SECTION 09 30 00

TILE AND STONE SETTING MATERIALS AND ACCESSORIES

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\*\* NOTE TO SPECIFIER \*\* MAPEI Corporation; mortars and grouts for ceramic tile, stone, porcelain, and other materials.  
This section is based on the products of MAPEI Corporation, which is located at:  
1144 E. Newport Center Drive  
Deerfield Beach, FL 33442, USA  
Toll Free Tel.: 1-800-992-6273  
Fax.: 954-246-8805  
Email: techservicerequests@mapei.com  
Web:   
  
This section is based on the products of MAPEI Inc., which is located at:  
2900 Francis-Hughes  
Laval, QC, H7L 3J5, Canada  
Toll Free Tel.: 1-800-361-9309  
Fax: 450-901-0196  
Email: tservices@mapei.com  
Web: www.mapei.ca  
  
MAPEI manufactures a wide range of high performance tile and stone setting materials, many of which are specifically designed for difficult application conditions. Specifiers are urged to consult both the manufacturer's technical literature and the Tile Council of North America (TCNA) 'Handbook for Ceramic, Glass, and Stone Tile Installation' for assistance in selection of products.  
OR (HYDRAULIC CEMENT UNDERLAYMENTS)  
MAPEI is the global leader in the manufacture of installation materials for ceramic tile and stone, floor covering adhesives, and floor preparation for the construction industry. These materials include but are not limited to mortars, grouts, carpet and vinyl adhesives, self-levelers, and concrete repair products. The company has 12 manufacturing facilities and employs approximately 1,400 people throughout North America.

1. GENERAL
   1. SECTION INCLUDES
      1. Surface preparation materials.
      2. Setting materials.
      3. Adhesives and primers.
      4. Grout materials.
      5. Self-leveling underlayment.
      6. Waterproof membrane.
      7. Crack isolation membrane.
      8. Flexible sealant.
      9. Uncoupling membrane.
      10. Uncoupling heat membrane.
      11. Electric radiant heat cable.
      12. Thermostats.
      13. Sound reduction membrane.
      14. Penetrating grout sealers.
      15. Penetrating stone, tile, and grout sealers.
      16. Topical stone sealer and finishes.
      17. Stone, tile, and grout maintenance, cleaners, and grout haze removers.
   2. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* This section does not include any tile or stone materials; be sure that the required tile or stone materials are specified in another section. Delete sections below not relevant to this project; add others as required.

* + 1. Section 03 30 00 - Cast-in-Place Concrete.
    2. Section 03 38 00 - Post-Tensioned Concrete.
    3. Section 03 39 00 - Concrete Curing.
    4. Section 03 54 00 - Cast Underlayment.
    5. Section 03 54 00- Cast Underlayment.
    6. Section 04 20 00 - Unit Masonry.
    7. Section 05 40 00 - Cold-Formed Metal Framing.
    8. Section 05 42 00 - Cold-Formed Metal Joist Framing.
    9. Section 06 11 16 - Mechanically Graded Lumber.
    10. Section 06 11 00 - Sheating.
    11. Section 07 14 00 - Fluid-Applied Waterproofing.
    12. Section 07 60 00 - Flashing and Sheet Metal.
    13. Section 07 76 16 - Roof Decking Pavers.
    14. Section 07 92 13 - Cork Wall Coverings.
    15. Section 07 92 19 - Acoustic Sealants.
    16. Section 09 05 61.13 - Moisture Vapor Emission Control.
    17. Section 09 21 00 - Plaster and Gypsum Board Assemblies.
    18. Section 09 22 16 - Non-Structural Metal Framing.
    19. Section 09 26 00 - Veneer Plastering.
    20. Section 09 28 00 - Backing Boards and Underlayments.
    21. Section 09 29 00 - Gypsum Board.
    22. Section 09 30 00 - Tiling.
    23. Section 09 30 33 - Stone Tiling.
    24. Section 09 34 00 - Waterproofing-Membrane Tiling.
    25. Section 09 31 33 - Thin-Set Stone Tiling.
    26. Section 09 32 00 - Mortar-Bed Tiling.
    27. Section 09 75 00 - Stone Facing.
    28. Section 23 83 13 - Radiant-Heating Electric Cables.
    29. Section 23 83 13.16 - Radiant-Heating Electric Mats.
    30. Section 23 83 16 - Radiant Heating and Cooling Hydronic Piping.
    31. Section 13 11 00 - Swimming Pools.
    32. Section 13 17 00 - Tubs and Pools.
    33. Section 13 24 26 - Steam Baths.
    34. Section 22 41 23 - Residential Showers.
    35. Section 22 42 23 - Commercial Showers.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references below that are not actually required by the text of the edited section; add others as required.

* + 1. American National Standards Institute (ANSI) Installation Specifications:
       1. ANSI A108 Series - Installation Specifications.
       2. ANSI A108.11 - Interior Installation of Cementitious Backer Units.
       3. ANSI A108.13 - Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone.
       4. ANSI A108.14 - Paper-Faced Glass Mosaic Tile.
       5. ANSI A108.15 - Alternate Method: Installation of Paper-Faced Glass Mosaic Tile.
       6. ANSI A108.16 - Installation of Paper-Faced, Back-Mounted, Edge-Mounted, or Clear Film Face-Mounted Glass Mosaic Tile.
       7. ANSI A108.19 - Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs.
       8. 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.
    2. American National Standards Institute (ANSI) Material Specifications:
       1. ANSI A118 Series - Material Specifications.
       2. ANSI A118.9 - Cementitious Backer Units.
       3. ANSI A118.15 - Improved Modified Dry-Set Mortar.
       4. ANSI A136.1 - Organic Adhesives for Installation of Ceramic Tile.
       5. ANSI A137.1 - Ceramic Tile.
       6. ANSI A137.2 - Glass Tile.
       7. ANSI A137.3 - Gauged Porcelain Tile and Gauged Porcelain Tile Panels/Slabs.
    3. Green Squared American National Standards Institute (ANSI) Material Specifications:
       1. ANSI A138.1 - Sustainable Tiles, Glass Tiles, and Tile Installation Materials; Version 2.
    4. 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 C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars. (Using 2-inch [5-cm] Cube Specimens).
       5. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
       6. ASTM C616 - Standard Specification for Quartz-Based Dimension Stone.
       7. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members.
       8. ASTM C847 - Standard Specification for Metal Lath.
       9. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
       10. ASTM C1178/C1178M - Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel.
       11. ASTM C1186 - Standard Specification for Flat Fiber-Cement Sheets.
       12. ASTM C1193 - Standard Guide for Use of Joint Sealants.
       13. ASTM C1278 - Standard Specification for Fiber-Reinforced Gypsum Panel (Paragraph 6.1).
       14. ASTM C1288 - Standard Specification for Fiber-Cement Interior Substrate Sheets.
       15. ASTM C1325 (Type A) - Standard Specification for Fiber-Mat Reinforced Cementitious Backer Units.
       16. ASTM C1658/C1658M- Standard Specification for Glass Mat Gypsum Panels.
       17. ASTM C1396/C1396M - Standard Specification for Gypsum Board.
       18. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
       19. ASTM D4397 - Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications.
    5. National Stone Institute (NSI):
       1. Dimension Stone Design Manual.
    6. Tile Council of North America (TCNA):
       1. Handbook for Ceramic Tile, Glass, and Stone Installation.
    7. Terrazzo Tile and Marble Association of Canada (TTMAC)
       1. Specifications Guide 09 30 00 Tile Installation Manual.
    8. International Organization for Standardization (ISO):
       1. ISO 13007 - Ceramic Tiles - Grout and Adhesives.
    9. Leadership in Energy and Environmental Design (LEED) - U.S. Green Building Council.
  1. SUBMITTALS

\*\* NOTE TO SPECIFIER \*\* Sustainable Design Requirements: Comply with project requirements intended to achieve sustainable design. Refer to Section 01 81 13 Sustainable Design Requirements for certification requirements. For additional information including Green Building Standards and Certification Systems contributions, contact [Sustainability\_USA@MAPEI.com](mailto:Sustainability_USA@MAPEI.com)

* + 1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
    2. Product Data: Manufacturer's technical information for each product specified.
    3. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
    4. Samples: Color charts for selection of grout.
    5. Manufacturer's Certificates: Certify that 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, ANSI A137.2 and/or ANSI A137.3.
    6. Installation Instructions: Manufacturer's printed instructions for each product.
    7. Maintenance Data: Include recommended cleaning methods, cleaning materials, and maintenance coatings.
  1. QUALITY ASSURANCE

\*\* NOTE TO SPECIFIER \*\* Include only qualifications that are different or in excess of those specified in Division 01. Verify it is possible for the project to find companies/individuals with the qualifications listed below and that they do not limit the project to using union labor in non-union jurisdictions.

* + 1. To ensure single-source warranty requirements and compatibility of products: 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.
    2. Installer Qualifications:
       1. For Mapeheat installations: Installer must be a MAPEI Registered Pro Installer or an nVent NUHEAT Certified Pro Installer.
       2. 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 5 years' experience.
       3. Installer is a Five-Star member of the National Tile Contractors Association or a Trowel of Excellence member of the Tile Contractors' Association of America.
       4. Installer's supervisor for the project holds the International Masonry Institute's Foreman Certification.
       5. Installer employs Ceramic Tile Education Foundation Certified Installers or installers recognized by the U.S. Department of Labor as Journeyman Tile Layers.
    3. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  1. PRE-INSTALLATION CONFERENCE
     1. Convene one week prior to commencing work of this section.
     2. Require attendance of installation material manufacturer, tile supplier, tile installer and installers of related work. Review installation procedures and coordination required with related work.
     3. 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.
  2. DELIVERY, STORAGE AND HANDLING
     1. 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.
     2. Protect setting materials from freezing and overheating in accordance with manufacturer's instructions.
     3. Store tile and setting materials on elevated platforms, under cover and in a dry location and protect from contamination, dampness, freezing and overheating.
     4. Do not use frozen materials unless specifically allowed by manufacturer.
     5. Deliver and store materials on site at least 24 hours before work begins.
     6. Provide heated and dry storage facilities on site.
  3. ENVIRONMENTAL REQUIREMENTS

\*\* NOTE TO SPECIFIER \*\* Environmental conditions may influence the final color of Portland cement grouts.

* + 1. Comply with requirements of referenced standards and recommendations of material manufacturers for environmental conditions before, during, and after installation.
    2. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
    3. For Interior Applications:
       1. Do not begin installation until building is completely enclosed and maintains temperature and humidity conditions consistent with "after occupancy" conditions for a minimum of 2 weeks.
       2. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
       3. Vent temporary heaters to exterior to prevent damage to tilework from carbon dioxide build-up.

\*\* NOTE TO SPECIFIER \*\* Epoxy grouts require higher temperatures for successful installation.

* + - 1. Maintain temperatures at not lessthan 50degrees F (10 degrees C) in tiled areas during installation and for 7 days after completion unless higher temperatures are required by referenced installation standards or manufacturer's written instructions.
    1. 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 degrees F (10 degrees C) and 95degrees F (35 degrees 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. PRODUCTS
   1. MANUFACTURERS

\*\* NOTE TO SPECIFIER \*\* Delete acceptable manufacturer option not required.

* + 1. Acceptable Manufacturer: MAPEI, which is located at: 1144 E. Newport Ctr. Dr.; Deerfield Beach, FL 33442; Toll Free Tel: 800-992-6273 -Floor Installation; Email: [request info (jwhitfield@mapei.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=MAPEI&coid=33991&rep=&fax=&message=RE:%20Spec%20Question%20(09305map):%20%20&mf=); Web: <https://www.mapei.com/us/en-us/home-page> | <https://www.mapei.com/ca/en-ca/home>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs. Coordinate with Division 1 requirements.

* + 1. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
    2. Substitutions: Not permitted.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. SURFACE PREPARATION MATERIALS

\*\* NOTE TO SPECIFIER \*\* Delete paragraphs not required.

* + 1. 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 to 1-1/4 inches (3 to 3.2 cm).
       1. Product: MAPEI, Planitop 330 Fast.
    2. Trowelable Concrete Floor Patch: High-performance, fast-setting cementitious patching compound. Can be applied at 1/16 to 1-1/2 inches (1.5 mm to 3.8 cm) neat and from 1-1/2 to 3 inches (3.8 cm to 7.5 cm) neat in areas no larger than 24 square feet (2.23 sq m).
       1. Product: MAPEI, Mapecem Quickpatch.
    3. Concrete Repair Patch: Premixed cement-based mortar for concrete repairs, fast-setting, high compressive strength, can be applied at 1/4 inch to 4 inches (6 mm to 10 cm).
       1. Product: MAPEI, Mapecem Premix.
    4. Patching Compound: Fast-setting, polymer-modified patching compound, cement-based, high compressive strength, can be applied up to 1/2 inch (12 mm) with water, or 1/4 inch (6 mm) when mixed with diluted MAPEI, Planipatch Plus.
       1. Product: MAPEI, Planipatch.
    5. Skimcoating Compound: High-performance, polymer-modified, fiber-reinforced, cement-based, skimcoating and patching compound, can be applied at featheredge up to 1 inch (2.5 cm).
       1. Product: MAPEI, Planiprep SC.
    6. Moisture-Resistant Skimcoating Compound: Fast-drying, cement-based, fiber-reinforced, polymer-modified patch and skimcoating compound, can be applied at featheredge up to 1/2 inch (12 mm).
       1. Product: MAPEI, Planiprep PSC.
    7. Gypsum-Based Patching Compound: Repair minor holes, voids, and depressions in concrete, gypsum-based surfaces, or wood underlayments, and holes in drywall and plaster walls, can be applied up to 1/2 inch (12 mm).
       1. Product: MAPEI, Planitex UNS.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. MORTAR BED ACCESSORY MATERIALS
     1. 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.

\*\* NOTE TO SPECIFIER \*\* Retain first subparagraph below for reinforced mortar bed.

* + - 1. 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.

\*\* NOTE TO SPECIFIER \*\* Retain first subparagraph below for Portland cement plaster scratch coat. Delete if scratch coat is specified in Section 24 00 "Cement Plastering."

* + - 1. Expanded Metal Lath: Diamond-mesh lath complying with ASTM C847.
         1. Base Metal and Finish for Interior Applications: Uncoated or zinc-coated (galvanized) steel sheet, with uncoated steel sheet painted after fabrication into lath.
         2. Base Metal and Finish for Exterior Applications: Zinc-coated (galvanized) steel sheet.
         3. Configuration over Studs and Furring: Flat.
         4. Configuration over Solid Surfaces: Self-furring.

\*\* NOTE TO SPECIFIER \*\* Delete weight not required.

* + - * 1. Weight: 2.5 lbs./sq. yd. (1.4 kg/sq m).
        2. Weight: 3.4 lbs./sq. yd. (1.8 kg/sq m).

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. MORTAR BED / SCREED MORTARS / RENDER MORTAR MATERIALS
     1. 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. Thick-Bed (Dry-Pack) Mortar: Rapid-setting, pre-blended, polymer-modified, cement-based, sloping mortar; can be applied at 1/4 inch to 3 inches (6 mm to 7.5 cm) and up to 5 inches (12.5 cm) in trenches,ANSI A108.1B.
        1. Product: MAPEI, Planislope RS.
     3. Thick-Bed (Dry-Pack) Mortar: Pre-blended mixture of finely graded sand and Portland cement; can be applied at 3/8 inch to 3 inches (10 mm to 7.5 cm).
        1. Product: MAPEI, 4 to 1 Mud Bed Mix.
           1. With MAPEI, Planicrete AC (admixture), ANSI A108.1B.
     4. Accelerated-Cure Screed Mortar: Bonded and unbonded applications; can be applied at 1/4 inch to 2 inches (6 mm to 5 cm) neat and up to 4 inches (10 cm) when extended with 20 percent by weight of washed, clean, saturated surface-dry (SSD), 3/8-inch (10 mm) pea gravel.
        1. Product: MAPEI, Topcem Premix.
     5. Render Mortar: Quick-setting, polymer-modified, fiber-reinforced, cementitious rendering, patching, ramping and leveling mortar; can be applied from 1/8 inch to 1-1/4 inches (3 mm to 3.2 cm).
        1. Product: MAPEI, Planitop 330 Fast.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. ELECTRIC RADIANT HEAT SYSTEMS

\*\* NOTE TO SPECIFIER \*\* Delete paragraphs not required.

* + 1. Uncoupling Heat Membrane: Lightweight uncoupling, crack-isolation, and waterproofing membrane for electrical floor heating.
       1. Product: MAPEI, Mapeheat Membrane.
          1. With MAPEI, Mapeheat Cable.
          2. Waterproofing requires sealing tape: MAPEI, Mapeguard ST.

\*\* NOTE TO SPECIFIER \*\* Delete voltage not required.

* + - 1. Heating Cable Voltage: 120 V
      2. Heating Cable Voltage: 240 V
    1. Prewired, Floor-Heating Fabric: Even heat distribution because the heating wires embedded within the fabric are evenly spaced during production.
       1. Product: MAPEI, Mapeheat Mat.
    2. Self-Adhering, Pre-Wired, Floor-Heating Mesh: Can be adhered onto the subfloor during the layout process. Low profile ,3/16 inch (4.5 mm). Can be installed under ceramic tile, porcelain tile, natural stone, laminate flooring, engineered wood flooring and luxury vinyl flooring.
       1. Product: MAPEI, Mapeheat Mesh.

\*\* NOTE TO SPECIFIER \*\* Delete product not required.

* + 1. Thermostat:
       1. Programmable, WiFi Floor-Heating Thermostat: Monitor, control, and program the Mapeheat Thermo Connect floor-heating system via a free smartphone app (iOS and Android) or any Web browser. 7-day programmability, dual-voltage compatibility (120 V and 240 V) and built-in GFCI protection (Class A).
          1. Product: MAPEI, Mapeheat Thermo Connect.
       2. Programmable Floor-Heating Thermostat: 7-day programmable, electric floor-heating thermostat, dual-voltage compatibility (120 V and 240 V) and built-in GFCI protection (Class A).
          1. Product: MAPEI, Mapeheat Thermo Touch.
       3. Non-Programmable Floor-Heating Thermostat: Simple on/off capability for the Mapeheat floor-heating system, dual-voltage compatibility (120 V and 240 V), physical on/off switch, and built-in GFCI protection (Class A).
          1. Product: MAPEI, Mapeheat Thermo Basic.
  1. ADHESIVES AND PRIMERS

\*\* NOTE TO SPECIFIER \*\* Delete paragraphs not required.

* + 1. Multipurpose Bond-Promoting Primer: Low-VOC, synthetic resin-based primer with bond-promoting silica aggregates suspended in a dispersion, for interior and exterior applications.
       1. Product: MAPEI,ECO Prim Grip.
    2. Textured Primer: Fast-drying, high-performance, low-VOC, textured primer for nonporous substrates.
       1. Product: MAPEI,Primer X.
    3. All-Purpose Primer: Low-odor, water-based acrylic primer for self-leveling underlayments, also suitable for a wide variety of porous and nonporous substrates.
       1. Product: MAPEI, Primer T.
    4. Concrete Primer: Advanced-technology, low-odor, low-VOC, acrylic latex primer for concrete, gypsum-based underlayments and patches.
       1. Product: MAPEI, Primer L.
    5. Epoxy Primer: High-performance, 100 -percent solids epoxy primer, low-odor, VOC-compliant (requires sand broadcast).
       1. Product: MAPEI,Primer E.
    6. Water-Based Epoxy Primer: Two-component, polymer-modified, water-based epoxy primer for self-leveling underlayments. It improves adhesion over smooth, nonabsorbent, and difficult-to-bond-to substrates and approved plywood subfloors.
       1. Product: MAPEI, Primer WE.
    7. Consolidating Epoxy Primer: Ultra low-viscosity, consolidating, for weak concrete or gypsum substrates, 100 percent solids epoxy primer.
       1. Product: MAPEI, Primer CE.
    8. Metal/Concrete/Wood Bonding Agent/Primer: Two-component, multipurpose, high-modulus, nonshrink, 100 percent solids and moisture-tolerant epoxy bonding agent.
       1. Product: MAPEI, Planibond EBA with sand broadcast.
    9. Ready-to-Use, Fast-Drying, Quick-Tacking, Water-Based, Pressure-Sensitive, Latex Primer: For use under MAPEI's peel-and-stick sheet membranes.
       1. Product: MAPEI, MAPEI SM Primer Fast.
    10. Ready-to-Use, Fast-Drying, Water-Based, Latex Primer: For use under MAPEI's peel-and-stick sheet membranes.
        1. Product: MAPEI, MAPEI SM Primer.
    11. Ready-to-Use, Low-VOC, Quick-Drying, High-Tack, Water-Based Primer: For Interior/Exterior applications under MAPEI's peel-and-stick sheet membranes, promotes adhesion to high-moisture substrates.
        1. Product: MAPEI, MAPEI HM Primer.

\*\* NOTE TO SPECIFIER \*\* Organic adhesive can be used for interior wall and ceiling applications only, in dry or limited water exposure environments. It can be used for setting all types of glazed and unglazed tiles, over properly prepared gypsum wallboard, fully cured concrete, and cementitious backer board. Do not use for floor installations, pools, tanks, etc., or over dimensionally unstable substrates. It may be used for shower, tub, and bath surrounds where service requirements do not exceed those specified in ANSI A136.1. Do not use for marble or marble agglomerates.

* + 1. Organic Adhesive: Wall tile adhesive, nonflammable, ANSI A136.1 and ISO 13007 D1TE.
       1. Product: MAPEI, Type 1 adhesive.
    2. Two-Component Reactive Adhesive: Excellent for bonding to properly prepared steel and plywood substrates, white, flexible, interior, and exterior, floors and walls, trowelable, two-component adhesive, suitable for most types of ceramic tile, moisture-sensitive tile, natural stone, and agglomerates, ISO 13007 R2.
       1. Product: MAPEI, Planicrete W.
    3. Adhesive Bond Coat for Sound-Reduction Membrane: Light tan, nonflammable adhesive.
       1. Product: MAPEI, Ultrabond ECO 420.
       2. Applications: Interior floors for the installation of recycled rubber sound-reduction membrane.
    4. Hybrid-Polymer-Based Adhesive for Gauged Porcelain Tile and Gauged Porcelain Tile Panels/Slabs: Single-component, non-sag performance with panels, instant grab and holding power, easy-to-trowel, moisture-cure, and hybrid-polymer-based adhesive technology.
       1. Product: MAPEI, Ultrabond ECO GPT.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. SELF-LEVELING UNDERLAYMENTS

\*\* NOTE TO SPECIFIER \*\* When specifying any of the MAPEI Self-Leveling Underlayments below, any one of the following MAPEI Primers must be used: ECO Prim Grip, Primer X, Primer T, Primer L, Primer E, or Primer CE. Refer to "Adhesives and Primers"Article in this specification for Primer descriptions.

* + 1. Quick-Setting, Weather-Resistant, High-Compressive-Strength, Self-Leveling Underlayment: Advanced hydraulic, specially formulated for the resurfacing of interior horizontal surfaces where environmental controls are not in place, which can be applied in minimum uniform thickness of 1/8 inch to 1 inch (3 mm to 2.5 cm).
       1. Product: MAPEI, Ultraplan Extreme 2.
    2. Quick-Setting, Hydraulic Cement Underlayment: Polymer-modified, self-leveling, hydraulic cementproduct that can be applied from 1/8 inch (3 mm) - the minimum thickness over highest point in floor - to 1 inch (2.5 cm).
       1. Product: MAPEI, Novoplan 2 Plus.
    3. Reduced-Preparation, Hydraulic Cement Underlayment: Polymer-modified, self-leveling, hydraulic cementproductthat can be applied from 1/8 inch (3 mm) - the minimum thickness over highest point in floor - to 1 inch (2.5 cm).
       1. Product: MAPEI, Novoplan Easy Plus.
    4. Reduced-Preparation, Hydraulic Cement Underlayment: Polymer-modified, self-leveling, hydraulic cement product that can be applied from featheredge to 2 inches (5 cm).
       1. Product: MAPEI, Ultraplan Easy.
    5. High-Performance, Quick-Setting, Hydraulic Cement Underlayment: Polymer-modified, self-leveling, hydraulic cement productthat can be applied from 1/16 inch to 1-1/2 inches (1.5 mm to 3.8 cm).
       1. Product: MAPEI, Ultraplan 1 Plus.
    6. High-Flow, Hydraulic Cement Underlayment: Self-leveling, calcium-aluminate-based underlayment and repair mix that can be applied from 1/8 inch (3 mm) - the minimum thickness over highest point in floor - to 1 inch (2.5 cm).
       1. Product: MAPEI, Novoplan HFL.
    7. High-Compressive-Strength, High-Performance, Quick-Setting, Hydraulic Cement Underlayment: Polymer-modified, self-leveling, hydraulic cement product that can be applied from 1/8 inch to 2 inches (3 mm to 5 cm).
       1. Product: MAPEI, Ultraplan M20 Plus.
    8. Lightweight, Self-Leveling Underlayment: Polymer-modified, calcium-aluminate-based, self-drying specifically designed for use as a self-leveling underlayment over subfloors that are not rated to carry the full weight of traditional self-leveling underlayments and can be applied from1/8 inch to 2 inches (3 mm to 5 cm).
       1. Product: MAPEI, Ultraplan Lite.
    9. Super-Fluid, High-Flow, Calcium-Aluminate-Cement-Based Underlayment: Designed for thin coats of 1/16 inch to 1/2 inch (1.5 mm to 12 mm) over large surfaces.
       1. Product: MAPEI, Ultraplan LSC.
    10. Deep-Pour, Self-Leveling Compound: Calcium-aluminate-based underlayment and repair mix for interior concrete and engineer-approved floors and is capable of being placed from 1/4 inch to 4 inches (6 mm to 10 cm) in a single lift.
        1. Product: MAPEI, Novoplan DPL.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. GYPSUM SELF-LEVELING UNDERLAYMENTS

\*\* NOTE TO SPECIFIER \*\* Delete product not required. When specifying any of the MAPEI Self-Leveling Underlayments below, any one of the following MAPEI Primers must be used: ECO Prim Grip, Primer X, Primer T, Primer L, Primer E, Primer WE or Primer CE. Refer to "Adhesives and Primers" Article in this specification for Primer descriptions.

* + 1. Fiber-Reinforced, Gypsum Self-Leveling Underlayment: Enhanced flexural strength, resists cracking. Exceptionally smooth, hard surface for use in dry, interior residential and commercial areas. Covers radiant or in-floor heating systems. Can be applied from 1/8 inch to 2 inches (3 mm to 5 cm) in a single lift.
       1. Product: MAPEI, Planitex SLF.
  1. SETTING MATERIALS
     1. Dry-Set Portland Cement Mortar: ANSI A118.1 and ISO 13007 C1.

\*\* NOTE TO SPECIFIER \*\* Delete product not required.

* + - 1. Product: MAPEI, Kerabond.
      2. Product: MAPEI, Keraset.
      3. Product: MAPEI, Keraflor.
    1. Dry-Set Portland Cement Mortar for Large and Heavy Tile: ANSI A118.1HT and ISO 13007 C1T.
       1. Product: MAPEI, Kerabond T.

\*\* NOTE TO SPECIFIER \*\* Most manufacturers produce Large Heavy Tile (ANSI ' H' rated) (formerly medium-bed), dry-set mortars. Insert a paragraph in this article if required, with wording similar to that used for "Large Heavy Tile (ANSI ' H' rated), Latex-Portland Cement Mortar" Paragraph.

* + 1. Modified Dry-Set Cement Mortar: ANSI A118.4E, ANSI A118.11, and ISO 13007 C2EP1.
       1. Product: MAPEI, Ultraflex 2.
    2. Modified Dry-Set Cement Mortar, Rapid-Setting: ANSI A118.4F, ANSI A118.11, ANSI A118.15F and ISO 3007 C2FP1.
       1. Product: MAPEI, Ultraflex RS.
    3. Modified Dry-Set Cement Mortar, Non-Sag for Walls, Nonslump for Floors, for Large and Heavy Tile with High-Transfer Technology: ANSI A118.4HTE, ANSI A118.11, and ISO 13007 C2TE.
       1. Product: MAPEI, Keraflex Plus.
    4. 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.
    5. Improved Modified Dry-Set Cement Mortar, Lightweight, Non-Sag, for Large and Heavy Tile: ANSI A118.4HTE, ANSI A118.11, ANSI A118.15HTE, ANSI A138.1, and ISO 13007 C2TES1P1.
       1. Product: MAPEI, MAPEI Ultralite Mortar.
    6. Improved Modified Dry-Set Cement Mortar, Lightweight, Non-Sag, for Gauged Porcelain Tile: ANSI A118.4E, ANSI A118.11, ANSI A118.15E, ANSI A138.1, and ISO 13007 C2ES2P2.
       1. Product: MAPEI, MAPEI Ultralite S2.
    7. 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 S1 Quick.
    8. Improved Modified Dry-Set Cement Mortar, Non-Sag, for Large and Heavy Tile: ANSI A118.4HTE, ANSI A118.11, ANSI A118.15HTE, and ISO 13007 C2TES1P1.
       1. Product: MAPEI, Ultraflex LFT.
    9. 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.
    10. Improved Modified Dry-Set Cement Mortar for Large and Heavy Tile: ANSI A118.4E, A118.11, A118.15E, and ISO 13007 C2ES1P1.
        1. Product: MAPEI, Ultraflex 3.
    11. Improved Modified Dry-Set Cement Mortar, Non-Sag, for Large and Heavy Tile with High-Transfer Technology: ANSI A118.4HTE, ANSI A118.11, ANSI A118.15HTE, and ISO 13007 C2TES1P1.
        1. Product: MAPEI, Keraflex Super.
    12. Improved Modified Dry-Set Cement Mortar for Large and Heavy Tile: ANSI A118.4HE, ANSI A118.11, ANSI A118.15HE, and ISO 13007 C2ES2P2.
        1. Product: MAPEI, Kerabond T / Keralastic System.
    13. Improved Modified Dry-Set Cement Mortar: ANSI A118.4E, ANSI A118.11, ANSI A118.15E, and ISO 13007 C2ES2P2.
        1. Product: MAPEI, Kerabond/Keralastic System.
    14. 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.
    15. Modified Dry-Set Cement Mortar for Glass Tile: ANSI A118.4TE, ANSI A118.11, and ISO 13007 C2TES1P1.
        1. Product: MAPEI, Adesilex P10 Mosaic & Glass Tile with MAPEI, Keraply.

\*\* NOTE TO SPECIFIER \*\* Water-Cleanable, Tile-Setting Epoxy: ANSI A118.3 and ISO R2.

* + 1. Water-Cleanable, Epoxy Bond Coat, 100 Percent Solids: ANSI A118.3 and ISO 13007 R2.
       1. Product: MAPEI, Kerapoxy 410.
    2. Premium Epoxy Mortar and Grout: For grout joints from 1/16 inch to 3/8 inch (1.5 mm to 10 mm), ANSI A118.3 and ISO 13007 R2/RG.
       1. Product: MAPEI, Kerapoxy CQ.
    3. Two-Component Reactive Adhesive: Excellent for bonding to properly prepared steel and plywood substrates, white, flexible, for interior and exterior, for floors and walls, trowelable, two-component adhesive, suitable for most types of ceramic tile, moisture-sensitive tile, natural stone, and agglomerates, ISO 13007 R2.
       1. Product: MAPEI, Planicrete W.
    4. Organic Adhesive: Wall tile adhesive, nonflammable, ANSI A136.1 and ISO 13007 D1TE.
       1. Product: MAPEI, Type 1.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. GROUT MATERlALS

\*\* NOTE TO SPECIFIER \*\* Grouts in first two paragraphs below are prepackaged products and are available either sanded or unsanded. Sanded grout is generally used for tile installed with joint widths 1/8 inch (3 mm) or wider; unsanded grout is generally used for tile installed with joint widths 1/8 inch (3 mm) or narrower. Delete all of the following materials that are not required on the project.

* + 1. Standard Sanded Cement Grout: Sanded polymer-modified Portland-cement tile grout, fills joints from 1/8 inch to 5/8 inch (3 mm to 16 mm), ANSI A118.6 and ISO 13007 CG2WA.
       1. Product: MAPEI, Keracolor S.

\*\* NOTE TO SPECIFIER \*\* MAPEI, KERACOLOR U is specifically designed for grouting non-vitreous glazed ceramic wall tiles but can be used for grouting other types of interior wall tiles, including glazed ceramic, marble, and narrow joints between 1/16 inch (1.5 mm) to 1/8 inch (3 mm) wide. Do not use for floor joints wider than 1/8 inch (3 mm). Do not use for exterior tile or stone, vitreous or semi-vitreous tiles, slate, natural stone, or where chemical and stain resistance is required. It is available in a broad range of colors and requires only water for mixing.

* + 1. Standard Unsanded Cement Grout: Unsanded polymer-modified Portland-cement tile grout, fills joints from 1/16 inch to 1/8 inch (1.5 mm to 3 mm), ANSI A118.6 and ISO 13007 CG2WA.
       1. Product: MAPEI, Keracolor U.

\*\* NOTE TO SPECIFIER \*\* Ultracolor Plus FA and Ultracolor Plus Max can be used for grouting all types of ceramic tile, ceramic mosaics, quarry tile, brick pavers, slate, porcelain, and most dimensional stones, with joints between 1/16 inch and 3/4 inch (1.5 mm and 19 mm), on the interior and exterior. It is a rapid curing high early strength, low shrinkage, polymer-modified proprietary mixture of cementitious compounds, select quartz aggregates and premium color-fast pigments. Ultracolor Plus FA and Ultracolor Plus Max is mixed by adding water only and achieves ANSI A118.7 28-day strength in 72 hours under manufacturer's prescribed project conditions. Do not use for conditions requiring high chemical or acid resistance.

* + 1. 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. High-Performance, Rapid-Setting Cement Grout, with Maximized Color Depth: For grout joints from 1/16 inch to 3/4 inch (1.5 mm to 19 mm), ANSI A118.7 and ISO 13007 CG2 WAF.
       1. Product: MAPEI, Ultracolor Plus Max.

\*\* NOTE TO SPECIFIER \*\* MAPEI Flexcolor CQ and MAPEI Flexcolor 3D can be used for grouting all types of ceramic tile, ceramic mosaics, quarry tile, brick pavers, slate, porcelain and most types of glass tile and dimensional stones, with joints between 1/16 inch to 1/2 inch (1.5 mm and 12 mm). MAPEI Flexcolor CQ and MAPEI Flexcolor 3D are formulated with the latest innovation in colored quartz aggregate, which ensures color consistency, ease of cleanability and improved workability.

ANSI: Although this innovation ready-to-use grouts do not currently have ANSI requirements, MAPEI Flexcolor CQ and MAPEI Flexcolor 3D meets or exceeds specific tests in ANSI A118.3 and A118.6 covering other grout types.

* + 1. Polymer Ready-to-Use Specialty Grout: Grout joints from 1/16 inch to 1/2 inch (1.5 mm to 12 mm).
       1. Product: MAPEI, MAPEI Flexcolor CQ.
    2. Polymer Ready-to-Use Translucent Specialty Grout for Glass Tile: 'Iridescent effect' finish for grout joints from 1/16 inch to 1/2 inch (1.5 mm to 12 mm).
       1. Product: MAPEI, MAPEI Flexcolor 3D.

\*\* NOTE TO SPECIFIER \*\* Epoxy grout is used where exceptionally high strength, chemical resistance, and water resistance are required. Kerapoxy CQ and Kerapoxy can be used for interior and exterior floor and wall installations, for ceramic tile, quarry tile, acid-resistant floor brick, paver tile, and slate. Do not use for white or translucent marble, in areas subject to heat over 212 degrees F (100 degrees C), or over dimensionally unstable surfaces.Do not use Kerapoxy IEG CQ as a mortar.

* + 1. Premium Epoxy Mortar and Grout: For grout joints from 1/16 inch to 3/8 inch (1.5 mm to 10 mm), ANSI A118.3 and ISO 13007 R2/RG.
       1. Product: MAPEI, Kerapoxy.
    2. Commercial Industrial-Grade Water-Cleanable Epoxy Grout: For grout joints from 1/8 inch to 5/8 inch (3 mm to 16 mm), ANSI A118.3 and ISO 13007 RG.
       1. Product: MAPEI, Kerapoxy IEG CQ.

\*\* NOTE TO SPECIFIER \*\* Subparagraph below is an example only. Some products claim resistance of up to 350 degrees F (176 degrees C). Revise to suit Project. See Evaluations.

* + - 1. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to 140 degrees F (60 degrees C) and 212 degrees F (100 degrees C), respectively, and certified by manufacturer for intended use.
    1. Premium Epoxy Mortar and Grout: For grout joints from 1/16 inch to 3/8 inch (1.5 mm to 10 mm), ANSI A118.3 and ISO 13007 R2/RG.
       1. Product: MAPEI, Kerapoxy CQ.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. WATERPROOF/CRACK ISOLATION MEMBRANES

\*\* NOTE TO SPECIFIER \*\* ANSI A118.10 specifies waterproof membranes for use under thin-set tile installations. ANSI A118.12 specifies standard and high-performance crack isolation.

* + 1. 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: Subject to compliance with requirements, provide MAPEI materials.
    2. Flexible Polyethylene Sheet Membrane: Nonwoven, polypropylene fabric on both sides, used for both waterproofing and crack-isolation in interior/exterior residential and commercial applications, ANSI A118.10 and ANSI A118.12.
       1. Product: MAPEI, Mapeguard WP 200.
          1. With MAPEI, Mapeguard WP ST sealing tape.
          2. With MAPEI, Mapeguard PIC pre-formed inside corner.
          3. With MAPEI, Mapeguard POC pre-formed outside corner.
          4. With MAPEI, Mapeguard PC pipe collar.
          5. With MAPEI, Mapeguard VC valve collar.
    3. Fluid-Applied Membrane: Advanced liquid-rubber, extremely quick-drying, premium waterproofing, and crack-isolation membrane,IAPMO-listed, ANSI A118.10 and ANSI A118.12.
       1. Product: MAPEI, Mapelastic AquaDefense.
          1. With MAPEI, Reinforcing Fabric.
    4. 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.
          1. With MAPEI, Reinforcing Fabric.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. CRACK-ISOLATION MEMBRANES

\*\* NOTE TO SPECIFIER \*\* ANSI A118.12 specifies standard and high-performance crack isolation.

* + 1. General: Manufacturer's standard product that complies with ANSI A118.12 for performance and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
       1. Product: Subject to compliance with requirements, provide products from MAPEI.
    2. Fabric-Reinforced, Modified-Bituminous Sheet Membrane: Self-adhering, modified-bituminous sheet with fabric reinforcement facing; 0.040 inch (1.01 mm) nominal thickness, membrane for use under tile that provides up to 3/8 inch (10 mm) protection from in-plane cracks: ANSI A118.12 and ANSI A118.13.
       1. Product: MAPEI, Mapeguard 2.
          1. Requires Primer: MAPEI, MAPEI SM Primer, or MAPEI, MAPEI SM Primer Fast, or MAPEI, MAPEI HM Primer.
    3. Fabric-Reinforced, Crack-Isolation Membrane: Flexible, Thin, Lightweight, Load-Bearing with fabric reinforcement facing; 1/16 inch (1.5 mm) nominal thickness, membrane for use under tile that provides up to 3/8 inch (10 mm) protection from in-plane cracks: ANSI A118.12.
       1. Product: MAPEI, Mapeguard CI.
          1. Requires Primer: MAPEI, MAPEI SM Primer, or MAPEI, MAPEI SM Primer Fast or MAPEI, MAPEI HM Primer.
    4. Fluid-Applied Membrane: Liquid-latex rubber or elastomeric polymer. Flexible bonded crack-isolationmembrane for use under tile that provides up to 1/8 inch (3 mm) protection from in-plane cracks. Fast-setting, flexible, thin, load-bearing: ANSI A118.12.
       1. Product: MAPEI, Mapelastic CI.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. UNCOUPLING MEMBRANE

\*\* NOTE TO SPECIFIER \*\* Delete product not required.

* + 1. Underlayment Membrane: Uncoupling, lightweight, waterproofing, and vapor-pressure-equalizing underlayment membrane, ANSI A118.10 and ANSI A118.12(Section 5.1.3. and Section 5.2.3).
       1. Product: MAPEI, Mapeguard UM.
          1. Waterproofing requires sealing tape: MAPEI, Mapeguard ST.
    2. Uncoupling Heat Membrane: Lightweight uncoupling, crack-isolation, and waterproofing membrane for electrical floor heating.
       1. Product: MAPEI, Mapeheat Membrane.
          1. With MAPEI, Mapeheat Cable.
          2. Waterproofing requires sealing tape: MAPEI, Mapeguard ST.

\*\* NOTE TO SPECIFIER \*\* Delete voltage not required.

* + - 1. Heating Cable Voltage: 120 V
      2. Heating Cable Voltage: 240 V

\*\* NOTE TO SPECIFIER \*\* Delete product not required.

* + - 1. Thermostat:
         1. Programmable, WiFi Floor-Heating Thermostat: Monitor, control, and program the Mapeheat Thermo Connect floor-heating system via a free smartphone app (iOS and Android) or any Web browser. 7-day programmability, dual-voltage compatibility (120 V and 240 V) and built-in GFCI protection (Class A).

Product: MAPEI, Mapeheat Thermo Connect.

* + - * 1. Programmable Floor-Heating Thermostat: 7-day programmable, electric floor-heating thermostat, dual-voltage compatibility (120 V and 240 V) and built-in GFCI protection (Class A).

Product: MAPEI, Mapeheat Thermo Touch.

* + - * 1. Non-Programmable Floor-Heating Thermostat: Simple on/off capability for the Mapeheat floor-heating system, dual-voltage compatibility (120 V and 240 V), physical on/off switch, and built-in GFCI protection (Class A).

Product: MAPEI, Mapeheat Thermo Basic.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. SOUND-REDUCTION MEMBRANE
     1. General: Manufacturer's standard product that complies with ANSI A118.13 for performance and is recommended by the manufacturer for the application indicated. Include primers and/or bond coat as recommended by manufacturer.
        1. Product: Subject to compliance with requirements, provide MAPEI materials.
        2. Performance: IIC (Impact Insulation Class) minimum AIIC of 10 or greater per standard.
        3. Performance: IIC and STC (Sound Transmission Class) performance of 50 or better per building code.
     2. Crack Isolation and Sound Control: Flexible, thin, load-bearing, fabric reinforced, "peel-and-stick" crack-isolation and sound-reduction membrane, for use under tile, provides up to 3/8 inch (10 mm) protection from in-plane cracks, ANSI A118.12 and ANSI A118.13, which requires primer.
        1. Product: MAPEI, Mapesonic 2.
           1. Requires Primer: MAPEI, MAPEI SM Primer, MAPEI, MAPEI SM Primer Fast, or MAPEI, MAPEI HM Primer.
     3. Crack Isolation and Sound Control: Self-adhering, modified-bituminous sheet with fabric reinforcement facing, 40 mil (1 mm) nominal thickness, membrane for use under tile, provides up to 3/8 inch (10 mm) protection from in-plane cracks, ANSI A118.12 and ANSI A118.13, requires primer.
        1. Product: MAPEI, Mapeguard 2.
           1. Requires Primer: MAPEI, MAPEI SM Primer, MAPEI, MAPEI SM Primer Fast, or MAPEI, MAPEI HM Primer.
     4. Sound Control and Crack Isolation: Flexible, thin, load-bearing, recycled rubber sound-reduction and crack-isolation membrane, membrane for use under tile, provides up to 3/8 inch (10 mm) protection from in-plane cracks, ANSI A118.12 and ANSI118.13.
        1. Product: MAPEI, Mapesonic RM.
           1. Mapesonic RM 5: 5 mm thickness for sound reduction.
           2. Mapesonic RM 10: 10 mm thickness for improved sound reduction.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. FLEXIBLE SEALANTS
     1. Silicone Sealant, 100 Percent: 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 (No. 23 Clear meets ASTM C920, Type S, Grade NS, Class 50, Use NT).
        1. Product: MAPEI, Mapesil T.
     2. Silicone Sealant, 100 percent, for Corner and Change-of-Plane Joints: Offers direct color matches to MAPEI Flexcolor 3D; ASTM: Meets C920, Type S, Grade NS, Class 25, Use T2, NT, M, G, A and O, and conforms to C794 adhesion properties (#201 Crystal Moon meets ASTM C920, Type S, Grade NS, Class 50, Use NT).
        1. Product: MAPEI, Mapesil 3D.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. GROUT RELEASE
     1. 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.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. PENETRATING GROUT SEALERS
     1. 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.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. PENETRATING STONE, TILE AND GROUT SEALERS

\*\* NOTE TO SPECIFIER \*\* Delete types not required.

* + 1. 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 and Grout Sealer.
    2. 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.
    3. Water-Based Sealer: Natural-look, protecting interior and exterior natural stone (marble, limestone, sandstone, slate, granite, travertine, etc.), unglazed ceramic tile, masonry, and cement grout. Containing no silicones. Can also be used as a pre-grouting sealer.
       1. Product: MAPEI, UltraCare Penetrating Stone, Tile & Grout Sealer.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. ENHANCING PENETRATING SEALERS
     1. Color-Enhancing Penetrating Sealer: Enhances the natural colors of stone and provides protection on interior and exterior natural-stone surfaces (marble, limestone, sandstone, slate, granite, travertine, etc.) as well as cementitious grout. Can also be used as a pre-grouting sealer (grout release).
        1. Product: MAPEI, UltraCare Enhancing Stone Sealer.
     2. Premium Color-Enhancing Penetrating Sealer: Enhances the natural colors of stone and provides maximum protection. Safe for use on interior and exterior natural-stone surfaces (marble, limestone, sandstone, slate, granite, travertine, etc.) as well as cementitious grout. Can also be used as a pre-grouting sealer (grout release).
        1. Product: MAPEI, UltraCare Enhancing Plus Stone Sealer.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. TOPICAL STONE SEALER AND FlNlSHES

\*\* NOTE TO SPECIFIER \*\* Delete types not required.

* + 1. High-Sheen Topical Finish: One-step, non-yellowing, resistant to ultraviolet light, water-based formula that provides a durable high-gloss finish and maximum stain resistance for interior uses. Can also be used as a pre-grouting sealer (grout release).
       1. Product: MAPEI, UltraCare High-Gloss Sealer & Finish.
    2. Low-Sheen Topical Finish: One-step, non-yellowing, water-based formula that provides a durable low-sheen satin finish and maximum stain resistance. Can also be used as a pre-grouting sealer. For interior and exterior use and is resistant to ultraviolet light.
       1. Product: MAPEI, UltraCare Low-Sheen Sealer & Finish.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. STONE, TILE AND GROUT MAINTENANCE, CLEANERS AND GROUT HAZE REMOVERS

\*\* NOTE TO SPECIFIER \*\* Delete types not required.

* + 1. 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.
    2. 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.
    3. Abrasive Cleaner: Water-based, biodegradable, nontoxic, nonflammable and contains no VOCs or acids. Does not require letting the product stand or dwell on the surface for effective cleaning. Safe for use on ceramic, porcelain and natural-stone surfaces, light cementitious and epoxy grout residue. Excellent for use on heavily textured and hard-to-clean surfaces.
       1. Product: MAPEI, UltraCare Abrasive Surface Cleaner.
    4. Sulfamic Acid Crystals: Cleaner and problem-solver for nonporous, acid-resistant tile and natural stone. It removes cured cement grout haze, mortar residue, rust stains, and mineral deposits such as efflorescence.
       1. Product: MAPEI, UltraCare Sulfamic Acid Crystals.
    5. Epoxy Grout Haze Remover: Professional-strength, water-based formulation that helps remove epoxy grout haze from tile and natural-stone surfaces; natural citrus scent, non-flammable and easy to use.
       1. Product: MAPEI, UltraCare Epoxy Grout Haze Remover.
    6. 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.
    7. Sealer and Coating Stripper: Heavy-duty, water-based, professional-strength for removal of coatings, lacquers, varnishes, sealers, paints and epoxy grout haze from tile and stone surfaces.
       1. Product: MAPEI, UltraCare Heavy-Duty Sealer and Coating Stripper.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. GROUT COLORANT
     1. Universal Grout Colorant and Sealer: Ready-to-use, water-based, polymer-modified colorant, and sealer for grout joints. Bonds to cement, epoxy, urethane, and acrylic grouts.
        1. Product: MAPEI, UltraCare Grout Refresh.
  2. ACCESSORIES
     1. Metal lath: Expanded metal lath, carbon steel hot dip galvanized G-60 finish expanded metal flat diamond lath without paper backing. Meets ASTM C847.
     2. Plastic Lath: Lightweight, noncorroding, alkali-resistant synthetic lath used as a substitute for traditional metal lath.
        1. Product: MAPEI, Mapelath.

1. EXECUTION
   1. EXAMINATION

\*\* NOTE TO SPECIFIER \*\* MAPEI has extensive surface preparation recommendations. Consult their Architectural Catalog for details.

* + 1. 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.
    2. Do not proceed with tilework until surfaces and conditions comply with requirements indicated in reference tile installation standard and manufacturer's printed instructions.
    3. When underlayment, patching, leveling, and rendering materials are needed, they must be from the supplier of the setting materials. For improved warranty and single-source responsibility.

\*\* NOTE TO SPECIFIER \*\* Depending on finishes selected, meet either of the three conditions below for Surface Plane Tolerances for Thin-Bed Methods with cementitious bonding material.

* + 1. When using tiles with all edges shorter than 15 inches (38 cm) in length, maximum allowable variation in the substrate - 1/4 inch (6 mm) in 10 feet (3.05 m) from the required plane, with no more than 1/16 inch (1.5 mm) variation in 12 inches (30 cm) when measured from the high points in the surface.
    2. When using large-format tiles with at least one edge of 15 inches (38 cm) in length, the maximum allowable variation in the substrate is 1/8 inch in 10 feet (3 mm in 3.05 m) from the required plane, and 1/16-inch variation in 24 inches (1.5 mm in 61 cm) when measured from the high points in the surface.
    3. When using stone tile, the maximum allowable variation in the substrate is 1/8 inch in 10 feet (3 mm in 3.05 m) from the required plane.
  1. DETAILING / FLASHING
     1. All detailing and flashing must be completed prior to installation of field waterproofing membrane.
     2. All detailing and flashing must be installed per manufacturer's standard details.
  2. MIXES
     1. 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 shovel or trowel as unit 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.

NOTE TO SPECIFIER: Retain "Mortar Scrub/Slurry Bond Coat" Paragraph below if patching with job-mixed patching mortar without using a manufactured bonding agent.

* + 1. Mortar Scrub/Slurry Bond Coat: Mix dry ingredients with enough water to provide consistency of thick cream.
    2. Dry-Pack Mortar: Mix required type(s) of patching-mortar dry ingredients with just enough liquid to form damp cohesive mixture that can be squeezed by hand into a ball but is not plastic per ANSI A108.1B.
  1. INSTALLATION
     1. When using Mapeheat Membrane and electric radiant-heat cables, provide Mapeheat floor-sensing thermostat or other Mapeheat controls with Class A GFCI protection.
     2. Install tile in accordance with manufacturer's printed instructions and the applicable requirements of ANSI A108 series for the materials being used.
     3. When underlayment, patching, leveling, and rendering materials are needed, they must be from the supplier of the setting materials. For improved warranty and single-source responsibility.
     4. When using self-leveling underlayment over uncoupling membrane or uncoupling heat membrane, adhere the uncoupling/uncoupling heat membrane to the concrete substrate using a rapid-setting modified mortar.
     5. Apply waterproof membrane only in dry weather, when ambient and substrate temperatures are above 40degrees F (4 degrees C).
     6. Waterproofing: Install necessary components to form a watertight installation. Dry film thickness (DFT) must comply with manufacturer's recommendations.

\*\* NOTE TO SPECIFIER \*\* For ease of specifying installation methods refer to the Tile Council of North America (TCNA) "Handbook for Ceramic, Glass, and Stone Tile Installation" (or the Terrazzo Tile & Marble Association of Canada [or TTMAC] 'Tile Specification Guide 09 30 00 Tile Installation Manual') for time-proven methods. Include the TCNA (or TTMAC) method numbers either on the drawing details or list them in the specification, with a description of where each is to be used. Delete the following paragraph if TCNA (or TTMAC) methods are not to be indicated on the drawings.

* + 1. Install tile using TCNA methods specified on the drawings.

\*\* NOTE TO SPECIFIER \*\* The following paragraphs are examples of how to specify different TCNA methods for different applications. Delete if TCNA methods are shown on the drawings.

* + 1. Floor Tile at \_\_\_\_: Install in accordance with TCNA method F\_\_ \_\_ \_\_.
    2. Wall Tile at \_\_\_\_\_: Install in accordance with TCNA method W\_\_ \_\_ \_\_.
    3. Tile on Soffits: Install in accordance with TCNA method C31\_\_.
    4. Tile Countertops: Install in accordance with TCNA method 51\_\_.
    5. Tile in Refrigerated Rooms: Install in accordance with TCNA method R612.
    6. Tile in Steam Rooms: Install in accordance with TCNA method SR61\_\_.
    7. Tile on Stairs: Install in accordance with TCNA method S151C/M/W (Concrete/Metal/Wood).
    8. Tile over Tile Floors: Install in accordance with TCNA method TR712.
    9. Tile over Tile Walls: Install in accordance with TCNA method TR713.
    10. Install expansion and control joints in accordance with TCNA method EJ171. For above-ground installations, additional movement joints are required.
    11. Apply tile and grout cleaners, sealers, and maintenance products in accordance with manufacturer's printed instructions and technical data sheets.

\*\* NOTE TO SPECIFIER \*\* Specify this for Pools only.

* + 1. Fill no more than the pool can be filled with fresh water, the rate of filling being the same as when it was originally filled for the water test, 24 inches to 30 inches (61 cm to 76 cm) per day. If the pool water is heated, the temperature should be raised slowly, at a rate not exceeding about 2 degrees F (1 degrees C) per hour.
  1. GROUTING

\*\* NOTE TO SPECIFIER \*\* Specify ANSI A108.10 when specifiying Keracolor S, Keracolor U, Ultracolor Plus FA or Ultracolor Plus Max. Specify ANSI A108.6 when specifying Kerapoxy, Kerapoxy CQ or Kerapoxy IEG CQ. Specify ANSI A108.8 when specifying a Furan grout.

* + 1. Grout joints in accordance with manufacturer's instructions andANSI A108.06 and/orANSI A108.10.
    2. Remove standing water, dust, and foreign substances from joints to be grouted.
    3. Clean and dry tile surfaces.
    4. After grouting, remove all grout residue promptly.
  1. PROTECTION

\*\* NOTE TO SPECIFIER \*\* The following are general recommendations for protection during construction. Specific applications and products may allow tiled areas to be occupied sooner.

* + 1. 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.
    2. 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.

\*\* NOTE TO SPECIFIER \*\* When dealing with cement-based products, it should be noted that temperature and humidity during and after installation of tile affect final curing time. That is, low temperatures -- 60 degrees F (15 degrees C) and under -- and high humidity - 70 percent and above -- will delay final cure time.

* + 1. Protect finished tile surfaces from staining and discoloration until final inspection and acceptance.

END OF SECTION