
SECTION: 09 30 00 – TILING

Daltile Xteriors – Master Guide Specification Freeze/Thaw & Moderate Climates

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Roof deck membrane.
- B. Drainage mat.
- C. Mortar materials.
- D. Surface preparation materials.
- E. Tile materials.
- F. Setting materials.
- G. Grout materials.
- H. Crack-isolation membrane.
- I. Waterproof membrane.
- J. Flexible sealant.
- K. Penetrating stone, tile and grout sealers.
- L. Stone, tile, and grout maintenance, cleaners and grout haze removers.

1.02 RELATED SECTIONS

- A. Section 03 30 00 – Cast-in-Place Concrete.
- B. Section 03 38 00 – Post-Tensioned Concrete.
- C. Section 03 39 00 – Concrete Curing.
- D. Section 03 41 00 – Precast Structural Concrete.
- E. Section 04 20 00 – Unit Masonry; CMU wall substrates.
- F. Section 05 40 00 – Cold-Formed Metal Framing.
- G. Section 06 11 00 – Wood Framing and Sheathing.
- H. Section 07 14 00 – Fluid-Applied Waterproofing.
- I. Section 07 60 00 – Flashing and Sheet Metal.
- J. Section 07 92 13 – Elastomeric Joint Sealants.
- K. Section 09 34 00 – Waterproofing-Membrane Tiling.
- L. Section 09 75 00 – Stone Facing.
- M. Section 33 46 00 – Subdrainage.

1.03 REFERENCES

- A. American National Standards Institute (ANSI):
 - 1. ANSI A108 Series/A118 Series – American National Standard Specifications for Installation of Ceramic Tile.
 - 2. ANSI A108.19 – American National Standard Specifications for Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs.
 - 3. ANSI A108.20 – American National Standard Specifications for Exterior Installation of Vertical and Overhead Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method Bonded with Improved Modified Dry-Set Cement Mortar.
 - 4. ANSI A137.1 – American National Standard Specifications for Ceramic Tile.
 - 5. ANSI A137.3 – American National Standard Specifications for Gauged Porcelain Tile and Gauged Porcelain Tile Panels/Slabs.

6. ANSI A138.1 – American National Standard Specifications for Green Squared Certification for Tiles and Installation Materials.
- B. ASTM International (ASTM):
 1. ASTM A1064 – Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
 2. ASTM C144 – Standard Specification for Aggregate for Masonry Mortar. Jobsite mix.
 3. ASTM C150 – Standard Specification for Portland Cement. Jobsite mix.
 4. ASTM C645 – Standard Specification for Nonstructural Steel Framing Members.
- C. NSI (DSDM) – Dimension Stone Design Manual; Natural Stone Institute.
- D. TCNA (HB) – Handbook for Ceramic Tile, Glass, and Stone Installation; Tile Council of North America.
- E. TTMAC – Specifications Guide 09 30 00 Tile Installation Manual.
- F. International Organization for Standardization (ISO):
 1. ISO 13007 – Ceramic tiles – Grout and adhesives.
- G. Leadership in Energy and Environmental Design (LEED®) – U.S. Green Building Council.

1.04 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 – Administrative Requirements.
- B. Product Data: Manufacturer's technical information for each product specified.
- C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
- D. Samples: Color charts for selection of grout.
- E. Manufacturer's Certificates: Certify products meet or exceed specified requirements. When applicable, submit a Master Grade Certificate signed by the manufacturer and the installer certifying that products meet or exceed the specified requirements of ANSI A137.1 and/or ANSI A137.3.
- F. Installation Instructions: Manufacturer's printed instructions for each product.
- G. Maintenance Data: Include recommended cleaning methods, cleaning materials, and maintenance coatings.

1.05 QUALITY ASSURANCE

- A. To ensure single-source warranty requirements and compatibility of products: Please provide cleaners, sealing and maintenance products as well as tile grout, setting materials, underlayments, additives, accessories and factory-prepared dry-set mortars from the same manufacturer.
- B. Installer Qualifications:
 1. Engage an experienced installer who has completed tile installations similar in material, design, and extent to that indicated for this project and with a record of successful in-service performance. Installer to have a minimum of five years' experience.
 2. Five-Star member of the National Tile Contractors Association or a Trowel of Excellence member of the Tile Contractors' Association of America.
 3. Installer's supervisor for the project must hold the International Masonry Institute's Foreman Certification.
 4. Installer employs Ceramic Tile Education Foundation Certified Installers or installers recognized by the U.S. Department of Labor as Journeyman Tile Layers.
- C. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
- D. Provide a Daltile Xteriors Hardscape Installation System Warranty. All tile products and setting materials to be purchased from a Daltile facility. For further details, see the Daltile Xteriors Hardscape System Warranty Brochure.

1.06 PRE-INSTALLATION CONFERENCE

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

1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Prevent damage or contamination to materials by water, freezing, foreign matter and other causes.
- B. Protect setting materials from freezing and overheating in accordance with manufacturer's instructions.

- C. Store tile and setting materials on elevated platforms, under cover and in a dry location and protect from contamination, dampness, freezing and overheating.
- D. Do not use frozen materials unless specifically allowed by manufacturer.
- E. Deliver and store materials on site at least 24 hours before work begins.
- F. Provide heated and dry storage facilities on site.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Comply with requirements of referenced standards and recommendations of material manufacturers for environmental conditions before, during, and after installation.
- B. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
- C. For Exterior Applications:
 - 1. Build a temporary shelter and when needed use indirect auxiliary heaters to maintain an adequate temperature level in the working environment and surfaces.
 - 2. Exhaust temporary heaters to exterior to prevent damage to the work or injury to personnel from carbon monoxide emissions.
 - 3. Maintain substrate and ambient temperatures in tiled areas between 50°F (10°C) and 95°F (35°C) during installation and for at least 7 days after completion, unless otherwise indicated in the product instructions and/or ANSI A108 installation standards.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer:
MAPEI Corporation
 1144 E. Newport Center Dr.
 Deerfield Beach, FL 33442
www.mapei.us
 Toll-Free Tel: 1-800-992-6273
 Fax: 954-246-8805
 Or contact your MAPEI representative for additional details.
- B. Acceptable Manufacturer:
Daltile Corporation
 7834 C.F. Hawn Freeway
 Dallas, TX 75217
www.daltile.com/xteriors
 For additional details or questions, contact Daltile Customer Service at (800) 449-3591 or reach out to your Daltile representative.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 – Product Requirements.
- D. Substitutions: Not permitted.

2.02 TILE MATERIALS

- A. Subject to conformity with enclosed requirements, provide products coming from the following manufacturer.
 - 1. Daltile Xteriors Hardscape Program.

	Area:	Area:	Area:	Area:
Collection				
Size				
Color				
Finish				
Rectified (Y/N)				
Product Number				
Trim (Y/N)				

2.03 SURFACE PREPARATION MATERIALS

- A. Trowelable Floor/Wall Patch and Render Mortar: Quick-setting, polymer-modified, fiber-reinforced, cementitious rendering, patching, ramping and leveling mortar. Can be applied from 1/8 inch to 3/4 inch (3 mm to 19 mm).
 - 1. Product: MAPEI, *Planitop 330 Fast*.
- B. Trowelable Concrete Floor Patch: High-performance, fast-setting cementitious patching compound. Can be applied at 1/16 inch to 1-1/2 inches (1.5 mm to 3.8 cm) neat and from 1-1/2 inches to 3 inches (3.8 cm to 7.5 cm) neat in areas no larger than 24 sq. ft. (2.23 m²).
 - 1. Product: MAPEI, *Mapecem Quickpatch*.

2.04 ROOF DECK MEMBRANE

- A. Cold Fluid-Applied Primary Waterproofing Membrane: Fast-curing, 100%-solids, cold fluid-applied, single-component, moisture-curing, coal/tar-free, polyether waterproofing membrane.
 - 1. Product: MAPEI, *Planiseal CRI*.
 - a. With MAPEI, *MAPEI LMR Fabric*.

2.05 ROOF DECK MEMBRANE ACCESSORIES

- A. Quick-Drying, Water-Based, High-Tack Contact Adhesive: It is specifically formulated to promote maximum adhesion of MAPEI waterproofing membranes to various substrates.
 - 1. Product: MAPEI, *Mapebond 720*.

2.06 PROTECTION AND PREFABRICATED DRAINAGE COMPOSITE SHEET

- A. General: Prefabricated Drainage Composite Sheet to promote positive drainage.
- B. High-Strength, High-Flow, Prefabricated Drainage Composite with Woven Filter Fabric and Protective Film: Three-dimensional polypropylene drainage core with geotextile adhered to one side to allow water passage while restricting soil particles with protective film on the back side to provide additional protection to waterproofing membranes.
 - 1. Product: MAPEI, *Mapedrain 35*.

2.07 MORTAR BED MATERIALS

- A. Thick-Bed (Dry-Pack) and Render Mortar: Pre-blended polymer-modified, dry-pack, scratch coat and wall render, and concrete patch; can be applied at 1/4 inch to 2 inches (6 mm to 5 cm), ANSI A108.1B.
 - 1. Product: MAPEI, *Modified Mortar Bed*.

2.08 MORTAR BED ACCESSORY MATERIALS

- A. Portland Cement Mortar (Thick-Set) Installation Materials: ANSI A108.02.
 - 1. Cleavage Membrane: Asphalt felt, ASTM D226, Type I (No. 15); or polyethylene sheeting, ASTM D4397, 4.0 mils (0.1 mm) thick.
 - 2. Reinforcing Wire Fabric: Galvanized, welded wire fabric, 2 inches by 2 inches (5 cm by 5 cm) by 0.062-inch (1.57 mm) diameter; comply with ASTM A185 and ASTM A82 except for minimum wire size.
 - 3. Expanded Metal Lath: Diamond-mesh lath complying with ASTM C847.
 - a. Base Metal and Finish for Interior Applications: Uncoated or zinc-coated (galvanized) steel sheet, with uncoated steel sheet painted after fabrication into lath.
 - b. Base Metal and Finish for Exterior Applications: Zinc-coated (galvanized) steel sheet.
 - c. Configuration over Studs and Furring: Flat.
 - d. Configuration over Solid Surfaces: Self-furring.
 - e. Weight: 2.5 lbs./sq. yd. (1.4 kg/m²).
 - f. Weight: 3.4 lbs./sq. yd. (1.8 kg/m²).

2.09 WATERPROOF/CRACK-ISOLATION MEMBRANES (OPTIONAL [MANDATORY OVER OCCUPIED SPACE]: TYPE OF PROJECT DICTATES USE)

- A. General: Manufacturer's standard product that complies with ANSI A118.10 and ANSI A118.12, and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
 - 1. Product: Products from MAPEI.
- B. Cementitious-Binder-Based Membrane: Rapid-drying, two-component, waterproofing and crack-isolation membrane, suitable for steam showers, IAPMO-listed, ANSI A118.10 and ANSI A118.12.
 - 1. Product: MAPEI, *Mapelastic Turbo* (for freeze/thaw climates, best application).
 - a. With MAPEI, *Reinforcing Fabric*.

- C. Fluid-Applied Membrane: Advanced liquid-rubber; extremely quick-drying, premium waterproofing and crack-isolation membrane, IAPMO-listed, ANSI A118.10 and A118.12.
 - 1. Product: MAPEI, *Mapelastic AquaDefense*.
 - a. With MAPEI, *Reinforcing Fabric*.

2.10 SETTING MATERIALS

- A. Improved Modified Dry-Set Cement Mortar for Large and Heavy Tile, Rapid-Setting: ANSI A118.4F, ANSI A118.11, ANSI A118.15F, and ISO 13007 C2FS2P2.
 - 1. Product: MAPEI, *Granirapid* System (for freeze/thaw and moderate climates - best application).
- B. Improved Modified Dry-Set Cement Mortar, Lightweight, Non-Sag, for Large and Heavy Tile, Rapid-Setting: ANSI A118.4HTF, ANSI A118.11, ANSI A118.15HTF, ANSI A138.1 and ISO 13007 C2TFS1P1.
 - 1. Product: MAPEI, *MAPEI Ultralite SI Quick* (for freeze/thaw climates - good application).
- C. Improved Modified Dry-Set Cement Mortar, for Large and Heavy Tile, Non-Sag, Rapid-Setting: ANSI A118.4HTF, ANSI A118.11, ANSI A118.15HTF, and ISO 13007 C2TFS1P1.
 - 1. Product: MAPEI, *Ultraflex LFT Rapid* (for moderate climates, better application).
- D. Modified Dry-Set Cement Mortar, Non-Sag for Walls, Nonslump for Floors, for Large and Heavy Tile with High-Transfer Technology, Rapid-Setting: ANSI A118.4HTF, ANSI A118.11, and ISO 13007 C2TF.
 - 1. Product: MAPEI, *Keraflex RS* (for moderate climates, good application).

2.11 GROUT MATERIALS

- A. High-Performance Cement Grout: For grout joints from 1/16 inch to 3/4 inch (1.5 mm to 19 mm), ANSI A118.7 and ISO 13007 CG2WAF.
 - 1. Product: MAPEI, *Ultracolor Plus FA*.

2.12 FLEXIBLE SEALANT

- A. 100%-Silicone Sealant: Heavy-traffic expansion and movement joints, horizontal and vertical complying with ASTM standards; ASTM: Meets C920, Type S, Grade NS, Class 25, Use T1, T2, NT, I, M, G, A and O, and conforms to C794 adhesion properties (#23 Clear meets ASTM C920, Type S, Grade NS, Class 50, Use NT).
 - 1. Product: MAPEI, *Mapesil T*.

2.13 GROUT RELEASE

- A. Grout Release: High-performance sacrificial coating that protects the tile surface from grout stains, improves cleanability and reduces the risk of grout haze or film residue, interior and exterior applications on natural stone (marble, limestone, sandstone, slate, granite, travertine, etc.), porcelain/ceramic tiles, masonry and quarry tiles.
 - 1. Product: MAPEI, *UltraCare* Grout Release.

2.14 PENETRATING STONE, TILE, AND GROUT SEALERS

- A. Solvent-Based Penetrating Sealer: Natural-look, providing maximum protection against most common stains. For use on interior and exterior natural stone (marble, limestone, sandstone, slate, granite, travertine, etc.), unglazed porcelain and ceramic tiles, masonry, quarry tiles and cement grout. Can also be used as a pre-grouting sealer.
 - 1. Product: MAPEI, *UltraCare* Penetrating SB Stone, Tile & Grout Sealer.
- B. Water-Based Penetrating Sealer: Premium, natural-look, providing maximum protection for interior and exterior natural stone (marble, limestone, sandstone, slate, granite, travertine, etc.), unglazed ceramic tile and masonry. Can also be used as a pre-grouting sealer.
 - 1. Product: MAPEI, *UltraCare* Penetrating Plus Stone, Tile & Grout Sealer.
- C. Water-Based Penetrating Grout Sealer: Provides protection against staining for use with sanded and unsanded cementitious grout joints. Can also be used as a pre-grouting sealer.
 - 1. Product: MAPEI, *UltraCare* Grout Sealer.

2.15 STONE, TILE AND GROUT MAINTENANCE, CLEANERS AND GROUT HAZE REMOVERS

- A. Neutral-pH Cleaner: Highly concentrated, zero-VOC, for ceramic, porcelain and natural stone surfaces. Helps prevent soap scum buildup and hard water deposits.
 - 1. Product: MAPEI, *UltraCare* Concentrated Tile & Grout Cleaner.
- B. High-Alkaline Cleaner: Highly concentrated and degreaser that quickly removes waxes, grease, oil, light soap scum, mildew and algae stains. For areas that have been neglected or subject to heavy use.
 - 1. Product: MAPEI, *UltraCare* Heavy-Duty Stone, Tile & Grout Cleaner.
- C. Cement Grout Haze Remover: Professional-strength, water-based formulation that helps remove cement grout haze from tile, concrete and acid-resistant natural-stone surfaces; acidic, low-odor, and nonflammable.
 - 1. Product: MAPEI, *UltraCare* Cement Grout Haze Remover.

2.16 MIXES

- A. Proportion and mix materials in accordance with manufacturer's most current written instructions and applicable ANSI standards.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates for compliance with requirements for conditions affecting performance of the work. Refer to ANSI A108.01, ANSI A108.02 and if applicable ANSI A108.19 and/or ANSI A108.20.
- B. Do not proceed with tilework until surfaces and conditions comply with requirements indicated in reference tile installation standard and manufacturer's printed instructions.
- C. Underlayment, patching, leveling and rendering materials, when needed, must be from the setting materials supplier. For improved warranty and single-source responsibility.

3.02 INSTALLATION

- A. Install tile in accordance with manufacturer's printed instructions and the applicable requirements of ANSI A108 Series for the materials being used.
- B. Apply waterproof membrane only in dry weather, when ambient and substrate temperatures are above 40°F (4°C).
- C. Waterproofing: Install necessary components to form a watertight installation. Dry film thickness (DFT) must comply with manufacturer's recommendations.
- D. Install tile in accordance with TCNA methods specified on the drawings.
- E. Install tile in accordance with TCNA methods listed below.
 - 1. Floor Tile at _____: TCNA F101 On Grade Bonded Mortar Bed.
 - 2. Floor Tile at _____: TCNA F102 Direct Bond on Grade Direct Bond.
 - 3. Floor Tile at _____: TCNA F103B Mortar Bed Over Occupied Space.
 - 4. Floor Tile at _____: TCNA F104 Direct Bond Over Unoccupied Space.
 - 5. Wall Tile at _____: TCNA W201 Scratch, Lath, Mortar.
 - 6. Wall Tile at _____: TCNA W211 Mortar Over Block.
 - 7. Wall Tile at _____: TCNA W244E Over Cement Board.
- F. Expansion and Control Joints: TCNA method EJ171.
- G. Apply tile and grout cleaners, sealers and maintenance products in accordance with manufacturer's printed instructions and technical data sheets.

3.03 GROUTING

- A. Grout joints in accordance with manufacturer's instructions and ANSI A108.6 and/or ANSI A108.10.
- B. Remove standing water, dust, and foreign substances from joints to be grouted.
- C. Clean and dry tile surfaces.
- D. After grouting, remove all grout residue promptly.

3.04 PROTECTION

- A. Floors: Protect from all traffic for at least 72 hours after installation.
 - 1. Do not step on floor for at least 24 hours; if traffic is unavoidable after that, use plywood stepping boards.
 - 2. Protect from heavy traffic for at least 7 days after installation.
 - 3. When fast-setting materials are used to allow faster occupancy, comply with the manufacturer's recommendations.
- B. Walls: Protect from impact, vibration and heavy hammering on adjacent and opposite walls for at least 14 days after installation, unless manufacturer's instructions allow a shorter period.
- C. Protect from stain-causing food products and chemicals for at least 14 days.

END OF SECTION