be specified to minimize edge impact.

NOTE: Minimum Shore A hardness rating of 25 or greater (per the TCNA Handbook) should be specified for all movement joints in traffic situations. Compressible joint fillers with less than a Shore A hardness of 25 should not be used. For installations exposed to heavy/hard rubber wheel rolling loads, pre-fabricated commercial grade movement joints should be considered.

NOTE: All expansion joints specific to structural movement: material types and placement should be specified by architectural/engineering authority on the project.

**3.13 CLEANING**

.1  Clean tile and grout surfaces.

**3.14 PROTECTION**

.1  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.

**END OF SECTION**