

Division 09 – Finishes

Section 093000 – Tiling

Sub-Section 093019 – Paver Tiling

NOTE TO SPECIFIER: Please review the entire specification before you begin to edit for your specific project requirements. IT IS RECOMMENDED to run a copy of the entire specification, make notes of products that you wish to specify, mark off the items you wish to change or delete first. Then do a “save as” to the original file, renaming it to your specific project name, then make the revisions and deletions to the spec. Save your data at frequent intervals so as to not lose it if you experience software or computer problems. Upon editing this guide specification completely and placing into your project requirements, it is recommended that you delete any non-pertinent sub-sections and eliminate all of the “NOTES TO SPECIFIER”.

DISCLAIMER: This guide specification was written for the sole purpose of being used as such, a guide to create your specific project specifications. We do not accept any responsibility for the accuracy, up to date product data, or the current industry standards listed here as they may have changed since this guide was created. Please get all current product literature for each product you specify, the industry standards that are relative to your installation and all Federal, State and Local codes.

PART 1 - GENERAL

1.1 SUMMARY

- A. Scope of work - Provide ceramic tile, tile installation materials and accessories as indicated on drawings, as specified herein, and as needed for complete and proper installation.
- B. Related Documents - provisions within General and Supplementary General Conditions of the Contract, Division 1 -General Requirements, and the Drawings apply to this Section.

1.2 SECTION INCLUDES

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- A. Ceramic wall tile and trim units (glazed)
- B. Ceramic floor tile/mosaics and trim units (glazed or unglazed)
- C. Ceramic tile pavers and trim units (glazed or unglazed)
- D. Quarry tile pavers and trim units (glazed or unglazed)
- E. Porcelain tile
- F. Glass mosaics
- G. Special purpose tile
- H. Decorative thin wall tile
- I. Installation Products; adhesives, mortars, grouts and sealants
- J. Waterproof membranes for ceramic tile work
- K. Crack Isolation membranes for ceramic tile work
- L. Sound control underlayments
- M. Thresholds, trim, cementitious backer units and other accessories specified herein.

NOTE TO SPECIFIER: Edit or delete for applicable procedures & materials

1.3 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

NOTE TO SPECIFIER: Edit for applicable products

1.4 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

NOTE TO SPECIFIER: Edit for applicable products

1.5 RELATED SECTIONS

- A. Section 03300 Cast-in-Place Concrete (monolithic slab finishing for ceramic tile)
- B. Section 03305 Concrete Curing
- C. Section 03410 Structural Precast Concrete
- D. Section 03532 Concrete Floor Topping
- E. Section 04200 Unit Masonry (CMU wall substrates)
- F. Section 04300 Stone
- G. Section 06100 Rough Carpentry (plywood subfloors)
- H. Section 07110 Membrane Waterproofing
- I. Section 07920 Elastomeric Joint Sealants
- J. Section 09250 Gypsum Board Assemblies
- K. Section 09385 Stone Tile
- L. Section 10800 Washroom Accessories
- M. Section 15440 Plumbing Fixtures

NOTE TO SPECIFIER: Above are examples of typical broad scope and narrow scope sections related to ceramic tile installation. Edit for applicable related sections

1.6 ALLOWANCES

NOTE TO SPECIFIER: Edit for detail of applicable ALLOWANCES; coordinate with Section 01020 Allowances. Allowances in the form of unit pricing are sometimes used when the scope of the tile work at time of bid is undetermined.

1.7 ALTERNATES

NOTE TO SPECIFIER: edit for applicable ALTERNATES. Alternates may be used to evaluate varying levels of performance of setting systems or to assist in the selection of the tile by economy.

1.8 REFERENCE STANDARDS

- A. American Iron and Steel Institute (AISI) Specification for the Design of Cold-Formed Steel Structural Members
- B. American National Standards Institute (ANSI) A137.1 American National Standard Specifications For Ceramic Tile
- C. American National Standards Institute (ANSI) A108.1A - A108.13 American National Standard Specifications For The Installation Of Ceramic Tile
- D. American National Standards Institute (ANSI) A118.1 - A118.12 American National Standard Specifications For The Installation Of Ceramic Tile
- E. American National Standards Institute (ANSI) A136.1 American National Standard Specifications For The Installation Of Ceramic Tile
- F. American Plywood Association (APA) Y510T Plywood Design Specifications
- G. American Society For Testing And Materials (ASTM) A82 Standard Specification for Steel Wire, Plain, for Concrete Reinforcement
- H. American Society For Testing And Materials (ASTM) A185 Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement
- I. American Society For Testing And Materials (ASTM) C33 Standard Specification for Concrete Aggregate
- J. American Society For Testing And Materials (ASTM) C36 Standard Specification for Gypsum Wallboard

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- K. American Society For Testing And Materials (ASTM) C109 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-mm Cube Specimens)
- L. American Society For Testing And Materials (ASTM) C144 Standard Specification for Aggregate for Masonry Mortar
- M. American Society For Testing And Materials (ASTM) C150 Standard Specification for Portland Cement
- N. American Society For Testing And Materials (ASTM) C171 Standard Specification for Sheet Materials for Curing Concrete

NOTE TO SPECIFIER: edit for applicable reference standards

1.9 SYSTEM DESCRIPTION

- A. Ceramic mosaic floor tile installed over concrete floor slabs using latex-modified Portland cement mortar and latex Portland cement grout.
- B. Ceramic tile and base installed using latex modified Portland cement mortar over a plastic Portland cement mortar bed or over a cured (pre-floated) Portland cement mortar bed with epoxy grout.

NOTE TO SPECIFIER: The above systems are example descriptions; edit for additional applicable systems

1.10 SUBMITTALS

- A. Submit shop drawings and manufacturers' product data under provisions of Section (01300.) (01340.)
- B. Submit samples of each type/style/finish/size/color of ceramic tile, mosaic, paver, trim unit or threshold under provisions of Section (01300.) (01340.)
- C. Submit manufacturers' installation instructions under provisions of Section (01300.) (01340.)
- D. Submit manufacturer's certification under provisions of Section (01405) that the materials supplied conform to ANSI A137.1.
- E. Submit proof of warranty.
- F. Submit sample of installation system demonstrating compatibility/functional relationships between adhesives, mortars, grouts and other components under provision of Section (01300.) (01340.)
- G. Submit list from manufacturer of installation system/adhesive/mortar/grout identifying a minimum of three (3) similar projects, each with a minimum of ten (10) years service.
- H. For alternate materials, at least thirty (30) days before bid date submit independent laboratory test results confirming compliance with specifications listed in Part 2 - Products.

1.11 QUALITY ASSURANCE

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- A. Tile Manufacturer: Company or Affiliate Company specializing in ceramic tile, mosaics, pavers, trim units and/or thresholds with five (5) years minimum experience. Obtain tile from a single source with resources to provide products of consistent quality in appearance and physical properties.
- B. Installation System Manufacturer: Company specializing in adhesives, mortars, grouts and/or other installation materials with ten (10) years minimum experience and ISO 9001 certification unless noted otherwise by Architect.
- C. Submit laboratory confirmation of adhesives, mortars, grouts and other installation materials:
 - 1. Identify proper usage of specified materials using positive analytical method.
 - 2. Identify compatibility of specified materials using positive analytical method.
 - 3. Identify proper color matching of specified materials using a positive analytical method.
- D. Installer qualifications: company specializing in installation of ceramic tile, mosaics, pavers, trim units and thresholds with five (5) years documented experience with installations of similar scope, materials and design.

1.12 MOCK-UPS

- A. Provide mock-up of each type/style/finish/size/color of ceramic tile, mosaics, pavers, trim unit and threshold, along with respective installation adhesives, mortars, grouts and other installation materials, under provisions of Section (01400) (01405).

1.13 PRE-INSTALLATION CONFERENCE

Pre-installation conference: At least three weeks prior to commencing the work attend a meeting at the jobsite to discuss conformance with requirements of specification and job site conditions.

Representatives of owner, architect, general contractor, tile subcontractor, and any other parties who are involved in the scope of this installation must attend the meeting.

1.14 DELIVERY, STORAGE AND HANDLING

- A. Acceptance at Site: deliver and store packaged materials in original containers with seals unbroken and labels, including grade seal, intact until time of use, in accordance with manufacturer's instructions.

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- B. Store ceramic tile and installation system materials in a dry location; handle in a manner to prevent chipping, breakage, and contamination.
- C. Protect latex additives, organic adhesives, epoxy adhesives and sealants from freezing or overheating in accordance with manufacturer's instructions; store at room temperature when possible.
- D. Store Portland cement mortars and grouts in a dry location.

1.15 PROJECT/SITE CONDITIONS

- A. Provide ventilation and protection of environment as recommended by manufacturer.
- B. Prevent carbon dioxide damage to ceramic tile, mosaics, pavers, trim, thresholds, as well as adhesives, mortars, grouts and other installation materials, by venting temporary heaters to the exterior.
- C. Maintain ambient temperatures not less than 50°F (10°C) or more than 100°F (38°C) during installation and for a minimum of seven (7) days after completion. Setting of Portland cement is retarded by low temperatures. Protect work for extended period of time and from damage by other trades. Installation with Latex Portland cement mortars requires substrate, ambient and material temperatures be at least 37°F (3°C). There should be no ice in the slab. Freezing after installation will not damage Latex Portland cement mortars. Protect Portland cement based mortars and grouts from direct sunlight, radiant heat, forced ventilation (heat & cold) and drafts until cured to prevent premature evaporation of moisture. Epoxy mortars and grouts require surface temperatures between 60°F (16°C) and 90°F (32°C) at time of installation. It is the General Contractor's responsibility to maintain temperature control.

1.16 SEQUENCING AND SCHEDULING

- A. Coordinate installation of tile work with related work.
- B. Proceed with tile work only after curbs, vents, drains, piping, and other projections through substrate have been installed and when substrate construction and framing of openings have been completed.

NOTES FOR SPECIFIER: Edit for project specific sequence and scheduling

1.17 WARRANTY

The Contractor warrants the work of this Section to be in accordance with the Contract Documents and free from faults and defects in materials and workmanship for a period of 10 years. The manufacturer of adhesives, mortars, grouts and/or other installation materials shall provide a warranty in accordance with architect's requirements for this project - reference manufacturer's warranty data sheets for complete details and requirements.

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1.18 MAINTENANCE

Submit maintenance data under provisions of Section 01730. Include cleaning methods, cleaning solutions recommended, stain removal methods, as well as polishes and waxes recommended.

1.19 EXTRA MATERIALS STOCK

Upon completion of the work of this Section, deliver to the owner 2% minimum additional tile and trim shape of each type, color, pattern and size used in the work, as well as extra stock of adhesives, mortars, grouts and other installation materials for the owner's use in replacement and maintenance. Extra stock to be from same production run or batch as original tile and installation materials.

PART 2 - PRODUCTS

2.1 TILE MANUFACTURERS

Subject to compliance with paragraphs 1.12 and performance requirements, provide products by one of the following manufacturers:

Name:

Address:

Office:

Fax:

Email:

Website:

NOTE TO SPECIFIER: Provide list of acceptable tile manufacturers.

2.2 WALL TILING MATERIALS

NOTE TO SPECIFIER: edit for each tile type and create a product code for each tile and trim that you wish to use on the project.

Tile # PT – 01 - Walls

- A. Tile/Collection:
- B. Color:
- C. Size:
- D. Finish:
- E. Rectified: Yes
- F. Product Number:
- G. Trims shapes:
- H. Pattern/Tile Schedule (Dwg):

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Tile # PT – 02 - Walls

- A. Tile/Collection:
- B. Color:
- C. Size:
- A. Finish:
- B. Rectified: Yes
- C. Product Number:
- D. Trims shapes:
- E. Pattern/Tile Schedule (Dwg):

2.3 FLOOR TILING MATERIALS

NOTE TO SPECIFIER: edit for each tile type create a product code for each tile and trim that you wish to use on the project.

Tile # PT – 03 - Floors

- A. Tile/Collection:
- B. Color:
- C. Size:
- D. Finish:
- E. Rectified: Yes
- F. Product Number:
- G. Special shapes:
- H. Pattern/Tile Schedule (Dwg):

2.3 CERAMIC TILE INSTALLATION MATERIALS MANUFACTURER

- A. Name:
 - Address:
 - City/ST/Zip:
 - Phone:
 - Fax:
 - Email:
 - Website:

NOTE TO SPECIFIER: Use either the following performance specification or the proprietary specification. Delete the one that you do not wish to use. It is highly recommended to create a performance specification based on the maximum level of performance for your tile or stone project.

2.5 PERFORMANCE SPECIFICATION - TILE INSTALLATION ACCESSORIES

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- A. Waterproofing Membranes for ceramic tile installation shall comply with ANSI A118.10 and be specifically intended for use as a waterproofing membrane. Waterproofing Membrane to be non-toxic, non-flammable, and non-hazardous during storage, application and when cured. It shall also meet these following physical requirements and be suitable for thin-set or mortar bed applications and shall also meet any pertinent or relative sections of the American National Standard Specifications for the Installation of Ceramic Tile and the latest edition of the Tile Council of America Handbook for Ceramic Tile Installation.
1. *List requirements:*
- B. Crack Isolation Membrane shall comply with ANSI A118.17 or be specifically intended for use as a crack isolation membrane. Crack Isolation Membrane to be non-toxic, non-flammable, and non-hazardous during storage, application and when cured. It shall also meet these following physical requirements and be suitable for thin-set or mortar bed applications and shall also meet any pertinent or relative sections of the American National Standard Specifications for the Installation of Ceramic Tile and the latest edition of the Tile Council of America Handbook for Ceramic Tile Installation.
1. *List requirements:*
- C. Sound Isolation Membrane to be non-toxic, non-flammable, and non-hazardous during storage, application and when cured. It shall also meet these following physical requirements and be suitable for thin-set or mortar bed applications and shall also meet any pertinent or relative sections of the American National Standard Specifications for the Installation of Ceramic Tile and the latest edition of the Tile Council of America Handbook for Ceramic Tile Installation.
1. *List requirements:*
- D. Wire Reinforcing: 2 inch x 2 inch (50 x 50 mm) x 16 ASW gauge diameter galvanized steel welded wire mesh or alternative material complying with ASTM A185 and ASTM A82.
1. *List requirements:*
- E. Cleavage membrane: 15 pound asphalt saturated, non-perforated roofing felt complying with ASTM D226, 15 pound coal tar saturated, non-perforated roofing felt complying with ASTM D227, 4.0 mils (0.1 mm) thick polyethylene plastic film complying with ASTM D4397.
1. *List requirements:*
- F. Cementitious backerboard units: size and thickness as specified, complying with ANSI A118.9.
1. *List requirements:*

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- G. Thresholds: Provide marble saddles complying with ASTM C241 for abrasion resistance and ASTM C503 for exterior use, in color, size, shape and thickness as indicated on drawings.
 - 1. *List requirements:*

NOTE TO SPECIFIER: Edit applicable tile installation accessories.

PERFORMANCE SPECIFICATION - TILE INSTALLATION MATERIALS

- A. Latex Portland Cement Mortar for thick beds, screeds, leveling beds and scratch/plaster coats to be weather, frost, shock resistant and meeting the following physical requirements:
 - 1. *List requirements;*
- B. Epoxy Adhesive to be chemical resistant 100% solids epoxy with high temperature resistance and meeting the following minimum physical requirements:
 - 1. *List requirements;*
- C. Latex Portland Cement Thin Bed Mortar for thin-set and slurry bond coats to be weather, frost, shock resistant, non-flammable and to meet the following physical requirements:
 - 1. *List requirements;*
- D. Organic Adhesive shall be non-flammable, water resistant, latex adhesive and shall meet the following physical requirements:
 - 1. *List requirements;*
- E. Epoxy Grout (Industrial) to be non-flammable, chemical resistant 100% solids epoxy with high temperature resistance and meeting the following physical requirements:
 - 1. *List requirements;*
- F. Epoxy Grout (Commercial/Residential) shall be non-toxic, non-flammable, non-hazardous during storage, mixing, application and when cured and shall meet the following physical requirements:
 - 1. *List requirements;*
- G. Latex Portland Cement Grout to be weather, frost and shock resistant, as well as meeting the following physical requirements:
 - 1. *List requirements;*
- H. Expansion and Control Joint Sealant to be a one component, neutral cure, exterior grade silicone sealant meeting the following requirements:
 - 1. *List requirements:*

NOTE TO SPECIFIER: Edit applicable tile installation materials.

2.6 PROPRIETARY SPECIFICATION - TILE INSTALLATION ACCESSORIES

Installation accessories as manufactured by:

- A. Waterproofing Membrane:
- B. Crack Isolation Membrane:
- C. Sound Isolation Membrane:

NOTE TO SPECIFIER: Edit applicable tile installation accessories.

2.7 TILE INSTALLATION MATERIALS

Installation materials as manufactured by [list product required and manufacturer]

- A. Crack Isolation Membrane Underlayment: [list products and manufacturer]
- B. Waterproofing Membrane Underlayment: [list products and manufacturer]
- C. Sound Isolation Membrane Underlayment: [list products and manufacturer]
- D. Latex-Portland Cement Mortar for thick beds, screeds, leveling beds and scratch/plaster coats: [list products and manufacturer]
- E. Epoxy Adhesive: [list products and manufacturer]
- F. Latex Portland Cement Thin Bed Mortar: [list products and manufacturer]
- G. Organic Adhesive: [list products and manufacturer]
- H. Epoxy Grout (Industrial): [list products and manufacturer]
- I. Epoxy Grout (Commercial/Residential): [list products and manufacturer]
- J. Latex Portland Cement Grout: [list products and manufacturer]
- K. Expansion and Control Joint Sealant: [list products and manufacturer]
- L. Roof Deck: [list products and manufacturer]
- M. Spot Bonding Epoxy Adhesive: [list products and manufacturer]

PART 3 – EXECUTION

3.1 SUBSTRATE EXAMINATION

- A. Verify that surfaces to be covered with ceramic tile, mosaics, pavers, brick, stone, trim or waterproofing are:
 - 1. Sound, rigid and conform to good design/engineering practices;
 - 2. With maximum deflection under all live, dead and impact loads, including concentrated loads, of L/360 for ceramic tile, mosaics, pavers or brick;
 - 3. Clean and free of dust, dirt, oil, grease, sealers, curing compounds, laitance, efflorescence, form oil or loose plaster, paint and scale;
 - 4. Level and true to within 1/4" in 10' (6mm in 3m), and no more than 1/16" in 1' (1.5mm in 0.3m) variation from substrate high points, for applications by the thin bed method over substrate, thin waterproof membrane or thin crack isolation membrane;
 - 5. Not leveled with gypsum or asphalt based compounds;

6. Dry as per American Society for Testing and Materials (ASTM) D4263 “**Standard Test for Determining Moisture in Concrete by the Plastic Sheet Method.**”

B. Concrete surfaces shall also be:

1. Cured a minimum of 28 days at 70°F (21°C), including an initial (7) day period of wet curing;
2. Wood float finished, or better, if the installation is to be done by the thin bed method;
3. Advise General Contractor and Architect of any surface or substrate conditions requiring correction before tile work commences. ***Beginning of work constitutes acceptance of substrate or surface conditions.***

3.2 SURFACE PREPARATION

A. CONCRETE SUBSTRATES

(Insert any Special Means of Preparation in addition to the surface preparation requirements listed in § 3.1)

B. **(List other Substrates as required and means of preparation as required)**

(Insert any Special Means of Preparation in addition to the surface preparation requirements listed in § 3.1)

NOTE TO SPECIFIER: edit substrate and preparation section based on project specific surfaces and conditions.

3.3 INSTALLATION – ACCESSORIES

NOTE TO SPECIFIER: edit section based on project conditions.

A. ***Waterproofing:***

NOTE TO SPECIFIER: Adhesives/mastics, mortars and grouts for ceramic tile, mosaics, pavers, brick and stone are not replacements for waterproof membranes and will not prevent water penetration into occupied or storage spaces below.

Install waterproof membrane in compliance with current revisions of ANSI A108.1 (A-1 through A-3), ANSI A108.13 and the Tile Council of America Handbook for Ceramic Tile Installations most recent version. Review the installation and plan the application sequence.

Use the following _____ Installations Materials;

Product Name:

Data Sheet:

References:

Applicable Standard:

B. **Crack Isolation:**

NOTE TO SPECIFIER: Ceramic tile, mosaics, pavers, brick and stone installed by the thin bed method can be damaged by shrinkage related substrate cracking. Specify a Crack Isolation Membrane to reduce crack propagation into veneers or hard finishes. Do not use Crack Isolation Membranes if substrate is cracking:

1) is due to structural movement;

2) involves vertical and/or differential movement;

3) involves horizontal movement >1/8" (3mm).

Install crack isolation membrane in compliance with current revisions of ANSI A108.1 (A-1 through A-3). Review the installation and plan the application sequence.

Add manufacturer's data here;

Use the following Materials;

Name Product:

Data Sheet:

References:

Applicable Standard:

3.4 INSTALLATION – TILE, BRICK & STONE

A. **General:** Install in accordance with current versions of American National Standards Institute, Inc. (ANSI) "**A108 American National Standard for Installation of Ceramic Tile**" and TCA "**Handbook for Ceramic Tile Installation both to be the most current version.**" Cut and fit ceramic tile, brick or stone neatly around corners, fittings, and obstructions. Perimeter pieces to be minimum half tile, brick or stone. Chipped, cracked, split pieces and edges are not acceptable. Make joints even, straight, plumb and of uniform width to tolerance +/- 1/16" over 8' (1.5mm in 2.4m). Install divider strips at junction of flooring and dissimilar materials.

B. **Bonded Thick Bed Method:** Verify 1" (25mm) nominal bed thickness has been allowed. Apply a very thin continuous coating of pure Portland

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cement slurry or dust a thin layer of dry Portland cement on the concrete and wet it. This application shall be over a clean concrete slab in compliance with current revision of ANSI A108.1 (A-1 through A-3; A-4.1a.5.2). Place Portland cement mortar bed over slurry bond coat while bond coat is wet and tacky. Omit reinforcing wire fabric and fully compact bed by tamping. Spread latex-Portland cement thin-set mortar with flat trowel over surface of "green"/fresh mortar bed as a slurry bond coat approximately 1/16" (1.5 mm) thick. Apply latex-Portland cement thin-set mortar slurry bond coat to back of ceramic tile, mosaic, trim unit or threshold and place each piece/sheet while slurry bond coats are wet and tacky. Beat with a hardwood block or rubber mallet to level/imbed pieces before mortar bed takes initial set. Clean excess mortar/adhesive from finished surfaces. For installation of tile over cured (pre-floated) latex-Portland cement thick bed mortar, follow **Thin Bed Method** (§ 3.4 F.).
Use the following materials;

References:

Detail Drawings:

Data Sheets:

Technical Data Sheets:

- C. **Thick Bed Method (Wire Reinforced):** Verify that allowance for minimum bed thickness of 2" (50mm) has been made. Install cleavage membrane complying with the current revision of ANSI A108.1 (A-2.1.8 Membrane or cleavage membrane Materials, A-4.1.5.3). Place latex-Portland cement thick bed mortar to a depth approximately one-half finished bed thickness in compliance with current revision of ANSI A108.1 (A-1 through A-3; A-4.1a.5.3). Lay 2" x 2" (50mm x 50 mm), 16 gauge (1.5mm), galvanized, welded reinforcing wire fabric, complying with ANSI A108.1 (A-2 Materials; A-4.1.5.3) and ASTM A185, over mortar. Place additional thick bed mortar over wire fabric and compact mortar by tamping with flat trowel. Screed mortar bed level and provide correct slopes to drains. Spread latex-Portland cement thin bed mortar with flat trowel over surface of "green"/fresh mortar bed as a slurry bond coat approximately 1/16" (1.5 mm) thick. Apply latex-Portland cement thick bed mortar slurry bond coat to back of ceramic tile, mosaic, trim unit or threshold and place each piece/sheet while slurry bond coats are wet and tacky. Beat with a hardwood block or rubber mallet to level/imbed pieces before mortar bed takes initial set. Clean excess mortar/adhesive from finished surfaces. For installation of tile, brick or stone over cured (pre-floated) latex-Portland cement mortar bed, follow **Thin Bed Method** (§ 3.4 F.).

Use the following materials;

References:

Detail Drawings:

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Data Sheets:

Technical Data Sheets:

- D. **Pre-float Method:** Over clean, dimensionally stable and sound concrete or masonry substrates, apply latex-Portland cement mortar as scratch/leveling coat in compliance with current revision of ANSI A108.1 (A-1 through A-3; A-4.1a.1.4). Float surface of scratch/leveling coat plumb, true and allow mortar to set until firm. For installation of ceramic tile, mosaic, paver, brick or stone, follow **Thin Bed Method** (§ 3.4 F.).

Use the following materials:

References:

Detail Drawings:

Data Sheets:

Technical Data Sheets:

- E. **Lath & Plaster Method (Walls only):** Install cleavage membrane complying with current revision of ANSI A108.1 (A-2.1.8 Membrane or cleavage membrane Materials and A-4.1a.1.2). Install metal lath complying with the current revision of ANSI A108.1 (A-2.1.6 Metal Lath, A-4.1a.1.1 and A-4.1a.1.2). Apply latex Portland cement mortar as scratch/leveling coat over wire lath, concrete or masonry in compliance with current revision of ANSI A108.1 (A-1 through A-3; A-4.1a.1.4). Float surface of scratch/leveling coat plumb, true and allow mortar to set until firm. For installation of tile, brick or stone, follow **Thin Bed Method** (§ 3.4 F.).

Use the following materials:

References:

Detail Drawings:

Data Sheets:

Technical Data Sheets:

- F. **Thin Bed Method:** Install latex Portland cement mortar in compliance with current revisions of ANSI A108.1 (A-1 through A-3) and ANSI A108.5 (A-4.3). Use the appropriate trowel notch size to ensure proper bedding of the tile, brick or stone selected. Work the latex Portland cement mortar into good contact with the substrate and comb with notched side of trowel. Spread only as much latex Portland cement mortar as can be covered while the mortar surface is still wet and tacky. When installing large format (>8" x 8"/200mm x 200mm) tile/stone, rib/button/lug back tiles, pavers or sheet mounted ceramics/mosaics, spread latex Portland cement mortar onto the back of (i.e. 'back-butter') each piece/sheet in addition to troweling latex Portland cement mortar over the substrate. Beat each

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piece/sheet into the latex Portland cement mortar with a beating block or rubber mallet to insure full bedding and flatness. Allow installation to set until firm. Clean excess latex Portland cement mortar from tile or stone face and joints between pieces.

Use the following materials:

References:

Detail Drawings:

Data Sheets:

Technical Data Sheets:

Grouting or Pointing:

NOTE TO SPECIFIER: select one of following and specify color for each type/color of ceramic tile, mosaic, paver, trim unit:

1. Polymer Modified Cement Grout (ANSI A118.6 or A118.7): Allow ceramic tile or mosaic tile installation to cure a minimum of 24 hours @ 70°F (21°C). Verify grout joints are free of dirt, debris or tile spacers. Sponge or wipe dust/dirt off veneer face and remove any water standing in joints. Apply grout release to face of absorptive, abrasive, non-slip or rough textured ceramic tile, pavers, bricks, or trim units that are not hot paraffin coated to facilitate cleaning. Surface temperature must be between 40-90°F (4-32°C). Install polymer modified cement grout in compliance with current revisions of ANSI A108.1 (A-1 through A-3) and ANSI A108.10 (A-4.7.3.5.4, A-4.7.4 through A-4.7.8). Dampen dry surfaces with clean water. Spread using a sharp edged, hard rubber float and work grout into joints. Using diagonal (at 45° angle to direction of grout line) strokes, pack joints full and free of voids/pits. Hold float face at a 90° angle to grouted surface and use float edge to “squeegee” off excess grout, stroking diagonally to reduce pulling grout out of filled joints. Initial cleaning can begin as soon as grout has become firm, typically 20-30 minutes after grouting depending on temperature. Drag a clean towel dampened with water, or wipe a clean, dampened sponge, diagonally over the veneer face to remove any grout haze left after “squeegeeing”. Rinse towel/sponge frequently and change rinse water at least every 200 ft² (2 m²). Repeat this cleaning sequence again if grout haze is still present. Allow grout joints to become firm. Buff surface of grout with clean coarse cloth. Inspect joint for pinholes/voids and repair them with freshly mixed grout. Within 24 hours, check for remaining haze and remove it with warm soapy water and a nylon scrubbing pad, using a circular motion, to lightly scrub surfaces and dissolve haze/film. Do not use acid cleaners on latex-Portland cement mortar grout less than 7 days old.

NOTE TO SPECIFIER: select one of following and specify color for each type/color of ceramic tile, mosaic, or trim unit:

1. **Latex-Portland cement sanded floor grout for joint widths $\geq 1/16"$ (1.5mm) and $\leq 3/8"$ (10mm);**
2. **Latex-Portland cement unsanded grout for soft glazed tiles and soft/polished stone with joints widths $\leq 1/8"$ (3 mm).**

Use the following materials:

References:

Detail Drawings:

Data Sheets:

Technical Data Sheets:

- F. **Expansion and Control Joints:** Provide control or expansion joints as located in contract drawings and in full conformity, especially in width and depth, with architectural details.
1. Substrate joints must carry through, full width, to surface of tile, brick or stone.
 2. Install expansion joints in tile, brick or stone work over construction/cold joints or control joints in substrates.
 3. Install expansion joints where tile, brick or stone abut restraining surfaces (such as perimeter walls, curbs, columns), changes in plane and corners.
 4. Joint width and spacing depends on application - follow TCA **"Handbook for Ceramic Tile Installation most current version"** Detail "EJ-171 Expansion Joints" or consult sealant manufacturer for recommendation based on project parameters.
 5. Joint width: $\geq 1/8"$ (3mm) and $\leq 1"$ (25mm).
 6. Joint width: depth ~2:1 but joint depth must be $\geq 1/8"$ (3mm) and $\leq 1/2"$ (13mm).
 7. Layout (field defined by joints): 1:1 length:width is optimum but must be $\leq 2:1$.

Use the following Materials:

References:

Detail Drawings:

Data Sheets:

Technical Data Sheets:

- G. **Adjusting:** Correction of defective work for a period of one (1) year following substantial completion, return to job and correct all defective work. Defective work includes, without limitation, tiles broken in normal use due to deficiencies in setting bed, loose tiles or grout, and all other defects which may develop as a result of poor workmanship.

3.4 CLEANING

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Clean excess mortar/epoxy from veneer surfaces with water before they harden and as work progresses. Do not contaminate open grout/caulk joints while cleaning. Sponge and wash veneers diagonally across joints. Do not use acids for cleaning. Polish with clean dry cloth. Remove surplus materials and leave premises broom clean.

3.5 PROTECTION

- A. Protect finished installation under provisions of §01500 and §01535. Close areas to other trades and traffic until tile being installed has set firmly. Keep traffic off horizontal Portland cement thick bed mortar installations for at least 72 hours at 70°F (21°C).
- B. Keep floors installed with epoxy adhesive closed to traffic for 24 hrs. at 70°F (21°C), and to heavy traffic for 48 hours @ 70°F (21°C) unless instructed differently by manufacturer. Use kneeling boards, or equivalent, to walk/work on newly tiled floors. Cure tile work in swimming pools, fountains and other continuous immersion applications for 10 days for epoxy based grout and 14 days for latex-Portland cement based grout @ 70°F (21°C) before flood testing or filling installation with water. Extend period of protection of tile work at lower temperatures, below 60°F (15°C), and at high relative humidity (>70% R.H.) due to retarded set times of mortar/adhesives. Replace or restore work of other trades damaged or soiled by work under this section.

PART 4 – HEALTH AND SAFETY

The use of personal protection such as rubber gloves, suitable dust masks, safety glasses and industrial clothing is highly recommended. Discarded packaging, product wash and waste water should be disposed of as per local, state or federal regulations.

All references are the intellectual property of their respective owners:

Handbook for Ceramic Tile Installation 42st Edition. Tile Council of America, Inc. Anderson, SC, 2005.

American National Standard for Installation of Ceramic Tile. Tile Council of America, Inc. Anderson, SC, 2000.

Annual Book of ASTM Standards. American Society for Testing and Materials. West Conshohocken, PA, 2001.

North American Specification for the Design of Cold-Formed Steel Structural Members. American Iron and Steel Institute. Washington D.C., 2001.

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Lightweight Steel Framing Binder. Canadian Sheet Steel Building Institute. Cambridge, ON, Canada, 1991.

ICBO ER-4943P Product Technical Information. Steel Stud Manufacturers Association. Chicago, IL, 2001.

Steel Framing Systems Manual. Metal Lath Steel Framing Association. Chicago, IL

Note to Specifier: This section covers Paver Tiling and was written by StonePeak Ceramics for the sole purpose of guiding the architect or specification writer to help prepare a more complete and accurate specification.

Coordinate this section with the section specifying other related items in the Section 09 Finishes. Consult StonePeak Ceramics for assistance in editing this section for the specific application.

Note to Specifier: This product guide specification is written according to the Construction Specifications Institute (CSI) Masterformat 2004.

The section must be carefully reviewed and edited by the Architect to meet the requirements of the project and all federal, state and local building codes.

Coordinate this section with other specification sections and the Drawings.

Delete all "Notes to Specifier" when editing this section after revising.

Section numbers and titles are from CSI MasterFormat 2004 Edition.

End of Section 093019 – Paver