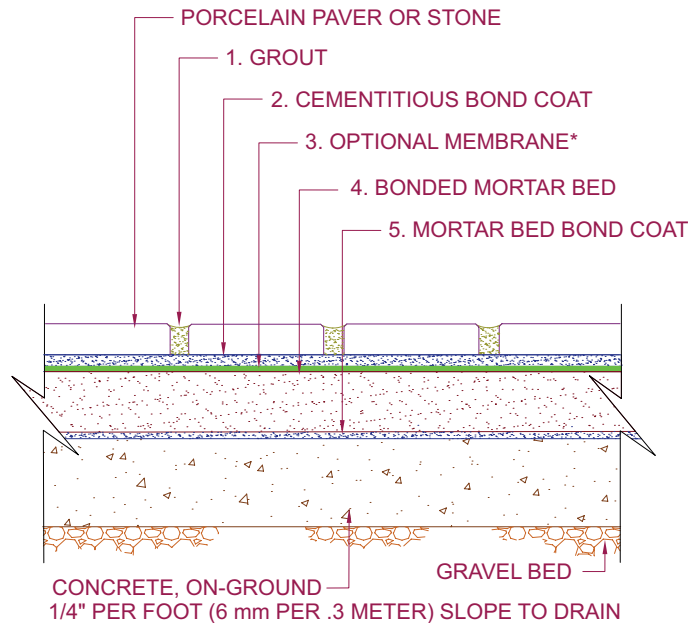


EXTERIOR FLOORS

On-Ground Concrete
 Bonded Mortar Bed
 Optional Membrane
 Porcelain Paver or Stone

Ver. 12.05.22
 Freeze/Thaw Climate
 MAPEI: MF101
 TCNA: F101



* USE OF A MEMBRANE IS OPTIONAL. SEE TCNA MEMBRANE OPTIONS. SCALE: N.T.S.

MAPEI Products Assembly	ANSI	ISO 13007
1. Grout:		
A. <i>Ultracolor® Plus FA</i>	A118.7, A138.1	CG2WAF
2. Cementitious Bond Coat:		
A. <i>Granirapid® System</i>	A118.4F, A118.11, A118.15F	C2FS2P2
3. Optional Membrane:		
A. <i>Mapelastic® Turbo</i>	A118.10, A118.12	
1) <i>Reinforcing Fabric</i>		
4. Bonded Mortar Bed:		
A. <i>Modified Mortar Bed</i>	A108.1 (A, B, C)	
5. Mortar Bed Bond Coat:		
A. <i>Granirapid System</i>	A118.4F, A118.11, A118.15F	C2FS2P2
Flexible Sealant:		
A. <i>Mapesil® T Plus</i>	A108.01, 3.7	
1) With caulking backer rod and/or bond breaker tape		

Minimum Performance Requirements from TCNA Guidelines

- Cementitious Grout: ANSI A118.7 or better, or ISO 13007 CG2 or better
- Cementitious Bond Coat: ANSI A118.4 or better, or ISO 13007 C2S1 or better
- Waterproof Membrane: ANSI A118.10
- Crack-Isolation Membrane: ANSI A118.12
- Movement Joints: EJ171 and ASTM C1193
- Flexible Sealant: ANSI A118.01, 3.7 and ASTM C920

Environmental Classifications

- Res6; Com6

Materials for Green/Sustainable Design

Installation Materials that meet ANSI A138.1, *The American National Standard Specifications for Sustainable Ceramic Tiles, Glass Tiles, and Tile Installation Materials*.

CAD details and/or specifications are provided as guides. They are intended to assist in the proper detailing or specifying of a project. They are not to scale or intended for construction. The guide specification must be reviewed for code compliance and edited to make it project-specific. Drawings are based on the Tile Council of North America's (TCNA) Handbook for Ceramic, Glass, and Stone Tile Installation and the Terrazzo, Tile and Marble Association of Canada's (TTMAC) Tile Installation Manual. MAPEI products are listed as options and are substituted for TCNA's and TTMAC's listed ANSI and ISO (ISO 13007) standards. For natural stone tiles, refer to Natural Stone Institute, TCNA Natural Stone Tile Selection and Installation Guide and consult stone tile supplier for suitability. Please refer to the referenced handbooks and current data sheets for complete instructions and application limitations. Some installation methods and component materials may not be referenced. MAPEI encourages the user to consult all approved resources to ensure a complete assembly.

EXTERIOR FLOORS

On-Ground Concrete
Bonded Mortar Bed
Optional Membrane
Porcelain Paver or Stone

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation materials.
- B. Tile materials.
- C. Mortar materials.
- D. Setting materials.
- E. Grout materials.
- F. Crack-isolation membrane.
- G. Waterproof membrane.
- H. Flexible sealant.

1.02 RELATED SECTIONS

- A. Section 03 30 00 – Cast-in-Place Concrete.
- B. Section 03 38 00 – Post-Tensioned Concrete.
- C. Section 03 41 00 – Precast Structural Concrete.
- D. Section 05 40 00 – Cold-Formed Metal Framing.
- E. Section 06 11 00 – Wood Framing and Sheathing.
- F. Section 07 60 00 – Flashing and Sheet Metal.
- G. Section 07 91 23 – Backer Rods.
- H. Section 07 92 13 – Elastomeric Joint Sealants.
- I. Section 09 34 00 – Waterproofing-Membrane Tiling.
- J. Section 09 75 00 – Stone Facing.

1.03 REFERENCES

- A. American National Standards Institute (ANSI) Installation Specifications:
 - 1. ANSI A108 Series – Installation Specifications.
 - 2. ANSI A108.13 – Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone.
 - 3. ANSI A108.20 – 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.
- B. American National Standards Institute (ANSI) Material Specifications:
 - 1. ANSI A118 Series – Material Specifications.
 - 2. ANSI A118.15 – Improved Modified Dry-Set Mortar.
 - 3. ANSI A137.1 – Ceramic Tile.
 - 4. ANSI A137.2 – Glass Tile.
 - 5. ANSI A137.3 – Gauged Porcelain Tile and Gauged Porcelain Tile Panels/Slabs.
- C. Green Squared American National Standards Institute (ANSI) Material Specifications:
 - 1. ANSI A138.1 – Sustainable Tiles, Glass Tiles, and Tile Installation Materials – Version 2.
- D. American Society for Testing and Materials 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.
 - 5. ASTM C920 – Standard Specification for Elastomeric Joint Sealant.
 - 6. ASTM C1193 – Standard Guide for Use of Joint Sealants.
- E. NSI (DSDM) – Dimension Stone Design Manual; Natural Stone Institute.
- F. TCNA (HB) – Handbook for Ceramic Tile, Glass, and Stone Installation; Tile Council of North America.

- G. TTMAC – Specifications Guide 09 30 00 Tile Installation Manual.
- H. International Organization for Standardization (ISO):
 - 1. ISO 13007 – Ceramic tiles – Grout and adhesives.
- I. 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.

1.05 QUALITY ASSURANCE

- A. To ensure single-source warranty requirements and compatibility of products: Please provide tile grout, setting materials, underlayments, additives, accessories and factory-prepared dry-set mortars manufactured by MAPEI Corporation (to qualify for warranty).
- 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. 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.

1.09 WARRANTY

- A. The manufacturer to provide standard system warranty against defect covering materials and labor reimbursement of associated replacement costs.
 1. Warranty Period: 25-year MAPEI Installation Systems Warranty.

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

Contact Mike Granatowski at (949) 212-2363 or email mgranatowski@mapei.com

- B. Acceptable Manufacturer:

Daltile Corporation

7834 C.F. Hawn Freeway
Dallas, TX 75217
www.daltile.com/xteriors

Contact Daltile Customer Service at (800) 449-3591, Fred Davis at (469) 964-3246 or email fred.davis@daltile.com

- 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 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 MORTAR BED ACCESSORY MATERIALS

- A. Portland Cement Mortar (Thick-Set) Installation Materials: ANSI A108.02.

2.05 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 A108.1C.
 - 1. Product: MAPEI, *Modified Mortar Bed*.

2.06 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*.

2.07 GROUT MATERIALS

- A. High-Performance Cement Tile 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*.

2.08 WATERPROOF/CRACK-ISOLATION MEMBRANES (OPTIONAL: TYPE OF PROJECT DICTATES USE)

- A. General: Manufacturer's standard product that complies with ANSI A118.10, 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, *Mapelastc Turbo*.
 - a. With MAPEI, *Reinforcing Fabric*.

2.09 FLEXIBLE SEALANT

- A. 100%-Silicone Sealant with Enhanced Adhesion: Heavy-traffic expansion and movement joints, horizontal and vertical complying with ASTM standards; ASTM: Meets C21, 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 Plus*.
 - a. Caulking backer rod and/or bond breaker tape.

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 DETAILING / FLASHING

- A. All detailing and flashing must be completed prior to installation of field waterproofing membrane.
- B. All detailing and flashing must be installed per manufacturer's standard details.

3.03 MIXES

- A. General: Proportion and mix products, in clean containers, in accordance with manufacturer's most current written instructions and applicable ANSI standards.
 - 1. Do not add water, thinners or additives unless recommended by manufacturer.
 - 2. When practical, use manufacturer's premeasured packages to ensure that materials are mixed in proper proportions. When premeasured packages are not used, measure ingredients using graduated measuring containers; do not estimate quantities or use shovels or trowels as units of measure.
 - 3. Do not mix more materials than can be used within time limits recommended by manufacturer. Discard materials that have begun to set.
- B. Mortar Scrub/Slurry Bond Coat: Mix dry ingredients with enough water to provide consistency of thick cream.
- C. Dry-Pack Mortar: Mix required type(s) of patching-mortar dry ingredients with just enough liquid to form a damp cohesive mixture that can be squeezed by hand into a ball but is not plastic per ANSI A108.1B.

3.04 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 method F101.
- F. Install expansion and control joints in accordance with TCNA method EJ171. Install proper sealant and backing material (backer rod and/or bond breaker tape) per TCNA method EJ171. Sealant must not bond to backing material and must only form a two-sided bond. For above-ground installations, additional movement joints are required.

3.05 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.

3.06 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. Protect finished tile surfaces from staining and discoloration until final inspection and acceptance.
- C. Protect installed tilework from damage by other trades and general abuse until substantial work completion and acceptance.
- D. Refer to manufacturer's product data sheet for recommendations regarding protection.

END OF SECTION