SECTION 09 30 00

TILE SETTING MATERIALS AND ACCESSORIES

Display hidden notes to specifier. (Don't know how? [Click Here](https://www.arcat.com/sd/display_hidden_notes.shtml))

*Copyright 2020 - 2023 ARCAT, Inc. - All rights reserved*

\*\* NOTE TO SPECIFIER \*\* LATICRETE International, Inc.; green flooring and facade materials  
This section is based on the products of LATICRETE International, Inc., which is located at:1 LATICRETE Park N.Bethany, CT 06524-3423Toll Free Tel: 800-243-4788Tel: 203-393-0010Fax: 203-393-1684Email: [request info (sldolata@laticrete.com)](https://arcat.com/rfi?action=email&company=LATICRETE%252BInternational%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(09300lat)%253A%2520&coid=33748&spec=09300lat&rep=&fax=203-393-1684)  
Web: <https://laticrete.com/en>   
 [ [Click Here](https://arcat.com/company/laticrete-international-inc-33748) ] for additional information.  
LATICRETE is a leading manufacturer of globally proven construction solutions for the building industry. LATICRETE offers a broad range of products and systems covering tile and stone installation and care, masonry installation and care, resinous and decorative floor finishes, concrete construction chemicals, and concrete restoration and care including the LATICRETE SUPERCAP System.  
For over 60 years, LATICRETE has been committed to research and development of innovative installation products, building a reputation for superior quality, performance and customer service. LATICRETE methods, materials and technology have been field and laboratory proven by Architects, Engineers, Contractors and Owners. Offering an array of low VOC and sustainable products, LATICRETE products contribute to LEED certification, exceed commercial/residential VOC building requirements, and are backed by the most comprehensive warranties in the industry

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Installation materials and accessories for ceramic tile.
    2. Installation materials and accessories for exterior adhered veneer.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 03 30 00 - Cast-in-Place Concrete.
    2. Section 03 39 00 - Concrete Curing.
    3. Section 03 41 10 - Plant-Precast Structural Concrete\*.
    4. Section 03 53 00 - Concrete Topping.
    5. Section 04 20 00 - Unit Masonry.
    6. Section 04 40 00 - Stone Assemblies.
    7. Section 06 10 00 - Rough Carpentry.
    8. Section 07 13 13 - Bituminous Sheet Waterproofing.
    9. Section 07 14 00 - Fluid-Applied Waterproofing.
    10. Section 07 50 00 - Membrane Roofing.
    11. Section 07 91 23 - Backer Rods.
    12. Section 09 28 13 - Cementitious Backing Boards.
    13. Section 09 29 00 - Gypsum Board.
    14. Section 10 28 00 - Toilet, Bath, and Laundry Accessories.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):
       1. ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
       2. ASTM A185 - Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
       3. ASTM C91 - Standard Specification for Masonry Cement.
       4. ASTM C109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 inch or 50 mm Cube Specimens).
       5. ASTM C157 - Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete.
       6. ASTM C241 - Standard Test Method for Abrasion Resistance of Stone Subjected to Foot Traffic.
       7. ASTM C267 - Standard Test Method for Chemical Resistance of Mortars, Grouts, and Monolithic Surfacings.
       8. ASTM C270 - Standard Specification for Mortar for Unit Masonry.
       9. ASTM C297 - Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions.
       10. ASTM C482 - Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement.
       11. ASTM C503 - Standard Specification for Marble Dimension Stone (Exterior).
       12. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
       13. ASTM C627 - Standard Test Method for Evaluating Ceramic Floor Tile Installation Systems Using the Robinson-Type Floor Tester.
       14. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.
       15. ASTM C847 - Standard Specification for Metal Lath.
       16. ASTM C905 - Standard Test Method for Apparent Density of Chemical-Resistant Mortars, Grouts, and Monolithic Surfacings.
       17. ASTM C947 - Standard Test Method for Flexural Properties of Thin-Section Glass-Fiber-Reinforced Concrete (Using Simple Beam With Third-Point Loading).
       18. ASTM C1583 - Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method).
       19. ASTM C1708 - Standard Test Methods for Self-leveling Mortars Containing Hydraulic Cements.
       20. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing And Waterproofing.
       21. ASTM D227 - Standard Specification for Coal-Tar Saturated Organic Felt Used in Roofing and Waterproofing.
       22. ASTM D751 - Standard Test Methods for Coated Fabrics.
       23. ASTM D1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
       24. ASTM D4068 - Standard Specification for Chlorinated Polyethylene (CPE) Sheeting for Concealed Water-Containment Membrane.
       25. ASTM D4397 - Standard Specification for Polyethylene Sheeting for Construction, Industrial and Agricultural Applications.
       26. ASTM D4716 - Standard Test Method for Determining the (In Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geo-synthetic Using a Constant Head.
       27. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
       28. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
       29. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
       30. ASTM E2179 - Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors.
       31. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
    2. American National Standards Institute (ANSI):
       1. ANSI A137.1 - American National Standard Specifications for Ceramic Tile.
       2. ANSI A137.2 - American National Standard Specifications for Glass Tile.
       3. ANSI A108.01 - A108.17 American National Standard Specifications for The Installation of Ceramic Tile.
       4. ANSI A118.1 - A118.15 American National Standard Specifications for The Installation Of Ceramic Tile.
       5. ANSI A136.1 - American National Standard Specifications for The Installation of Ceramic Tile.
    3. Tile Council of North America (TCNA): Handbook For Ceramic, Glass, and Stone Tile Installation.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data:
        1. Manufacturer's data sheets on each product to be used.
        2. Preparation instructions and recommendations.
        3. Storage and handling requirements and recommendations.
        4. Submit manufacturers' installation instructions.
        5. Submit samples of each type/style/finish/size/color of ceramic tile, mosaic, paver, trim unit or threshold.
        6. Submit manufacturer's certification that the materials supplied conform to ANSI A137.1 for ceramic tile or ANSI A137.2 for glass tile.
        7. Submit proof of warranty.
        8. Submit Health Product Declarations (HPD) for each tile installation material.
        9. Submit sample of installation system demonstrating compatibility/functional relationships between adhesives, mortars, grouts and other components. Submit proof from ceramic tile manufacturer or supplier verifying suitability of ceramic tile for specific application and use; including dimensional stability, water absorption, freeze/thaw resistance (if applicable), resistance to thermal cycling, and other characteristics that the project may require. These characteristics must be reviewed and approved by the project design professionals.
        10. Submit list from manufacturer of installation system/adhesive/mortar/grout identifying a 3 similar projects, each with a minimum of 10 years service.
        11. Laboratory confirmation of adhesives, mortars, grouts and other installation materials:
            1. Identify proper usage of specified materials using positive analytical method.
            2. Identify compatibility of specified materials using positive analytical method.
            3. Identify proper color matching of specified materials using a positive analytical method.
        12. GHS format Safety Data Sheets for all applicable products.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern and color.
    2. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.
    3. LEED Submittals:
       1. Product Data for VOC Content: For liquid-applied flooring components, documentation including printed statement of VOC content.
       2. Laboratory Test Reports for VOC Content: For flooring systems, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
  1. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
        1. Tile Manufacturer (single source responsibility): Company specializing in ceramic tile, thin brick, masonry veneer, mosaics, pavers, trim units and/or thresholds with three (3) years minimum experience. Obtain tile from a single source with resources to provide products of consistent quality in appearance and physical properties.
        2. Installation System Manufacturer (single source responsibility): Company specializing in adhesives, mortars, grouts and other installation materials with ten (10) years minimum experience and ISO 9001 certification. Obtain installation materials from single source manufacturer to insure consistent quality and full compatibility.

\*\* NOTE TO SPECIFIER \*\* It is strongly recommended to use installers who have demonstrated their commitment to their craft and taken the time to stay current with the latest materials and methods. Requiring references and a portfolio along with a bid or estimate is a good way to ensure the installer has successfully completed work of similar size, scope, and complexity. Pools, exterior facades, mortar beds, shower pans, steam showers, etc. require different skills. Matching installer ability to the project at hand requires close evaluation of their experience, training, state licensing (where applicable), and certifications/credentials (where applicable). The Ceramic Tile Education Foundation (CTEF) provides a Contractor Questionnaire that can be used to aid in evaluating and comparing contractors (www.tilecareer.com).

* + 1. Installer qualifications: Company specializing in installation of ceramic tile, thin brick, masonry veneer, mosaics, pavers, trim units and/or thresholds with five (5) years documented experience with installations of similar scope, materials and design.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
       1. Provide mock-up of each type/style/finish/size/color of ceramic tile, thin brick, masonry veneer, mosaics, pavers, trim units and/or thresholds along with respective installation adhesives, mortars, grouts and other installation materials.
       2. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
       3. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
       4. Retain mock-up during construction as a standard for comparison with completed work.
       5. Do not alter or remove mock-up until work is completed or removal is authorized.
  1. PRE-INSTALLATION CONFERENCE
     1. Pre-Installation Conference:
        1. At least three weeks prior to commencing the work attend a meeting at the jobsite to discuss conformance with requirements of specification and job site conditions.
        2. Representatives of owner, architect, general contractor, tile subcontractor, tile manufacturer, installation system manufacturer and any other parties who are involved in the scope of this installation must attend the meeting.
        3. Agenda shall include schedule, responsibilities, critical path items and approvals.
  2. SEQUENCING AND SCHEDULING

\*\* NOTE TO SPECIFIER \*\* Edit for project specific sequence and scheduling.

* + 1. Coordinate installation of tile work with related work.
    2. Proceed with tile work only after curbs, vents, drains, piping, and other projections through substrate have been installed and when substrate construction and framing of openings have been completed.
  1. DELIVERY, STORAGE, AND HANDLING
     1. Deliver and store packaged materials in original containers with seals unbroken and labels, including grade seal, intact until time of use, in accordance with manufacturer's instructions.
     2. Protect from damage due to weather, excessive temperature, and construction operations.
        1. Store ceramic tile, stone, and installation system materials in a dry location; handle in a manner to prevent chipping, breakage, and contamination.
        2. Protect latex additives, organic adhesives, epoxy adhesives and sealants from freezing or overheating in accordance with manufacturer's instructions; store at room temperature when possible.
        3. Store Portland cement mortars and grouts in a dry location.
  2. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
        1. If ambient conditions are not met at the time of delivery, manufacturer reserves the right to void the warranty.
        2. Provide ventilation and protection of environment as recommended by manufacturer.
        3. Prevent carbon dioxide damage to ceramic tile, thin brick, masonry veneer, mosaics, pavers, trim units and/or thresholds as well as adhesives, mortars, grouts and other installation materials, by venting temporary heaters to the exterior.
        4. Maintain ambient temperatures not less than 50 degrees F (10 degrees C) or more than 100 degrees F (38 degrees C) during installation and for a minimum of seven (7) days after completion. Setting of Portland cement is retarded by low temperatures. Protect work for extended period of time and from damage by other trades. Installation with latex Portland cement mortars requires substrate, ambient and material temperatures at least 37 degrees F (3 degrees C). There should be no ice in slab. Freezing after installation will not damage latex Portland cement mortars. Protect Portland cement based mortars and grouts from direct sunlight, radiant heat, forced ventilation (heat and cold) and drafts until cured to prevent premature evaporation of moisture. Epoxy mortars and grouts require surface temperatures between 60 degrees F (16 degrees C) and 90 degrees F (32 degrees C) at time of installation. It is the General Contractor's responsibility to maintain temperature control.
  3. WARRANTY
     1. Manufacturer's Warranty: Provide manufacturer's standard limited warranty against defects in materials and workmanship.

\*\* NOTE TO SPECIFIER \*\* Select one of the following LATICRETE system warranties.

* + - 1. The manufacturer of adhesives, mortars, grouts and other installation materials shall provide a written twenty-five (25) year warranty, which covers materials and labor.
      2. For exterior facades over steel or wood framing, the manufacturer of adhesives, mortars, grouts and other installation materials shall provide a written fifteen (15) year warranty, which covers materials and labor.
  1. MAINTENANCE
     1. Submit maintenance data; include cleaning methods, cleaning solutions recommended, stain removal methods, as well as polishes and waxes recommended.
  2. EXTRA MATERIALS STOCK
     1. Upon completion of the work of this Section, deliver to the Owner 2 percent minimum additional tile and trim shape of each type, color, pattern and size used in the Work, as well as extra stock of adhesives, mortars, grouts and other installation materials for the Owner's use in replacement and maintenance. Extra stock is to be from same production run or batch as original tile and installation materials.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: LATICRETE International, Inc., which is located at:1 LATICRETE Park N.Bethany, CT 06524-3423Toll Free Tel: 800-243-4788Tel: 203-393-0010Fax: 203-393-1684Email: [request info (sldolata@laticrete.com)](https://arcat.com/rfi?action=email&company=LATICRETE%252BInternational%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(09300lat)%253A%2520&coid=33748&spec=09300lat&rep=&fax=203-393-1684);Web: <https://laticrete.com/en>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
  1. SYSTEM DESCRIPTION
     1. Ceramic floor tile installed over concrete floor slabs using latex portland cement mortar and latex portland cement grout.
     2. Quarry tile and base installed using latex portland cement mortar and industrial epoxy grout.
  2. TILE MATERIALS

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

* + 1. Wall Tile Materials:

\*\* NOTE TO SPECIFIER \*\* Edit for each tile type.

* + - 1. Ceramic Tile: \_\_\_\_\_\_\_\_.
      2. Grade: \_\_\_\_\_\_\_\_.
      3. Size: \_\_\_\_\_\_\_\_.
      4. Edge: \_\_\_\_\_\_\_\_.
      5. Finish: \_\_\_\_\_\_\_\_.
      6. Color: \_\_\_\_\_\_\_\_.
      7. Special Shapes: \_\_\_\_\_\_\_\_.
      8. Location: \_\_\_\_\_\_\_\_.

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

* + 1. Floor Tile Materials:

\*\* NOTE TO SPECIFIER \*\* Edit for each tile type.

* + - 1. Ceramic Tile: \_\_\_\_\_\_\_\_.
      2. Grade: \_\_\_\_\_\_\_\_.
      3. Size: \_\_\_\_\_\_\_\_.
      4. Edge: \_\_\_\_\_\_\_\_.
      5. Finish: \_\_\_\_\_\_\_\_.
      6. Color: \_\_\_\_\_\_\_\_.
      7. Special shapes: \_\_\_\_\_\_\_\_.
      8. Location: \_\_\_\_\_\_\_\_.
  1. INSTALLATION ACCESSORIES FOR CERAMIC TILE

\*\* NOTE TO SPECIFIER \*\* Edit applicable tile installation accessories. Refer to the LATICRETE membrane product data sheet and the physical test data contained therein for information to be used by the Project Design Professional to determine suitability, placement, building code conformance and over-all construct appropriateness of a given installation assembly.

* + 1. Waterproofing and Crack Isolation Membrane: LATICRETE HYDRO BAN as manufactured by LATICRETE. Thin, cold applied, single component liquid and load bearing and UL GREENGUARD Gold certified. Reinforcing fabric to be non-woven rot-proof specifically intended for waterproofing membrane. Waterproofing Membrane to be non-toxic, non-flammable, and non-hazardous during storage, mixing, application and when cured. It shall be certified by IAPMO and ICC approved as a shower pan liner.
       1. Hydrostatic Test (ASTM D4068): Pass.
       2. Elongation at break (ASTM D751): 20-30 percent.
       3. System Crack Resistance (ANSI A118.12): Pass (high).
       4. 7 day Tensile Strength (ANSI A118.10): 265 psi (1.8 MPa).
       5. 7 day Shear Bond Strength (ANSI A118.10) 200 psi (1.4 MPa).
       6. 28 Day Shear Bond Strength (ANSI A118.4): 214 psi (1.48 - 2.4 MPa).
       7. Service Rating (TCNA/ASTM C627): Extra heavy.
       8. VOC Content: 2.39 g/L.
       9. Total VOC Emissions: Less than 0.22 mg/m3.
    2. Epoxy Waterproofing Membrane: LATAPOXY Waterproof Flashing Mortar as manufactured by LATICRETE. Three component epoxy, trowel applied specifically designed to be used under Ceramic tile, stone or brick and requires only 24 hours prior to flood testing.
       1. Breaking Strength (ANSI A118.10): 450-530 psi (3.1-3.6 MPa).
       2. Waterproofness (ANSI A118.10): No water penetration.
       3. 7 day Shear Bond Strength (ANSI A118.10): 110-150 psi (0.8-1.0 MPa).
       4. 28 Day Shear Bond Strength (ANSI A118.10): 90-120 psi (0.6-0.8 MPa).
       5. 12 Week Shear Bond Strength (ANSI A118.10): 110-130 psi (0.8-0.9 MPa).
       6. Total VOC Content: Less than 3.4 g/L.
    3. Waterproofing Sheet Membrane: LATICRETE HYDRO BAN Sheet Membrane as manufactured by LATICRETE. Thin, durable polyethylene core with fused non-woven polypropylene exterior. IAPMO approved as shower pan liner, allowed for use in either polymer modified or un-modified tile mortars, depending upon substrate and type of tile used.
       1. Waterproofness (ASTM D4068): Pass.
       2. 7 day Shear Bond Strength (ANSI A118.10): Over 170 psi.
       3. 7-Day Water Immersion Shear Strength (ASTM C482-09): Over 100 psi.
       4. Service Rating (TCNA ASTM C627): Extra heavy.
    4. Lightweight, Waterproof Tile Backer Board: LATICRETE HYDRO BAN Board as manufactured by LATICRETE. Comprised of high-density polystyrene core and reinforced, waterproof coating on both sides. Available in thicknesses from 1/4 inch to 5/8 inch (6 mm to 16 mm) and specifically designed for use in bonded tile and stone installations.
       1. Compressive Strength at 1/2 inch (3 mm) (ASTM D1621): 57 psi (0.39 MPa).
       2. Flatwise Tensile Strength (ASTM C297): 55 psi (0.4 MPa).
       3. Linear Variation (ASTM G1, G2): 0.04 percent.
       4. Shear Strength (ASTM C482): 43 psi (0.3 MPa).
       5. Waterproofness (ASTM D4068): Pass.
       6. R-Value (ASTM C578): R=5.2 /1 inch (25.4 mm).
       7. Flexural Strength (ASTM C947): 673 psi (4.6 MPa).
       8. Smoke Index (ASTM E84): 105.
       9. Flame Spread (ASTM E84): 5.
       10. Sound Transmission (ASTM E90 STC): 17.
    5. Cementitious Waterproofing: LATICRETE HYDRO BAN Cementitious Waterproofing as manufactured by LATICRETE. One component, polymer fortified, cement based waterproofing; mixes with water, passes ANSI A118.10, and, ANSI A118.12 when used with LATICRETE waterproofing/Anti-Fracture Fabric and can withstand 2 Bars (29 psi) of negative hydrostatic pressure.
       1. 7 Day Hydrostatic Test (ANSI A118.10): Pass.
       2. 7 Day Breaking Strength (ANSI A118.10): 450 - 500 psi (3.1 - 3.45 MPa).
       3. 7 Day Water Immersion (ANSI A118.10): 120 - 150 psi (0.83 - 1.03 MPa).
       4. 7 Day Shear Bond Strength (ANSI A118.10): 320 - 400 psi (2.21 - 2.76 MPa).
       5. 28 Day Shear Strength (ANSI A118.10): 370 - 450 psi (2.55 - 3.10 MPa).
       6. System Crack Resistance Test (ANSI A118.12 5.4): Pass-High (with fabric).
       7. Water Vapor Transmission (ASTM E96 Procedure B: 1.6 - 1.7 grains/hr\*ft (1.1 - 1.2 g/hr\*ft).
       8. Water Vapor Permeance (ASTM E96 Procedure B): 3.9 - 4 perms (225 - 235 ng/Pa\*s\*sq m).
       9. System Performance (ASTM C627 - TCNA Rating): Cycles 1 - 14 Extra heavy.
       10. Tensile Strength for Elongation: 25 percent.
       11. Installed Thickness (Dried): 40 mil (1.02 mm).
    6. Low Profile Linear Floor Drain: LATICRETE HYDRO BAN Linear Drain as manufactured by LATICRETE. Comprised of heavy duty 304 stainless steel, specially designed for bonded waterproofing installations, allow for large format tile use in showers with single slope to drain, available with standard, vertical waste line and horizontal side outlet, and with flow rate of over eight (8) gallons per minute (30 liters per minute).
    7. Low Profile Bonding Flange Floor Drain: LATICRETE HYDRO BAN Bonding Flange Drain as manufactured by LATICRETE. Comprised of heavy duty 304 stainless steel, specially designed for bonded waterproofing installations, allow for elimination of pre-slope layer and primary shower pan liner, per TCNA B422, and with flow rate of over eight (8) gallons per minute (30 liters per minute).
    8. Floor Sealer: LATICRETE STONETECH BulletProof Sealer as manufactured by LATICRETE. Colorless, stain- and slip-resistant sealer, not affecting color and physical properties of ceramic tile and stone surfaces as recommended by sealer manufacturer for application indicated.
    9. Wire Reinforcing: Galvanized steel welded wire mesh.
       1. Compliance: ANSI A108.02 3.7, ASTM A185 and ASTM A82.
       2. Size: 2 x 2 inches (50 x 50 mm).
       3. Thickness: 16 ASW gauge/0.0625 inch (1.6 mm) diameter

\*\* NOTE TO SPECIFIER \*\* Delete cleavage membrane option not required.

* + 1. Cleavage Membrane:
       1. Per ASTM D226: 15 pound asphalt saturated, non-perforated roofing felt.
       2. Per ASTM D227: 5 pound coal tar saturated, non-perforated roofing felt.
       3. Per ASTM D4397: 4.0 mils (0.1 mm) thick polyethylene plastic film.
    2. Cementitious Backer Board Units per ANSI A118.9: Size and Thickness: As indicated on Drawings.
    3. Thresholds: Marble saddles. Color, Size, Shape and Thickness: As indicated on Drawings.
       1. Compliance: Abrasion Resistance: ASTM C241. Exterior Use: ASTM C503
  1. INSTALLATION MATERIALS FOR CERAMIC TILE

\*\* NOTE TO SPECIFIER \*\* Edit applicable tile installation materials.

* + 1. Sound Abatement and Crack Isolation Mat: LATICRETE 170 Sound and Crack Isolation Mat as manufactured by LATICRETE. Load bearing, shock and vibration resistant. Certified by independent laboratory testing to meet the specified acoustical performance when installed in a floor assembly with a 6 inches (150 mm) concrete slab.
       1. Service Rating (ASTM C627): Light.
       2. Point Load (ANSI A118.12 5.2): Over 1,250 psi (8.6 MPa).
       3. Installed Weight (ASTM C905 Modified): 2.6 lbs per sq ft (12.8 kg per sq m).
       4. Delta Impact Insulation Class (deltaIIC; ASTM E2179): 20.
    2. Sound Abatement and Crack Suppression Adhesive: LATICRETE 125 TRI MAX as manufactured by LATICRETE. Complies with ANSI A118.12, provide an extra heavy rating, be UL GREENGUARD Gold certified, and provide a minimum deltaIIC of 14.
       1. Service Rating (ASTM C627): Extra heavy.
       2. Delta Impact Insulation Class (deltaIIC; ASTM E2179): Over deltaIIC 14.
       3. Point Load (ANSI A118.12 5.2): Over 1,000 psi (6.9 MPa).
       4. Minimum Shear Bond Strength (ANSI A118.12): 100psi (0.7 MPa).
       5. VOC Content: 0.00 g/L.
       6. Total VOC Emissions: Over 0.22 mg/m3.
    3. Uncoupling Membrane: LATICRETE STRATA MAT as manufactured by LATICRETE. Complies with ANSI A118.12, provide an extra heavy rating and allow for use with ANSI A118.4 thin-bed mortars:
       1. Service Rating (ASTM C627): Extra heavy.
       2. ANSI A118.12 (High Performance): Pass.
    4. Moisture Vapor Reduction: LATICRETE NXT Vapor Reduction Coating and LATICRETE VAPOR BAN Primer ER as manufactured by LATICRETE. Epoxy based and UL GREENGUARD Gold certified.
       1. Shear Bond to Concrete (ANSI A118.12-5.1.5): Greater than 285 psi (2.0 MPa).
       2. Alkalinity Resistance (ASTM C267): Pass.
       3. Permeability (ASTM F1869): 9.7 lb/1,000sq ft/24 hours down to 0.2 lb/1,000 sq ft/24 hours (248 &#181;g/sosq m down to 11 &#181;g/sosq m).
       4. VOC Content: 9.4 g/L.
       5. Total VOC Emissions: Less than or equal to 0.22 mg/m3.
    5. Electric Radiant Heat Wire and Mat: LATICRETE STRAT HEAT Mat and LATICRETE STRATA HEAT Wire as manufactured by LATICRETE. Mat designed to act as foundation for installation of electric radiant heat wire and as an uncoupling membrane, and, to be comprised of fabric mesh and plastic nodules construction. Must be UL approved for intended purpose and comply with UL 1693 - Electric Radiant Heating Panels and Heating Panel Sets and UL 1673 - Electric Space Heating Cables.
    6. Electric Radiant Heat Cable System: LATICRETE STRAT HEAT Mat and LATICRETE STRATA HEAT Wire as manufactured by LATICRETE. Comprised of intertwining heat element and mesh construction and comply with UL 1693 - Electric Radiant Heating Panels and Heating Panel Sets and UL 1673 - Electric Space Heating Cables.
    7. Shower Pans: LATICRETE HYDRO BAN Pre-Sloped Shower Pan and LATICRETE HYDRO BAN Preformed Curb / HYDRO BAN Linear Pre-Sloped Shower Pan as manufactured by LATICRETE. Pre-fabricated and pre-sloped shower pan with curb constructed of lightweight high density expanded polystyrene. Approved by IAPMO PS 106 for US and CAN as a pre-fabricated tile-able shower receptor and exceeds ANSI A118.10. Use only manufacturer approved adhesives and sealants for installation.
    8. Latex Portland Cement Mortar: LATICRETE 3701 Fortified Mortar as manufactured by LATICRETE. Latex Portland cement mortar for thick beds, screeds, leveling beds and scratch/plaster coats to be weather, frost, shock resistant, UL GREENGUARD Gold certified, and meet the following physical requirements.
       1. Compressive Strength (ANSI A118.4 Modified): Greater than 4,000 psi (27.6 MPa).
       2. Water Absorption (ANSI A118.6): Less than or equal to 5 percent.
       3. Flexural Strength (ANSI A118.7 3.5): 1,100 - 1,200 psi (7.5 - 8.3 MPa).
       4. Service Rating (TCA/ASTM C627): Extra heavy.
       5. Shrinkage (ASTM C157 - 7 Day Cure): 0.05 percent.
       6. VOC Content: 0.00 g/L.
       7. Total VOC Emissions: Less than or equal to 0.22 mg/m3.
    9. Self-Leveling Underlayment: LATICRETE NXT Level Plus and NXT Primer as manufactured by LATICRETE. Self-leveling underlayment mixed with water to produce a pumpable, fast setting, free flowing cementitious underlayment, which can be poured from 1/8 in to 1-1/4 inch (3 mm to 32 mm) thick in one pour and GREENGUARD Gold certified.
       1. 28 Day Compressive Strength (ASTM C1708.): Over 4000 psi (27.6 MPa)
       2. Tensile Bond Strength (ASTM C1583): Over 500 psi (3.5 MPa).
       3. Time To Foot Traffic: 1 to 4 hours.
       4. VOC Content: 0.00 g/L (NXT Level Plus); 7.00 (NXT Primer).
       5. Total VOC Emissions: Less than 0.22 mg/m3.
    10. Epoxy Adhesive: LATAPOXY 300 Adhesive as manufactured by LATICRETE. Chemical resistant 100 percent solids epoxy with high temperature resistance, UL GREENGUARD Gold certified, conform to ISO R2.
        1. Compressive Strength (ANSI A118.3): Over 5000 psi (34.4 MPa).
        2. Shear Bond Strength (ANSI A118.3): Over 1250 psi (8.6 MPa).
        3. Thermal Shock Resistance (ANSI A118.3): Over 600 psi (4.1 MPa).
        4. Tensile Strength (ANSI A118.3): Over 1400 psi (9.6 MPa).
        5. Shrinkage (ANSI A118.3): 0 - 0.1 percent.
        6. VOC Content: 0.80 g/L.
        7. Total VOC Emissions: Less than 0.22 mg/m3.
        8. ISO 13007 Classification: R2.
        9. Chemical and Stain Resistance: Cured epoxy adhesive to be chemically and stain resistant to ketchup, mustard, tea, coffee, milk, soda, beer, wine, bleach (5 percent solution), ammonia, juices, vegetable oil, detergents, brine, sugar, cosmetics and blood, as well as chemically resistant to dilute food acids, dilute alkalis, gasoline, turpentine and mineral spirits.
    11. Modified Dry-Set Cement Thin Bed Mortar: For thin set and slurry bond coats. LATICRETE 254 Platinum as manufactured by LATICRETE. Weather, frost, shock resistant, non-flammable, UL GREENGUARD Gold certified, conform to ISO C2TES1P1.
        1. Bond strength (ANSI A118.4): Over 450 psi (3.1 MPa).
        2. Smoke and Flame Contribution (ASTM E84 Modified): 0.
        3. VOC Content: 0.00 g/L.
        4. Total VOC Emissions: Less than 0.22 mg/m3.
    12. Improved Modified Dry-Set Cement Thin Bed Mortar: For thin set and slurry bond coats. LATICRETE 257 Titanium as manufactured by LATICRETE. Weather, frost, shock resistant, non-flammable, UL GREENGUARD Gold certified, meet ANSI A118.15 requirements, conform to ISO C2TES1P1.
        1. 28 Day Tile Shear Strength (ANSI A118.15): Over 475-575 psi (3.3-4.0 MPa).
        2. 28 Day Dry Cure / 20 Cycle Freeze-Thaw Porcelain Tile Shear Strength (ANSI A118.15): Over 250 psi (1.7 MPa).
        3. 7 Day Cure / 7 Day Water Immersion (ANSI A118.15): Over 280 psi (1.9 MPa).
        4. Extended Open Time (ANSI A118.15): Over 100 psi (0.7 MPa).
        5. Smoke and Flame Contribution (ASTM E84 Modified): 0.
        6. VOC Content: 0.00 g/L.
        7. Total VOC Emissions: Less than 0.22 mg/m3.
    13. Rapid-Setting Modified Dry-Set Cement Thin Bed Mortar: LATICRETE 254R Platinum Rapid as manufactured by LATICRETE. Weather, frost, shock resistant, non-flammable, conform to C2FTS2 adhesive.
        1. 28 Day Porcelain Tile Shear Strength (ANSI A118.4): Over 400 psi (2.8MPa).
        2. 7 Day Cure / 7 Day Water Immersion (ANSI A118.4): Over 200 psi (1.4 MPa).
        3. Shear Bond / Quarry Tile to Plywood (ANSI A118.11): Over 190 psi (1.3 MPa).
        4. Open Time (ANSI A118.4): Over 30 minutes
        5. VOC Content: 0 g/L.
    14. Modified Dry-Set Cement Thin Bed Glass Tile Adhesive. LATICRETE Glass Tile Adhesive as manufactured by LATICRETE. Weather, frost, shock resistant, non-flammable, UL GREENGUARD Gold certified, conform to ISO C2TS1.
        1. Bond strength (ANSI A118.4 5.2.4): Over 370 psi (2.55 MPa).
        2. Bond strength (ANSI A118.4 5.2.3): 199 psi (1.37 MPa).
        3. VOC Content: 0.00 g/L.
        4. Total VOC Emissions: Less than 0.22 mg/m3.
    15. Modified Dry-Set Cement Medium Bed Mortar: LATICRETE MULTIMAX LITE as manufactured by LATICRETE. Weather, frost, shock resistant, non-flammable, UL GREENGUARD Gold certified, conform to ISO C2T, meeting the following requirements:
        1. 28 Day Tensile Strength (ISO 13007-4.4 4.2): 215 - 290 psi (1.5 - 2.0 MPa).
        2. 28 Day bond strength (ANSI A118.15 7.2.5): 500 - 600 psi (3.5 - 4.1 MPa).
        3. 7 Day Water Immersion Shear (ANSI A118.15 7.2.4): 350 - 450 psi (2.4 - 3.1 MPa).
        4. Freeze/Thaw Tensile Strength (ISO 13007-4.4 4.5: 145 - 215 psi (1.0 - 1.5 MPa).
        5. Sag Resistance (ANSI A118.4 6.0): 0 mm.
        6. ISO Classification (ISO 13007): C2TES1.
        7. VOC Content: 0.00 g/L.
        8. Total VOC Emissions: Less than 0.22 mg/m3.
    16. Organic Adhesive: LATICRETE 15 Premium Mastic as manufactured by LATICRETE. Non-flammable, water resistant, latex adhesive.
        1. Open Time (ANSI A136.1): 70 minutes at 75 degrees F (24 degrees C).
        2. Color: White.
        3. Density (ANSI A136.1): 13.2 lbs/gal (1.6 kg/L).
        4. Total VOC Content: Less than 36.00 g/L.
    17. Epoxy Grout: Industrial. LATICRETE SPECTRALOCK 2000 IG as manufactured by LATICRETE. Non-flammable, chemical resistant, 100 percent solids epoxy with high temperature resistance, UL GREENGUARD Gold certified.
        1. Initial Set Time (ANSI A118.5): Pass (4 hours).
        2. Service Set Time (ANSI A118.5): Pass (less than 7 days).
        3. Shrinkage (ANSI A118.3): 0.07 percent.
        4. Sag (ANSI A118.3): Pass (No sag).
        5. Shear Bond Strength (ANSI A118.3; quarry tile): 2,200 psi (15.2 MPa).
        6. Compressive Strength (ANSI A118.3): 8,300 psi (57.2 MPa).
        7. Tensile Strength (ANSI A118.5): 3,000 psi (20.7 MPa).
        8. Thermal Shock Resistance (ANSI A118.3): 2,100 psi (14.5 MPa).
        9. VOC Content: 0.80 g/L.
        10. Total VOC Emissions: Less than 0.22 mg/m3.
        11. Chemical and Stain Resistance: Cured epoxy grout to be chemically and stain resistant to ketchup, mustard, tea, coffee, milk, soda, beer, wine, bleach (3 percent solution), ammonia, juices, vegetable oil, detergents, brine, sugar, cosmetics, and blood, as well as being chemically resistant to dilute food/mineral acids, gasoline and mineral spirits.
    18. Epoxy Grout: Commercial/residential. LATICRETE SPECTRALOCK PRO Premium Grout as manufactured by LATICRETE. Non-toxic, non-flammable, non-hazardous during storage, mixing, application and when cured, UL GREENGUARD Gold certified.
        1. Compressive Strength (ANSI A118.3): 3,800 psi (26.2 MPa).
        2. Shear Bond Strength (ANSI A118.3): 1,100 psi (7.6 MPa).
        3. Tensile Strength (ANSI A118.3): 1,100 psi (7.6 MPa).
        4. Thermal Shock (ANSI A118.3): Over 800 psi (5.5 MPa).
        5. Water Absorption (ANSI A118.3): Less than 0.05 percent.
        6. Vertical Joint Sag (ANSI A118.3): Pass.
        7. VOC Content: 0.031 g/L.
        8. Total VOC Emissions: Less than 0.22 mg/m3.
        9. Chemical and Stain Resistance: Cured epoxy grout to be chemically and stain resistant to ketchup, mustard, tea, coffee, milk, soda, beer, wine, bleach (5 percent solution), ammonia, juices, vegetable oil, brine, sugar, cosmetics, and blood, as well as chemically resistant to dilute acids and dilute alkalis.
    19. Latex Portland Cement Grout: LATICRETE PERMACOLOR Select as manufactured by LATICRETE. Weather, frost and shock resistant, conform to ISO 13007 requirements for CG2WAF, UL GREENGUARD Gold certified.
        1. Compressive Strength (ANSI A118.7): 3,500 psi (24.1 MPa).
        2. Tensile Strength (ANSI A118.7): 510 psi (3.5 MPa).
        3. Flexural Strength (ANSI A118.7): 1,250 psi (8.6 MPa).
        4. Water Absorption (ANSI A118.7): Less than 5 percent.
        5. Linear Shrinkage (ANSI A118.7): Less than 0.5 percent.
        6. Smoke and Flame Contribution (ASTM E84 Modified): 0.
        7. VOC Content: 0.00 g/L.
        8. Total VOC Emissions: Less than 0.22 mg/m3.
    20. Grout: Ready-to-use. LATICRETE Ready To Use as manufactured by LATICRETE. Ready-to-use grout; sag-resistant, stain and crack resistant, suitable for use in grout joints ranging from 1/16 inch to 1/2 inch (1.6 mm to 12.7 mm) wide.
        1. Water Cleanability (ANSI A118.3): Pass.
        2. Vertical Joint Sag (ANSI A118.3): Pass.
        3. 28 Day Compressive Strength (Proprietary): Over 5000 psi (34.5 MPa).
        4. Abrasion Resistance (EN 12808-2): 250 mm3.
        5. 24 Hour Hardness (Shore A): 186.
        6. Total VOC Content: Less than 50 g/L.
    21. Expansion and Control Joint Sealant: LATICRETE LATASIL and LATICRETE LATASIL 9118 Primer as manufactured by LATICRETE. One component, neutral cure, exterior grade silicone sealant.
        1. Tensile Strength (ASTM C794): 280 psi (1.9 MPa).
        2. Hardness (ASTM D751; Shore A): 25 (colored sealant) /15 (clear sealant).
        3. Weather Resistance (QUV Weather-ometer): 10,000 hours (no change).
        4. VOC Emissions: Less than 0.5 mg/m3.
        5. VOC Content: 35 g/L (translucent) and 42 g/L (sanded).
    22. Roof Decks: And other exterior paving applications over occupied/storage spaces. LATICRETE Plaza and Deck System as manufactured by LATICRETE. Consists of a primary roofing/waterproofing membrane as indicated on Drawings, and a lightweight, frost/weather resistant installation system for tile, pavers, brick and ceramic tile that provides integral subsurface drainage.
        1. Compressive Strength (ASTM C109 Modified): 3,000 psi (20.7 MPa).
        2. Hydraulic Transmissivity (ASTM D4716): 1.6 gal./minute (6.1 L/minute).
        3. Service Rating (ASTM C627): Extra heavy.
    23. Spot Bonding Epoxy Adhesive: For installing tile, brick, masonry veneer, and ceramic tile over vertical and overhead surfaces. LATAPOXY 310 Stone Adhesive / LATAPOXY 310 Rapid Stone Adhesive as manufactured by LATICRETE. High strength, high temperature resistant, non-sag.
        1. Thermal Shock Resistance (ANSI A118.3): Over 1,000 psi (6.9 MPa).
        2. Water Absorption (ANSI A118.3): 0.1 percent.
        3. Compressive Strength (ANSI A118.3): Over 8,300 psi (57.2 MPa).
        4. Shear Bond Strength (ANSI A118.3 Modified): Over 730 psi (5 MPa).
        5. Total VOC Content: Less than 1.01 g/L.
  1. INSTALLATION ACCESSORIES FOR EXTERIOR ADHERED VENEER

\*\* NOTE TO SPECIFIER \*\* Edit applicable tile installation accessories. Refer to the LATICRETE membrane product data sheet and the physical test data contained therein for information to be used by the Project Design Professional to determine suitability, placement, building code conformance and over-all construct appropriateness of a given installation assembly.

* + 1. Waterproofing / Crack Suppression / Air and Water Barrier Membrane: LATICRETE MVIS Air and Water Barrier as manufactured by LATICRETE. Thin, cold applied, single component liquid and load bearing. Reinforcing fabric to be non-woven rot-proof specifically intended for waterproofing membrane. Membrane to be non-toxic, non-flammable, and non-hazardous during storage, mixing, application and when cured. It shall be certified by IAPMO and ICC approved as a shower pan liner.
       1. Hydrostatic Test (ASTM D4068): Pass.
       2. Elongation at break (ASTM D751): 20-30 percent.
       3. System Crack Resistance (ANSI A118.12): Pass (high).
       4. 7 day Tensile Strength (ANSI A118.10): Over 265 psi (1.8 MPa).
       5. 7 day Shear Bond Strength (ANSI A118.10): Over 200 psi (1.4 MPa).
       6. 28 Day Shear Bond Strength (ANSI A118.4): Over 214 psi (1.48 - 2.4 MPa).
       7. Service Rating (TCA/ASTM C627): Extra heavy.
       8. Total VOC Emissions: Less than 0.22 mg/m3.
    2. Epoxy Waterproofing Membrane/Flashing Mortar: LATAPOXY Waterproof Flashing Mortar as manufactured by LATICRETE. 3 component epoxy, trowel applied designed to be used under masonry veneer, stone or thin brick; requires only 24 hours prior to flood testing.
       1. Breaking Strength (ANSI A118.10): 450-530 psi (3.1-3.6 MPa).
       2. Waterproofness (ANSI A118.10): No water penetration.
       3. 7 day Shear Bond Strength (ANSI A118.10): 110-150 psi (0.8-1 MPa).
       4. 28 Day Shear Bond Strength (ANSI A118.10): 90-120 psi (0.6-0.83 MPa).
       5. 12 Week Shear Bond Strength (ANSI A118.10): 110-130 psi (0.8-0.9 MPa).
       6. Total VOC Content: Less than 3.36 g/L.
    3. Sealer: Exterior masonry veneers. LATICRETE STONETECH Heavy Duty Exterior Sealer as manufactured by LATICRETE. Water-based formula specifically designed for topical application on porous stones in exterior applications.
    4. Galvanized, Diamond Metal Lath: Flat expanded type, not less than 3.2 lb. per sq yd (1.4 kg per sq m). Compliance: ASTM C847.

\*\* NOTE TO SPECIFIER \*\* Delete cleavage membrane options not required.

* + 1. Cleavage Membrane:
       1. Per ASTM D226: 15 pound asphalt saturated, non-perforated roofing felt.
       2. Per ASTM D227: 5 pound coal tar saturated, non-perforated roofing felt.
       3. Per ASTM D4397: 4.0 mils (0.1 mm) thick polyethylene plastic film.
    2. Cementitious Backer Board Units per ANSI A118.9: Size and Thickness: As indicated on Drawings.
  1. INSTALLATION MATERIALS FOR EXTERIOR ADHERED VENEER

\*\* NOTE TO SPECIFIER \*\* Edit Article based on project specific installation methods and requirements.

* + 1. Latex Portland Cement Mortar: For thick beds, and scratch/plaster coats. LATICRETE MVIS Premium Mortar Bed as manufactured by LATICRETE. Weather, frost, shock resistant, non-flammable, UL GreenGuard Gold certified.
       1. Compressive Strength (ANSI A118.7 Modified): Over 4000 psi (27.6 MPa).
       2. Total VOC Emissions: Less than 0.22 mg/m3.
    2. Latex Portland Cement Thin Bed Mortar: For thin set. LATICRETE MVIS Hi-Bond Veneer Mortar as manufactured by LATICRETE. Weather, frost, shock resistant, non-flammable, UL GreenGuard Gold certified.
       1. Compressive Strength (ASTM C270): Over 2900 psi (20 MPa).
       2. Shear Bond Strength (ANSI A118.4 5.2.4): Over 300 psi (2.1 MPa).
       3. Sag On Wall (EN 1308): 0.0 mm.
       4. Total VOC Emissions: Less than 0.22 mg/m3.
    3. Latex Portland Cement Pointing Mortar: LATICRETE MVIS Premium Pointing Mortar as manufactured by LATICRETE. Weather, frost and shock resistant, non-flammable, UL GREENGUARD Gold certified.
       1. Compressive Strength (ASTM C91): Over 4100 psi (28.3 MPa).
       2. Total VOC Emissions: Less than 0.22 mg/m3.
    4. Expansion and Control Joint Sealant: LATICRETE MVIS Silicone Sealant as manufactured by LATICRETE. One component, neutral cure, exterior grade silicone sealant.
       1. Tensile Strength (ASTM C794): 280 psi (1.9 MPa).
       2. Hardness (ASTM D751; Shore A): 25 (colored sealant) /15 (clear sealant).
       3. Weather Resistance (QUV Weather-ometer): 10000 hours (no change).

1. EXECUTION
   1. SUBSTRATE EXAMINATION
      1. Verify surfaces to receive tiling meet all manufacturer substrate requirements for the required tile installation including but not limited to the following:
         1. Sound, rigid and conform to good design/engineering practices;
         2. Conform with International Residential Code (IRC) for residential applications, International Building Code (IBC) for commercial applications, and local codes.
         3. Clean, dust free, dirt, oil, grease, sealers, curing compounds, laitance, efflorescence, form oil, loose plaster, paint, and scale.
         4. Not leveled with gypsum or asphalt based compounds
         5. For substrates scheduled to receive a waterproofing and/or crack isolation membrane, maximum amount of moisture in the concrete/mortar bed substrate should not exceed 5 lbs./1,000 sq ft / 24 hours (283 &#181;g/ssq m) per ASTM F1869 or 75% relative humidity as measured with moisture probes per ASTM F2170. Consult with finish materials manufacturer to determine the maximum allowable moisture content for substrates under their finished material. Please refer to LATICRETE TDS 183 "Drying of Concrete" and TDS 166 "LATICRETE and Moisture Vapor Emission Rate, Relative Humidity and Moisture Testing of Concrete", available at www.laticrete.com, for more information.
         6. Dry as per American Society for Testing and Materials (ASTM) D4263 "Standard Test for Determining Moisture in Concrete by the Plastic Sheet Method."
         7. Concrete surfaces shall also be cured a minimum of 28 days at 70 degrees F (21 degrees C), including an initial seven (7) day period of wet curing;

\*\* NOTE TO SPECIFIER \*\* LATICRETE 254 Platinum does not require a minimum cure time for concrete substrates or mortar beds;

* + - * 1. Wood float finished, or better, if the installation is to be done by the thin bed method;
  1. PREPARATION
     1. General: Prepare substrates using the methods recommended by the manufacturer for achieving best result for the substrates under project conditions.
        1. Do not proceed with installation until substrates have been prepared using the methods recommended by the manufacturer and deviations from manufacturer's recommended tolerances are corrected. Commencement of installation constitutes acceptance of conditions.
        2. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions
     2. Surface Preparation; Cementitious Backer Unit (CBU) Over Steel Framed Walls:
        1. Provide adequate support of framing elements during erection to prevent racking, twisting or bowing. Lay out CBU installation so board edges are supported by metal framing (studs vertically and purlins horizontally). Cut/fit CBU and add additional framing elements as required to support board edges. Stagger boards in courses to prevent continuous vertical joints. Allow 1/8 to 3/16 inch (3 to 5 mm) between sheets.
        2. Fasten CBU with 7/8 inch (22 mm) long, non-rusting, self-imbedding screws for metal studs (BUILDEX Catalog item 10-24 17/16 Wafer T3Z or equivalent). Fasten every 6 inches (150 mm) at edges and every 8 inches (200 mm) in field. Stagger screws at seams. Place screws 3/8 inch (9 mm), to 1 inch (25 mm), from edge.
        3. Tape board joints with alkali resistant 2 inch (50 mm) wide reinforcing mesh provided by CBU manufacturer imbedded in same mortar used to install ceramic tile, mosaic, pavers, brick or stone.
        4. Compliance with design criteria and state and local building codes must be approved and certified by structural engineer.
     3. Surface Preparation - Exterior Rated Sheathing Over Steel Framed Walls:
        1. Studs to be seated squarely in channel tracks with stud web and flange abutting track web, plumbed or aligned, and securely attached to flanges or web of upper and lower tracks by welding. Weld to be smooth and painted with rust inhibiting paint. Frame and components must be properly aligned, square and true.
        2. Support framing elements during erection to prevent racking, twisting or bowing. Lay out exterior rated sheathing installation so board edges are supported by metal framing (studs vertically and purlins horizontally). Cut/fit sheathing and add additional framing elements as required to support board edges. Stagger boards in to prevent continuous vertical joints and allow 1/8 to 3/16 inches (3 to 5 mm) between sheets.
        3. Fasten sheathing with 7/8 inch (22 mm) minimum, non-rusting, self-imbedding screws for metal studs (BUILDEX Catalog item 10-24 17/16 Wafer T3Z or equivalent). Fasten boards every 6 inches (150 mm) at edges and every 8 inches (200 mm) in field. Stagger screws at seams. Place screws 3/8 to 1 inch (9 to 25 mm), from board edges.
        4. Follow board manufacturer's installation instructions.
        5. Design criteria building codes compliance must be certified by structural engineer.
  2. INSTALLATION
     1. Install in accordance with manufacturer's instructions, approved submittals and in proper relationship with adjacent construction.
     2. Accessories Installation - Ceramic Tile:
        1. Waterproofing and Crack Isolation Membrane; Liquid-Applied:

\*\* NOTE TO SPECIFIER \*\* Adhesives/mastics, mortars and grouts for ceramic tile, mosaics, pavers, brick and stone are not replacements for waterproofing membranes and will not prevent water penetration into occupied or storage spaces below. Ceramic tile, mosaics, pavers, brick and stone installed by the thin bed method can be damaged by shrinkage related substrate cracking. Specify crack isolation membrane to reduce crack propagation into veneers or hard finishes. Do not use crack isolation membranes if substrate cracking is due to structural movement, involves vertical and/or differential movement, involves horizontal movement greater than 1/8 inch (3 mm). Refer to the LATICRETE membrane product data sheet and the physical test data contained therein for information to be used by the Project Design Professional to determine suitability, placement, building code conformance and over-all construct appropriateness of a given installation assembly.

* + - * 1. Install in compliance with current revisions of ANSI A108.1 (2.7 Waterproofing), ANSI A108.13, and ANSI A108.17. Review and plan application. Pre-cut Waterproofing/Anti-Fracture Fabric if required, allowing 2 inch (50 mm) for overlap at ends and sides to fit areas as required.
        2. Pre-Treat Cracks and Joints: Fill substrate cracks, cold joints and control joints to a smooth finish using latex-fortified thin-set. Alternatively, a liberal coat\* of HYDRO BAN applied with a paint brush or trowel may be used to fill in non-structural joints and cracks. Apply a liberal coat\* of HYDRO BAN approximately 8 inches (200 mm) wide over substrate cracks, cold joints, and control joints using a paint brush or heavy napped paint roller.
        3. Pre-Treat Coves and Floor/Wall Intersections: Fill substrate coves and floor/wall transitions to a smooth finish and changes in plane using a latex-fortified thin-set. Alternatively, a liberal coat\* of HYDRO BAN applied with a paint brush or trowel may be used to fill in cove joints and floor/wall transitions less than 1/8 inch (3 mm) in width..
        4. Pre-Treat Drains: Drains must be of the clamping ring type, with weepers as per ASME A112.6.3. Apply a liberal coat\* of HYDRO BAN around and over the bottom half of drain clamping ring. Cover with a second liberal coat of HYDRO BAN. When the HYDRO BAN dries, apply a bead of LATASIL where the HYDRO BAN meets the drain throat. Install the top half of drain clamping ring.
        5. Pre-Treat Penetrations: Allow 1/8 inch (3 mm) space between drains, pipes, lights, or other penetrations and surrounding Ceramic tile, stone or brick. Pack any gaps around pipes, lights or other penetrations with a latex-fortified thin-set. Apply a liberal coat\* of HYDRO BAN around penetration opening. Cover first coat with a second liberal coat\* of HYDRO BAN. Bring HYDRO BAN up to level of tile or stone. When HYDRO BAN dry to touch seal with LATASIL.
        6. Main Application: Allow pre-treated areas to dry to the touch. Apply a liberal coat\* of HYDRO BAN with a paint brush or heavy napped roller over substrate including pre-treated areas and allow to dry to the touch. Install another liberal coat\* of HYDRO BAN over the first coat. Let the top coat of HYDRO BAN dry to the touch approximately 1 to 2 hours at 70 degrees F (21 degrees C) and 50 percent RH. When top coat has dried to the touch inspect surface for pinholes, voids, thin spots or other defects. HYDRO BAN will dry to an olive green color when fully cured. Use additional HYDRO BAN to seal any defects.
        7. Movement Joints: Apply a liberal coat\* of HYDRO BAN, approximately 8 inches (200 mm) wide over the areas. Then embed and loop the 6 inches (150 mm) wide Waterproofing/Anti-Fracture Fabric and allow HYDRO BAN liquid to bleed through. Immediately apply a second coat of HYDRO BAN.
        8. Protection: Protect newly installed membrane, even if covered with a thin-bed ceramic tile, stone or brick installation against exposure to rain or other water for a minimum of 2 hours at 70 degrees F (21 degrees C) and 50 percent RH. For temperatures between 45 to 69 degrees F (7 to 21 degrees C) allow a minimum 24 hour cure period.
        9. Flood Testing: Allow membrane to cure fully before flood testing, a minimum 2 hours at 70 degrees F (21 degrees C) and 50 percent RH. Cold conditions require longer curing time. For temperatures from 50 to 69 degrees F (10 to 21 degrees C) allow a 24 hour cure period.
      1. Waterproofing (Sheet Membrane):

\*\* NOTE TO SPECIFIER \*\* Adhesives/mastics, mortars and grouts for ceramic tile, mosaics, pavers, brick and stone are not replacements for waterproofing membranes and will not prevent water penetration into occupied or storage spaces below. Obtain approval by local building code authority before specifying LATICRETE HYDRO BAN Sheet Membrane in shower pan applications. Ceramic tile, mosaics, pavers, brick and stone installed by the thin bed method can be damaged by shrinkage related substrate cracking. Specify crack isolation membrane to reduce crack propagation into veneers or hard finishes. Do not use crack isolation membranes if substrate cracking is due to structural movement, involves vertical and/or differential movement and involves horizontal movement greater than 1/8 inch (3 mm).

* + - * 1. Measure and cut sheet membrane sections and sealing tape strips to size before mixing substrate appropriate thin-set.
        2. Mix thin-set to fairly wet consistency but still able to hold a notch. Dampen excessively dry porous surfaces in order to prevent premature drying and skinning. If skinning occurs remove thin-set and reapply using fresh mortar.
        3. Pre-Treating Corners and Coves: To create the watertight system, layer components. Start with corners. Apply thin-set mortar with 1/4 x 3/16 inch (6 x 5 mm) V-notched trowel. Press pre-formed corner into thin-set. Remove trapped air by spreading thin-set from inside of corner out using trowel or straightedge.. Continue thin-set along floor-to-wall transition from corner outward for first strip of sealing tape. Overlap corners 2 inches (50 mm). Lay tape and remove air pockets and excess material. Where two strips of sealing tape are joined, overlap by 2 inches (50 mm). Continue around perimeter of installation. Treat vertical corners with sealing tape in same manner as floor-to-wall transitions. Overlap corners by 2 inches (50 mm).
        4. Pre-Treating Penetrations: Apply thin-set mortar with 1/4 x 3/16 inch (6 x 5 mm) V-notched trowel. Slide collars over pipe or mixing valve and press firmly into thin-set. The urethane rubber will seal around pipe or mixing valve. Remove trapped air by spreading thin-set from inside out using trowel or straightedge..
        5. Main Application: No excessive overlapping. At corners, sealing tape should overlap preformed corner but not adjacent sealing tape. Continue same method to install first sheet Membrane section on wall. Start in completed corner and work out to edge of installation. Apply thin-set to surface of wall with 1/4 x 3/16 inch (6 x 5 mm) V-notched trowel. If surface is uneven, use a square-notched trowel with a wider tooth up to 3/8 inches (9 mm). Comb thin-set in same direction. Install first length of sheet membrane. Overlap membrane by 2 inches (5 cm). Leave 1/4 inch (6 mm) space from floor. Smooth section of sheet membrane with flat trowel or roller from middle towards outside edges assuring no air is trapped underneath. Follow direction thin-set was combed onto substrate. Use short, strokes to press out excess thin-set and trapped air. Remove or spread excess thin-set over seams. Apply thin-set for next length of sheet membrane. Roll next length upwards; smoothing it as it is pressed into thin-set. If bulge or crease appears, peel section away from wall and reapply so it is flat. Sections to be well-pressed; use of a roller is recommended. Squeeze out extra thin-set at seams; remove excess or spread uniformly down seam. Install remaining lengths in same manner. Sections of sheet membrane should be butt-jointed and seams between membrane should be covered with sealing tape installed with thin-set. Be sure sealing tape overlaps sheet membrane by 2 inches (5 cm). The floor should be the last section installed. Sections of sheet membrane may also be shingled (overlapped) during installation without the need for sealing tape. The top section must overlap 2 inches (5 cm) onto bottom section of sheet membrane. If the sheet membrane is damaged after installation apply patch of sheet membrane installed with appropriate thin-set. Patch must overlap damaged area by a 2 inches (5 cm). Tiling can begin immediately after installation when a flood test is not required.
        6. Clamping Ring Drains: When installing sheet membrane with clamping ring drains with weepers as per ASME A112.6.3, lay sheet membrane over top of drain and cut an x where each bolt will penetrate. Cut a hole in membrane to allow drain grate to be threaded into clamping ring. Install sheet membrane. Align previously cut holes for bolts and drain throat. Apply bead of LATASIL to clamping body just outside of bolts, place clamping ring into position and tighten bolts. Ensure weep holes are not blocked.
        7. HYDRO BAN Bonding Flange Drains: Follow instructions in DS 035.0 for When mortar is cured enough to walk on, prime top of drain, to first 90 degree radius, and adjusting ring with one coat of HYDRO BAN. Once HYDRO BAN is dry to touch install membrane over it using thin-set. Insure membrane extends to first 90 degree radius of drain. Apply mortar with 1/4 x 3/16 inch (6 mm x 5 mm) V-notched trowel. Press membrane into adhesive. Remove trapped air. Spread adhesive from inside out using trowel or straightedge. Install adjusting ring with thin-set when installing tile in order to line up grate with tile.
        8. HYDRO BAN Linear Drains: Follow instructions in DS 034.0 for installation in bonded or unbonded mortar bed. When mortar is cured enough to walk on, prime top of Drain flange, to first 90 degree radius. Once HYDRO BAN is dry to touch install sheet membrane over it using polymer fortified thin-set. Apply mortar with 1/4 x 3/16 inch (6 mm x 5 mm) V-notched trowel. Press sheet membrane into adhesive. Remove trapped air. Spread adhesive from inside out using trowel or straightedge..
        9. Flood Testing: Allow adhesive to cure fully before flood testing. 24 hours after final cure at 70 degrees F (21 degrees C) and 50 percent RH. Cold and/or wet conditions will require a longer curing time.
        10. Control Joints: Tile, stone and brick installations must include sealant filled joints between tile, stone or brick which is over control joints in the substrate. However, sealant filled joints can be offset horizontally by as much as one tile width from substrate control joint location to coincide with grout joint pattern.
        11. Movement Joints: Tile, stone and thin brick installations must include expansion joints at coves, corners, other changes in substrate plane and over any expansion joints in the substrate. Expansion joints in tile, stone or brickwork are also required at perimeters, at restraining surfaces, at penetrations and at intervals described in the Tile Council of North America, Inc. (TCNA) Handbook Installation Method EJ171. Use LATASIL and backer rod.
      1. LATICRETE HYDRO BAN Board:
         1. Floors: To be stable and rigid enough to support tile and similar finishes. Substrate deflection for live, dead, impact, and concentrated loads, must not exceed L/360 for thin bed tile or L/480 for thin bed stone installations. Tile to be at least 8 x 8 inch (200 x 200 mm). Architect, must specify control joint locations. See TCNA Handbook, Installation Method EJ171-Movement Joint Design Essentials, for industry guidelines.
         2. Concrete Floors: Must be cured and clean. Apply setting mortar bed over concrete floor with 1/4 inch (6 mm) square notched trowel. Comb mortar into a ribbed bed. Fill depressions. Be sure there are no voids beneath panel. Lay boards with staggered joints. Allow mortar to harden before taping joints. Fill joints with polymer fortified mortar and embed 2 inch (50 mm) fiberglass mesh cement board tape in dry areas. HYDRO BAN Board is waterproof. If area below backer board must be kept dry, seal penetrations and joints with liquid waterproof membrane or sealing tape and polymer fortified thin-set.
         3. Walls: Studs and and HYDRO BAN Board, washers and screws.

Wood Stud Fastening: 2 x 4 inches (50 x 100 mm) studs.

Center Spacing: 16 inch (406 mm): 1/2 inch (12 mm) board.

Center Spacing: 19.2 inch (488 mm): 5/8 inch (16 mm) board.

Fastening: 1-1/4 inch (32 mm) tab washers and screws spaced 8 inch (200 mm) on center. Countersink flush.

Board Seams: Tab Washers and screws are to span the interface.

Steel Stud Fastening: 25 gauge studs.

Center Spacing: 16 inch (406 mm): 1/2 inch (12 mm) board.

Center Spacing: 19.2 inch (488 mm): 5/8 inch (16 mm) board.

Fastening: 1-1/4 inch (32 mm) tab washers and 1-5/8 inch (41 mm) screws spaced 8 inch (200 mm) on center. Countersink flush.

Board Seams: Tab Washers and screws are to span the interface.

Maintain Waterproof Integrity Installation Option 1: Begin at bottom of wall. For tub walls and pre-sloped shower pans, apply bead of adhesive and sealant on top edge of tub or in rabbet joint of shower pans. Install boards to wall studs as specified. Embed 2 inch (50 mm) fiberglass mesh with liquid waterproofing membrane in board joints. Cover fasteners with liquid waterproofing membrane to form a seal. Allow 1st coat to dry. Apply 2nd coat over joints, corners and fasteners.

Maintain Waterproof Integrity Installation Option 2: Fasten boards as outlined in Option 1. For tub walls and pre-sloped shower pans first apply a bead of adhesive and sealant along top edge of tub or in rabbet joint of shower pans. Install board. Create a watertight system using sealing tape, inside or outside corners and collars. Start with corners. Apply polymer fortified thin-set mortar with 1/4 x 3/16 inch (6 x 5 mm) V-notched trowel. Press pre-formed corner into mortar. Remove trapped air by spreading mortar from inside out using a trowel or straightedge. Continue with thin-set along floor-to-wall transition from corner outward for first strip of sealing tape. Overlap corners by 2 inches (50 mm). Lay sealing tape and remove air pockets and excess material. Where two strips of sealing tape are joined, overlap material 2 inches (50 mm). Continue around perimeter of installation. Treat vertical corners with sealing tape next in same manner. Overlap corners 2 inches (50 mm). Treat pipe penetrations and mixing valves applying thin-set mortar with 1/4 x 3/16 inch (6 x 5 mm) V-notched trowel. Slide appropriate collar over pipe or mixing valve and press into mortar to seal around pipe or mixing valve. Remove trapped air by spreading adhesive from inside out using a trowel or straightedge. Cover fastener penetrations with sealing tape using polymer fortified thin-set. No excessive overlapping. For example, at corner, sealing tape that leaves corner and protects floor-to-wall transitions should overlap with pre-formed corner piece, but not pre-formed corner piece and adjacent sealing tape.

* + - * 1. Ceilings: Framing members not exceed 16 inch on-center (406 mm). Use a minimum of 1/2 inch (12 mm) thick HYDRO BAN Board. Ensure edges of Board are continuously supported. Fasten boards as outlined in fastening for wall applications.
        2. Countertops:

Fastening: Apply continuous bead of adhesive/sealant to tops of vertical counter top supports. Adhere board to top of counter. Press in place. Remove excess adhesive/sealant.

Installation: Cut board to fit the counter top. Leave front end of counter recessed in order to apply a 1/4 inch (6 mm) thick strip of board to the front edge using Adhesive and Sealant. Fasten to counter as described above. Before installing adjacent boards, apply a bead of adhesive and Sealant to edges of first board. Install next board as outlined above. All boards must be fitted tightly together allowing sealant to ooze from joint. All excess sealant to be spread thin ensuring a continuous seal at the joint. Fastener penetrations can be covered with sealing tape and a polymer fortified thin-set. Wrap the front edge with sealing tape using a polymer fortified thin-set. Using a reciprocating saw cut out the hole for the sink. Apply HYDRO BAN Adhesive & Sealant around the cut out and insert the sink. When dry the counter can be fully tiled.

* + - * 1. Curbs, Seat, and Benches: Measure, cut and dry fit pieces from 2 inch (50 mm) board before installing. Support seat or bench perimeters with 2 inch (50 mm) board installed vertically. Use 254 Platinum when assembling Curbs, seats and benches. Vertical support spacing: 16 inch (406 mm). Miter board edges of corner seats, for a tighter fit. Cut bench and seat supports on angle to create a slope for the seat top. Fit boards tightly together allowing the 254 Platinum to ooze from joint. Excess adhesive to be spread thin ensuring a continuous joint seal. Wrap exposed edges, coves, and corners with alkaline resistant tape and 254 Platinum thin-set. When dry, waterproof using HYDRO BAN. Allow first coat to dry before adding second coat.
        2. Tub Surrounds and Platforms: Choose the appropriate thickness required for application. Board must be attached to frame, which is load bearing and fully supported, and installed over the lip of the tub. Follow fastening and installation instructions for Walls.
    1. Accessories Installation - Exterior Adhered Veneers:
       1. Weather Resistant Barrier (WRB) or equivalent - 2 layers or as detailed and specified by project architect
          1. Install as per WRB manufacturer's written installation instructions
       2. Air and Water Barrier (exterior adhered veneers):
       3. Install vapor permeable air and water barrier per manufacturer's instructions. Review and plan application sequence. Pre-cut Waterproofing/Anti-Fracture Fabric (if required), allow 2 inch (50 mm) for overlap at ends and sides to fit areas as required.
       4. Pre-Treat Cracks and Joints: Install sheathing panels and treat joints per sheathing panel manufacturer's instructions, including board joint treatment. Pack gaps around pipes, lights or other penetrations with waterproof flashing mortar and allow to harden. Treat substrate joints and seams up to 1/8 inch (3 mm) by applying a liberal coat of air and water barrier liquid approximately 8 inch (200 mm) wide over seam using a heavy napped paint roller, brush or trowel. While air and water barrier is still wet embed 6 inch (150 mm) wide waterproofing/anti-fracture fabric pressing fabric in so that air and water barrier liquid bleeds through fabric. Immediately apply another liberal coat of air and water barrier liquid over fabric using a paint roller, brush or trowel. For substrate joints and seams greater than 1/8 inch (3 mm); fill seams to a smooth finish with polymer fortified veneer mortar. Allow mortar to set 24 hours, then treat seams by applying a liberal coat of air and water barrier approximately 8 inch (200 mm) wide over seam. While air and water barrier is wet embed 6 inches (150 mm) wide waterproofing/anti-fracture fabric pressing fabric in so the air and water barrier liquid bleeds through fabric. Immediately apply liberal coat of air and water barrier liquid over fabric. Air and water barrier will be a uniform olive green color when dry to touch.
       5. Pre-Treat Coves and Floor/Wall Intersections: Fill coves and transitions with latex-fortified thin-set or a liberal coat of air and water barrier applied with a paint brush or trowel may be used to fill joints and transitions less than 1/8 inch (3 mm) wide. Apply a liberal coat of air and water barrier 8 inches (200 mm) wide over substrate cracks, cold joints, and control joints using paint brush or heavy napped paint roller.
       6. Movement Joint Loop (Slip Joint) Treatment: Apply liberal coat of MVIS air and water barrier, approximately 8 inch (200 mm) wide over areas. Embed and loop 6 inch (152 mm) wide waterproofing/anti-fracture fabric into substrate movement joint and allow to bleed through. Top coat with second coat of air and water barrier liquid fully encapsulating fabric. Repeat to ensure movement joints receive two 2 fabric layers.
       7. Main Application: Ore-treated areas to be dry. Apply a coat of MVIS air and water barrier with heavy napped paint roller or brush over substrate. Allow to dry to the touch, 1 to 2 hours at 70 degrees F (21 degrees C), 50 percent RH. Apply second coat over first coat. Let dry to the touch, 1 to 2 hours at 70 degrees F (21 degrees C), 50 percent RH. Inspect for pinholes, voids, thin spots or defects and re-apply as necessary. Barrier will dry to an olive green color. Use additional air and water barrier to seal pinholes, voids, thin spots or other defects. Re-apply as necessary. Bring main application of Air and Water Barrier up to penetrations through membrane.
       8. Transitioning Between Different Materials: May be required between connections, protrusions, details, joints and transitions. When transitioning between different materials terminate the MVIS air and water barrier at edge of transition. Allow main application to dry. Then apply LATAPOXY Waterproof Flashing Mortar with a trowel overlapping both sides of transition by 2 to 4 inches (50 to 100 mm).
       9. Spray Application of MVIS air and water barrier: As specified and per TDS 410M "Spraying MVIS air and water barrier".Sprayer: Must operate at 3300 psi (22.8 MPa) with flow rate of 0.95 to 1.6 gpm (3.6 to 6.0 Lpm) using a 0.521 or 0.631 reversible tip. Continuous application. Hose: Up to100 ft (30 m) long, 3/8 inch (10 mm) diameter. Apply continuous MVIS air and water barrier film with overlapping spray. When first coat dries, 45 to 90 minutes at 70 degrees F (21 degrees C), visually inspect coating for voids or pinholes. Fill defects with additional material and apply second coat at right angles to first. Check wet film thickness periodically using a wet film gauge as the air and water barrier is being applied. Ensure appropriate thickness and coverage is achieved. To achieve required film thickness, coating must be free from pinholes and air bubbles. Bring main application of air and water barrier up to penetrations through the membrane. Do not back roll the spray applied coating. Allow air and water barrier to cure prior to installation of finish materials. Tape off areas not scheduled to receive the air and water barrier and protect areas from overspray.
       10. Provide protection for newly installed membrane, even if covered, against exposure to rain or other water for 2 hours at 70 degrees F (21 degrees C) and 50 percent RH. For 45 to 69 degrees F (7 to 21 degrees C) allow 24 hours to cure.
    2. Ceramic Tile Installation:
       1. Install per ANSI A108 and TCNA "Handbook for Ceramic, Glass, and Stone Tile Installation." Cut and fit, neatly around corners, fittings, and obstructions. Perimeter pieces to be half tile, brick or stone. Make joints even, straight, plumb of uniform width to tolerance plus or minus 1/16 inch over 8 ft (1.5 mm in 2.4 m). Use divider strips at flooring junctions and dissimilar materials.
       2. Electric Radiant Heating; STRATA\_HEAT Mat: Install per UL 1693, ULc C22.2 No. 217; and NEC Article 424 IX. Electrical connections: By licensed electrician. Tile installer is responsible for placement and encapsulation of mat. Inspect and clean surface to receive mat. Remove sharp edges or pointed objects that may damage mat. Plan and install following instructions; DS 044.6. Test mat during various stages of installation. Do not install over expansion and control joints. Cover and encapsulate mat and elements with 254 Platinum. Allow mortar to harden prior to installing waterproofing, crack suppression, or tiles. Do not turn mat on until entire installation, including grout cures for 7 days at 70 degrees F (21 degrees C).
          1. STRATA\_HEAT Wire. Provide 4 x 4 inch (102 x 102 mm) double-gang box with mud plate for thermostat connections. Protect power leads where they leave floor by suitable approved conduit where required by electrical code.
          2. Surfaces to be structurally sound, stable enough to support ceramic or stone tile, thin brick, and similar finishes. Substrate deflection under live, dead, impact, and concentrated loads not to exceed L/360 for adhered ceramic tile and thin brick installations or L/480 for adhered stone installations.
          3. Concrete Substrates: Cured to support tile installation traffic. Surface Temperature: 40 to 90 degrees F (4 to 32 degrees C). Surface to be free of voids, sharp protrusions, loose aggregate, clean and free from all dirt, oil, grease, paint, concrete sealers, and curing compounds. Make smooth, rough uneven surfaces with latex portland cement underlayment providing a wood float or better finish. Do not level with gypsum or asphalt products.
          4. OSB or Exterior Glue Plywood Substrates: Refer to Technical Data Sheet 152 "Bonding Ceramic Tile, Stone or Brick Over Wood Floors" (Section 10).

Installer: Verify deflection does not exceed industry standards.

Construction for interior ceramic or porcelain tiled floors:

Single Layer Plywood or OSB: Tongue and groove.

16 inch (406 mm) Joist Spacing: 5/8 inch (15 mm) thick.

19.2 inch (488 mm) Joist Spacing: 3/4 inch (19 mm) thick.

Double Layer Plywood or OSB: Tongue and groove.

24 inch (610 mm) Joist Spacing: 3/4 inch (19 mm) thick.

Underlayment thickness: 3/8 inch (9 mm).

Minimum construction for interior natural stone tiled floors: 24 inch (610 mm) o.c. double layer wood floor. 3/4 inch (19 mm) subfloor thickness. Tongue-and-groove. Underlayment thickness of 3/8 inch (10 mm).

* + - * 1. Subfloor: 3/4 inch (19 mm) plywood or OSB. Blocked or tongue and groove edges. Over bridged joists spaced 24 inch (610 mm) o.c. Fasten plywood 6 inch (150 mm) o.c. sheet ends and 8 inch (200 mm) o.c. along intermediate supports, with 8d ring-shank, coated or hot dip galvanized nails or screws. 1/8 inch (3 mm) gap at sheet ends. 1/4 inch (6 mm) gap at sheet edges. Support ends by framing members. Glue sheets to joists with construction adhesive.
        2. Underlayment: 3/8 inch (9 mm) thick plugged-faced plywood or OSB. Fasten 6 inch (150 mm) o.c. on sheet ends and 8 inch (200 mm) o.c. in panel field with 8d ring-shank, coated or hot dip galvanized nails or screws. 1/8 to 1/4 inch (3 to 6 mm) between sheets and 1/4 inch (6 mm) between sheet edges and abutting surfaces. Offset underlayment joists from joints in subfloor and stagger joints between sheet ends. Glue underlayment to subfloor with construction adhesive. Refer to Technical Data Sheet 152 "Requirements for Direct Bonding of Ceramic or Stone Tiles Over Wood Floors." for complete details.
        3. Installation of STRATA\_HEAT to substrate: Install mat to substrate per ANSI A118.4, ANSI A118.11 or ANSI A118.15. Mortar as outlined by Tile Council of North America (TCNA). Mix mortar on loose side but able to hold a notch. Complete wetting of mat fleece layer. Using polymer modified mortar, apply to substrate in thin-bed method using 1/4 x 3/16 inch (6 x 5 mm) V-notched or square notch trowel. Key mortar into substrate. Ensure mortar is "wet-out" allowing optimal mat bedding. Spread only enough mortar that can be covered with mat during specified open time of mortar.
        4. Embed mat into wet mortar, fabric side down. Use trowel or screed, to apply pressure ensuring proper bedding. Verify coverage beneath mat. Areas of mat embedded properly appear darker than areas not embedded. Lift occasionally if necessary to verify coverage. Cut mat as needed when approaching walls or other objects. Leave 1/4 inch (6 mm) between mat and wall edge or objects.
        5. Install adjacent sections of mat in same manner. Line edges without gaps.
        6. Installation of STRATA\_HEAT Wire into STRATA\_HEAT Mat: Refer to DS 044.6 for instructions. Make electrical provision for wire. Provide 4 x 4 inch (102 x 102 mm) double-gang box with mud plate for thermostat connections. Protect power leads where they leave floor by code approved conduit where required.
        7. Test resistance of wire. Verify it is within range specified in instructions. Install wire into mat at chosen spacing. Channel groove in mat and substrate for cold tail and termination joints, enabling them to fit flush with top of mat. Do not tape over joints. Install floor sensor centrally between two runs of wire.
        8. Test wire resistance against previous value ensuring no damage to wire.
        9. Lay tile or stone flooring over mat and wire. Fully encase them in 254 Platinum mixed with STRATA\_HEAT Thermal Pack. No parts left exposed. Test resistance of wire again. Check against previous resistance to ensure no damage occurred. Licensed electrician to connect wires to Thermostat.

Do not turn STRATA\_HEAT on until tile installation including grout has cured 7 days at 70 degrees F (21 degrees C).

* + - 1. Electric Radiant Heating ( STRATA\_HEAT Wire with STRATA\_HEAT Spacing Strips): Install per UL 1693, ULc C22.2 No. 217; and NEC Article 424 IX. Electrical connections: By licensed electrician. Tile installer is responsible for placement and encapsulation of wire and spacing strips. Inspect and clean surface to receive spacing strips and wire. Remove sharp edges or pointed objects that may damage heating elements. Follow instructions (DS 044.6). Test wire during various stages of installation. Do not install over expansion and control joints. Cover and encapsulate with 254 Platinum. Allow mortar to harden prior to installation of waterproofing, crack suppression, or tiles. Do not turn on until tile installation including grout cures 7 days at 70 degrees F (21 degrees C).
         1. STRATA\_HEAT Wire. Provide 4 x 4 inch (102 x 102 mm) double-gang box with mud plate for thermostat connections. Protect power leads where they leave floor by suitable approved conduit where required by electrical code.
         2. Surfaces to be structurally sound, stable enough to support ceramic or stone tile, thin brick, and similar finishes. Substrate deflection under live, dead, impact, and concentrated loads not to exceed L/360 for adhered ceramic tile and thin brick installations or L/480 for adhered stone installations.
         3. Concrete Substrates: Cured to support tile installation traffic. Surface Temperature: 40 to 90 degrees F (4 to 32 degrees C). Surface to be free of voids, sharp protrusions, loose aggregate, clean and free from all dirt, oil, grease, paint, concrete sealers, and curing compounds. Make smooth, rough uneven surfaces with latex portland cement underlayment providing a wood float or better finish. Do not level with gypsum or asphalt products.
         4. OSB or Exterior Glue Plywood Substrates: Refer to Technical Data Sheet 152 "Bonding Ceramic Tile, Stone or Brick Over Wood Floors" (Section 10).

Installer: Verify deflection does not exceed industry standards.

Construction for interior ceramic or porcelain tiled floors:

Single Layer Plywood or OSB: Tongue and groove.

16 inch (406 mm) Joist Spacing: 5/8 inch (15 mm) thick.

19.2 inch (488 mm) Joist Spacing: 3/4 inch (19 mm) thick.

Double Layer Plywood or OSB: Tongue and groove.

24 inch (610 mm) Joist Spacing: 3/4 inch (19 mm) thick.

Underlayment thickness: 3/8 inch (9 mm).

Minimum construction for interior natural stone tiled floors: 24 inch (610 mm) o.c. double layer wood floor. 3/4 inch (19 mm) subfloor thickness. Tongue-and-groove. Underlayment thickness of 3/8 inch (10 mm).

* + - * 1. Subfloor: 3/4 inch (19 mm) plywood or OSB. Blocked or tongue and groove edges. Over bridged joists spaced 24 inch (610 mm) o.c. Fasten plywood 6 inch (150 mm) o.c. sheet ends and 8 inch (200 mm) o.c. along intermediate supports, with 8d ring-shank, coated or hot dip galvanized nails or screws. 1/8 inch (3 mm) gap at sheet ends. 1/4 inch (6 mm) gap at sheet edges. Support ends by framing members. Glue sheets to joists with construction adhesive.
        2. Underlayment: 3/8 inch (9 mm) thick plugged-faced plywood or OSB. Fasten 6 inch (150 mm) o.c. on sheet ends and 8 inch (200 mm) o.c. in panel field with 8d ring-shank, coated or hot dip galvanized nails or screws. 1/8 to 1/4 inch (3 to 6 mm) between sheets and 1/4 inch (6 mm) between sheet edges and abutting surfaces. Offset underlayment joists from joints in subfloor and stagger joints between sheet ends. Glue underlayment to subfloor with construction adhesive. Refer to Technical Data Sheet 152 "Requirements for Direct Bonding of Ceramic or Stone Tiles Over Wood Floors." for complete details.
        3. Installation of STRATA\_HEAT Spacing Strips to the substrate: Install 12 inch (305 mm) spacing strips to subfloor. Ensure spacing of wire. Install perimeter spacing strips 3 inches (76 mm) away from walls or hard abutments perpendicular to direction of direction in which wire will be run. Additional spacing strips can be laid 40 inches (1 m) apart across floor. Cut spacing strips into smaller sections for irregular shaped rooms. Secure spacing strips to floor using hot glue, nails. screws, or double sided tape.
        4. Installation of STRATA\_HEAT Wire into STRATA\_HEAT Spacing Strips: Refer to DS 044.6 for instructions of STRATA\_HEAT. Provide 4 x 4 inch (102 x 102 mm) double-gang box with mud plate for thermostat connections. Protect power leads where they leave floor by suitable approved conduit where required by electrical code.
        5. Test resistance wire, ensuring it is within range set in installation instructions. Install wire into spacing strips at chosen spacing. Install floor sensor centrally between two runs of wire. Test resistance of wire after installation and check against previous resistance value to ensure no damage has occurred.
        6. Lay tile or stone flooring over spacing strips and wire making. Encase in 254 Platinum mixed with STRATA\_HEAT Thermal Pack with no parts exposed. Test wire resistance after installation against previous value ensuring no damage occurred. Licensed electrician: Connect wires to Thermostat.
        7. Do not turn STRATA\_HEAT on until entire installation including grout has cured for 7 days at 70 degrees F (21 degrees C).
      1. Bonded Thick Bed Method (Floor): Verify 1 inch (25 mm) bed thickness. Apply 254 Platinum with flat trowel as slurry bond coat 1/16 inch (1. 5 mm) thick over clean concrete slab, per ANSI A108.1A. Place 3701 Fortified Mortar Bed over slurry bond coat while 254 Platinum slurry bond coat is wet and tacky. Omit reinforcing wire fabric. Compact bed by tamping. Spread 254 Platinum with flat trowel over surface of fresh mortar bed as a slurry bond coat approximately 1/16 inch (1. 5 mm) thick. Apply 254 Platinum slurry bond coat to back of Ceramic Tile, stone mosaic trim unit or threshold. Place each piece/sheet while slurry bond coats are wet and tacky. Use hardwood block or rubber mallet to level and imbed before mortar bed takes initial set. Clean excess mortar and adhesive from finished surfaces.
      2. Thick Bed (Wire Reinforced) Method: Maintain bed thickness of 2 inch (50 mm). Place latex-portland cement thick bed mortar to a depth one-half finished bed thickness per ANSI A108.01 (3.2.1.1 and 3.2.4) and A108.1B. Lay 2 x 2 inch (50 x 50 mm), 16 gauge (1.5 mm), galvanized, welded reinforcing wire fabric, complying with ANSI A108.02 (3.7) and ASTM A185, over mortar. Place additional thick bed mortar over wire fabric. Compact mortar by tamping with flat trowel. Screed mortar bed level. Provide slopes to drains. Spread latex-portland cement thin bed mortar with flat trowel over surface of fresh mortar bed as slurry bond coat 1/16 inch (1. 5 mm) thick. Per ANSI A108.1A (6.0) apply slurry bond coat to back of stone, mosaic, paver, brick, ceramic tile, trim unit or threshold and place each piece or sheet while bond coats are wet and tacky. Beat with hardwood block or rubber mallet to level and imbed pieces before mortar bed takes initial set. Clean excess mortar and adhesive from finished surfaces.
      3. Self-Leveling Underlayment: Use NXT Level Plus, and related NXT Primer, as a self-leveling underlayment to attain floor flatness.
      4. Surface Preparation: Concrete slabs: ICRI concrete surface profile (CSP) of 3. For more detailed information refer to ICRI Guideline No. 03732. Use of chemicals to remove contaminants or to create a surface profile is not recommended. Use of sweeping compound is not recommended. Additionally, concrete slabs must readily absorb water, be clean, free of oil, wax, grease, sealers, curing compounds, asphalt, paint, deicing agents, dust, dirt, loose surface material and any other contaminant that will act as a bond breaker. Tensile strength testing of substrate, per ASTM C1583 or ICRI Guideline No. 03739, must show 100 psi (0.7 MPa) tensile strength prior installation. Remove and repair areas not meeting 100 psi (0.7 MPa) tensile strength.
      5. General Priming Information: Prime prior to self-leveling underlayment installation. NXT Primer is a concentrate. Dilute with clean potable water. Dilution ratio and application methods vary by substrate. Stir or shake primer concentrate prior to diluting. Mix with clean potable water per manufacturer's coverage chart. Measure water to ensure proper dilution. Use mixing paddle. Thoroughly combine primer and water. Broom, roller, mop, or spray apply. Substrate temperature 40 degrees F (4 degrees C) during application and drying time. Maintain air temperature between 50 to 90 degrees F (10 to 32 degrees C) during application and drying time. Protect primed surface from weather, water and direct sunlight.
      6. Normal Suction Concrete: Dilute NXT Primer 1:3. Apply single coat of primer/water mix to point of refusal so substrate is covered and small puddles form in low spots. While primer is still wet use push broom to work primer into substrate so puddles are spread evenly over surface. Remove remaining puddles by brooming and spreading over surface. Proceed to All Suitable Substrates and Protect Primer Application paragraphs.
         1. High-Suction Concrete: Two coats of NXT Primer allowing time to dry between coats. For first coat, dilute NXT Primer 1:5. Apply first coat to point of refusal so substrate is completely covered and small puddles form in low spots. Use push broom to work primer into substrate so puddles are spread evenly over surface, allowed to absorb and uniform film remains on surface. Remove remaining puddles by brooming and spreading over surface. Allow primer to dry. First coat is dry when 3 hours dry time has elapsed. Primer turns milky clear and is dry to the touch, and there is no release of primer from substrate. First coat must not be opened to traffic prior to second coat. If primed floor becomes contaminated by trade traffic, completely remove by shot blasting, scarification or other mechanical means. Re-prime.
         2. Second Coat: Dilute NXT Primer 1:3. Apply second coat of diluted primer/water mix to point of refusal so substrate is completely covered and small puddles form in low spots. While still wet use push broom to work primer into substrate so puddles are spread evenly over surface and uniform film is applied. Go to All Suitable Substrates and Protect Primer Application paragraphs.
         3. Exterior Glue Plywood: Dilute NXT Primer 5:1. Using sprayer or broom, apply a single coat so substrate is completely covered and uniform film is applied and follow the All Suitable Substrates paragraph. Fasten galvanized diamond metal lath over exterior glue plywood substrate using corrosion resistant fasteners every 6 inch (15 cm) overlapping lath seams by 1 inch (2.5 cm) and follow the Protect Primer Application paragraph.
         4. Non-Suction Substrates: Non-Suction substrate primer dilution and application instructions are intended for Ceramic tile, quarry tile, VCT, VAT, sheet vinyl and moisture mitigation systems that prepared per this specification and moisture mitigation manufacturer's instructions. Concrete slabs considered Non-Suction will require additional preparation prior to primer application. See Non-Suction Concrete in the Substrate Types/General Requirements.
         5. Dilute NXT Primer 1:1. Apply single coat of diluted primer/water mix to point of refusal so substrate is completely covered. While primer is still wet and white, immediately lightly scatter NXT self-leveling dry powder into wet primer. Using a push broom, work the dry powder into primer/water mixture forming a slurry. Broom so puddles spread evenly over surface and uniform film has been applied. Then follow All Suitable Substrates and Protect Primer Application.
         6. NXT Vapor Reduction Coating / Moisture Mitigation Systems: Ensure system is per manufacturer's instructions. If mitigation manufacturer requires use of specific Primer, follow manufacturer's priming instructions using required primer. If NXT primer is used follow Non-Suction Priming instructions.
         7. NXT Underlayments and Cement Mortar Beds: Follow High-Suction priming instructions for priming on top of NXT underlayments and other mortar beds.
         8. All Suitable Substrates: Remove puddles by brooming and spreading over surface. Allow to dry 3 to 5 hours at 70 degrees F (21 degrees C) and 50 percent RH. Primer is clear, when dry to the touch. Drying time varies depending on surface and ambient conditions. Substrate temperature: 40 degrees F (4 degrees C) during application and dry time. Maintain air temperature 50 to 90 degrees F (10 to 32 degrees C). Protect primer from weather and direct sunlight. Temperatures below 70 degrees F (21 degrees C) and RH above 50 percent increases dry time. Insufficient drying results in pinholes, poor bond strength, and may cause underlayment to debond. If primer dries in 30 minutes or if 24 hour period is exceeded after application, surface must be primed again.
         9. Protect Primer Application: When walking over primer prior to self-leveling underlayment installation, protect shoes with clean, slip-on type booties (i.e. Tyvek). Primed floor is not be opened to trade traffic prior to underlayment installation. If primed floor becomes contaminated remove first coat by shot blasting, scarification or other mechanical means and reprime.
         10. Mixing: NXT LEVEL PLUS should be mixed with 5.0 to 5.5 quarts (4.7- 5.2 L) of water per 55 lb (25 kg) bag. Do not over water. For manual application, add product to water and mix 2 to 3 min with heavy duty drill (650 rpm). Obtain a lump free mix. NXT Level Plus can also be used in most pump equipment. Please consult with a representative to verify equipment compatibility. A flow test should always be performed to ensure mix is homogeneous and free from separation. Ideal flow range for NXT Level Plus is 11 to 12 inches (280 to 300 mm) using a Flow Test Kit. See TDS 235N - Flow Test Method for more detailed instructions on performing flow tests.
         11. Perimeter Isolation Strip: It is essential walls and building elements are isolated from self-leveling underlayment pours to ensure proper expansion allowance against restraining surfaces. Install perimeter isolation strip before installation of NXT Level Plus. Attach perimeter isolation strip to perimeter wall of entire subfloor, and around perimeter of any protrusions, in order to isolate floor and wall/restraining surfaces. Temporarily fasten strip in place masking, duct, or carpet tape. Perimeter isolation strip can then be removed after tiles have set firm. Joints can then be filled with LATASIL.
         12. Main Application: Substrate temperature to be 40 to 90 degrees F (4 to 32 degrees C) during application and air temperature maintained 50 to 90 degrees F (10 to 32 degrees C). Protect areas from direct sunlight. Do not use damp curing methods or curing and sealing compounds. Survey surface using a digital or electronic leveling device and apply level pegs as required. Provide adequate ventilation to ensure uniform drying. Pump or pour blended material onto substrate at average thickness of 1/8 to 1-1/4 inch (6 to 32 mm) for surfaces. Lightly smooth surface and pour lines,. When not using elevation pins use of a gauge rake will assist in controlling material depth. Do not expose self-leveling underlayments to rolling dynamic loads, such as forklifts or scissor lifts, for 72 hours after installation. Proper application is responsibility of user. Ready for foot traffic in 1 to 4 hours. Finished floor goods may be installed 16 hours after application, subject to thickness, drying conditions and type of flooring materials. Coverage dependent upon relative rough-ness of substrate, but following is typical: 1/8 inch (3 mm) thickness is approximately 49 sq ft (4.5 sq m); 1/4 inch (6 mm) thickness is approx. 24 sq ft (2.2 sq m); 1/2 inch (13 mm) thickness is approx. 12 sq ft (1.1 sq m).
      7. Uncoupling Membrane: Mix 254 Platinum to a wet consistency. Using a 1/4 x 1/4 inch (6 x 6 mm) square notched trowel, install 254 Platinum per ANSI A108.02 (3.11) and ANSI A108.5 (1.2). Work 254 Platinum into good contact with substrate and comb with notched side of trowel. Spread only as much 254 Platinum as can be covered while the mortar surface is still wet and tacky. Apply STRATA\_MAT to wet 254 Platinum fabric side down. Using a clean grout float, trowel or 40 lb. vinyl roller, ensure that STRATA\_MAT is embedded into mortar. Lift a corner of STRATA\_MAT to ensure maximum coverage is achieved. Abut ends and sides of adjacent sheets of STRATA\_MAT to make sure continuity of uncoupling system is achieved. Allow installation to set until firm. Clean excess mortar from face of STRATA\_MAT. For installation of tile or stone, follow Thin Bed Method.
      8. Sound Abatement and Crack Isolation Mat:

\*\* NOTE TO SPECIFIER \*\* The sound reduction performance of Stone, mosaic, paver installations will depend significantly on:  
1) the type and thickness of floor construction;  
2) whether a suspended ceiling is part of the design;  
3) flanking acoustical transmission control (e.g. perimeter isolation joints);  
4) the type and source of sound energy/noise (i.e. impact versus airborne).  
Review test results conducted in conformance with current revision of ASTM E2179 "Standard Test method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors," ASTM E492 "Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine," ASTM E989 "Standard Classification for Determination of Impact Insulation Class (IIC)," ASTM E413 "Standard Classification for Determination of Sound Transmission Class (STC)," FHA Bulletin No. 750 "Impact Noise Control in Multifamily Dwellings," HUD TS 28 "A Guide to Airborne, Impact and Structure-borne Noise-Control in Multifamily Dwellings" and manufacturer's performance data and recommendations, in the context of expected sound reduction requirements.

* + - * 1. It is essential walls and building elements are isolated from floor. Use of acoustical ceiling panels in space below would provide additional sound control.
        2. Perimeter Isolation Strip: Install before placing isolation mat. Attach to perimeter wall of entire subfloor, as well as around perimeter of permanently attached protrusions, to isolate vibration between floor and wall. Temporarily fasten with masking, duct, or carpet tape. Alternatively run isolation mat up wall approximately 3 inches (75 mm) throughout perimeter of room as well as around perimeter of protrusions to isolate vibration between floor and wall.
        3. 170 Sound and Crack Isolation Mat: Use 254 Platinum to adhere mat.

Mat to Substrate: Use 1/4 x 1/4 inch (6 x 6 mm) notched trowel. Comb mortar over substrate; applying only enough mortar as can be covered within 25 minutes. Unroll isolation mat into place, in thin-set adhesive mortar. Install isolation mat over entire area to be treated; do not overlap edges. Butt edges firmly together. Trim mat as necessary. Once installed, use 25 to 45 lb. (11.3 to 20 kg) roller to embed mat into thin-set adhesive mortar. Cure for 24 hours.

* + - 1. Pre-float Method: Over clean, stable sound concrete or masonry substrates. Apply thick-bed mortar as scratch/leveling coat per ANSI A108.1A (1.0, 1.4 and 5.1). Float surface of scratch and leveling coat plumb, true and allow mortar to set until firm. For ceramic tile installation follow "Thin Bed Method" or "Large, Heavy Tile Method."
      2. Lath and Plaster Method: Install cleavage membrane per ANSI A108.02 (3.8 Membrane or cleavage membrane). Install metal lath per ANSI A108.01 (3.3 Requirements for lathing and portland cement plastering), ANSI A108.02 (3.6 Metal lath) and ANSI A108.1A (1.0 to 1.2, 1.4, and 5.1). Apply latex-portland cement mortar as scratch/leveling coat over wire lath, concrete or masonry in per ANSI A108.01 (3.3.5.1) and A108.1A (1.4). Float surface of scratch and leveling coat plumb, true and allow mortar to set until firm. For tile installation of tile, brick or stone, follow "Thin Bed Method" or "Large, Heavy Tile Method."
      3. Thin Bed Method: Install latex portland cement mortar per ANSI A108.02 (3.11), A108.1B and ANSI A108.5. Use appropriate trowel notch size to ensure proper bedding of tile, brick or stone selected. Work mortar into contact with substrate and comb with notched side of trowel. Spread only as much mortar as can be covered while mortar surface is still wet and tacky. When installing large format tile/stone, rib/button/lug back tiles, pavers or sheet mounted ceramics/mosaics, spread mortar onto back of each piece/sheet in addition to troweling mortar over substrate. Beat each piece/sheet into mortar with a beating block or rubber mallet to insure full bedding and flatness. Allow to set until firm. Clean excess from tile or stone face and joints between pieces.
      4. Large, Heavy Tile Method: Install latex portland cement mortar per ANSI A108.02 (3.11), A108.1B and ANSI A108.5. Use appropriate trowel notch size to ensure proper bedding of tile brick or stone selected. Work mortar into contact with substrate and comb with notched side of trowel. Spread only as much mortar as can be covered while mortar surface is still wet and tacky. When installing large format tile/stone, rib/button/lug back tiles, pavers or sheet mounted ceramics/mosaics, spread mortar onto back of each piece/sheet in addition to troweling mortar over substrate. Beat each piece/sheet into mortar with a beating block or rubber mallet to insure bedding and flatness. Allow to set until firm. Clean excess mortar from tile or stone face and joints between pieces.
      5. Epoxy Thin Bed Method: Install epoxy adhesive per ANSI A108.02 (3.14) and ANSI A108.6. Use trowel notch sized to ensure proper bedding of tile or stone selected. Work epoxy adhesive into good contact with substrate. Comb with notched side of trowel. Spread only as much epoxy as can be covered while adhesive surface is wet and tacky. When installing large format tile/stone, rib/button/lug back tiles, pavers or sheet mounted ceramics/mosaics, spread epoxy adhesive onto back of each piece/sheet in addition to troweling epoxy adhesive over substrate. Beat each piece/sheet into epoxy adhesive with beating block or rubber mallet Allow installation to set until firm. Clean epoxy from tile or stone face and joints between pieces.
      6. Thin Bed Method (Glass Tiles): Ensure backs of tiles are washed, rinsed, and completely dry prior to installation. Install latex portland cement thin-set mortar in compliance with ANSI A108.02 (3.11), A108.1B and ANSI A108.5. Use notched trowel that will achieve full coverage of thin set mortar to backs of tiles. Use flat side of the trowel to initiate a bond coat. Firmly apply thin-set onto substrate. Apply additional thin-set mortar in a horizontal direction using notched side of the trowel. Use flat side of trowel to knock down ridges and create a smooth setting bed. Fill voids where necessary. Back butter clean and dry tile using additional setting material. The face of the glass tile can be checked before setting to verify full coverage. Tiles must be dry prior to avoid appearance of water spots on back of tile. Apply glass tile into wet thin-set using firm, even pressure Remove any excess setting material from in between tile edges. If voids or water spots in adhesive are visible through tile, remove tile and correct installation. Cure 48 hours at 70 degrees F (21 degrees C) prior to grouting. Clean excess mortar from face of glass tiles and joints between pieces.
      7. Sound Abatement and Crack Suppression Adhesive (Thin Bed Method):
         1. Install per ANSI A108.02 (3.11), A108.1B and ANSI A108.5. Use trowel notch sized to ensure proper bedding of tile, brick or stone. Work adhesive into good contact with substrate and comb with notched side of trowel. Spread only as much sound abatement and crack suppression adhesive as can be covered while mortar surface is wet and tacky. When installing large format tile/stone, rib/button/lug back tiles, pavers or sheet mounted ceramics/mosaics, spread adhesive onto back of each piece/sheet in addition to troweling over substrate. Beat each piece/sheet into adhesive with beating block or rubber mallet. Allow to set firm. Clean excess adhesive from tile or stone face and joints. For sound control use 1/4 x 3/8 inch (6 x 9 mm) or 1/2 x 1/2 inch (12 x 12 mm) square notch trowel. For installations requiring only anti-fracture use 1/4 x 1/4 inch (6 mm x 6 mm) square notch trowel.
      8. Epoxy Spot Bond Method:
         1. Store resins at 70 degrees F (21 degrees C) for 24 hours before using. Substrates must be clean and dry to appl LATAPOXY 310 Stone Adhesive. Finished veneers with any type backing must be ground to receive stone adhesive. Clean and grind back of stone at areas to receive stone adhesive spots using mechanical wheel grinder with a diamond wheel/blade. Remove dust with stiff brush, wipe entire surface. Using a damp sponge (not wet), wipe tile or stone to remove particles or remaining dust. Wipe dry with a clean cloth. Combine equal parts stone adhesive on a hard, smooth surface; not the tile or stone to be installed. Mix until uniform in color. Mix small quantities with putty knife or margin trowel. Mix large quantities with low speed electric drill mixer. Apply dabs on back of stone or tile; 5 dabs minimum, 1 in each corner and 1 in center. Cover 10 percent of area. Finished dab thickness must be 1/8 inch (3 mm) minimum. After placing stone adhesive on veneer, install onto substrate. Adjust for plumb and level.
      9. Grouting or Pointing (Interior Adhered Veneers):
         1. Chemical Resistant, Water Cleanable Tile-Grouting Epoxy (ANSI A118.3): Store SPECTRALOCK PRO Premium Grout components for 24 hours a 70 to 80 degrees F (21 to 27 degrees C) prior to use. Substrate temperature must be 40 to 95 degrees F (4 to 35 degrees C). Verify joints are free of dirt, debris or grout spacers. Sponge or wipe dust/dirt off tile faces and remove water standing in joints. Apply grout release to face of absorptive, abrasive, non-slip or rough textured Ceramic tile, pavers, bricks, stone or trim units that are not hot paraffin coated to facilitate cleaning. Pour SPECTRALOCK PRO Premium Grout Part A Liquid into a clean mixing pail. Then pour SPECTRALOCK PRO Premium Grout Part B Liquid into same mixing pail. Mix by hand or with less than 300 rpm mixer until liquids are well blended. While mixing, add SPECTRALOCK Grout Part C Powder. Blend until uniform. For narrow joints, it is acceptable to leave out up to 10 percent of SPECTRALOCK Grout Part C Powder to produce a more fluid mix. Install grout in compliance with current revisions of ANSI A108.02 (3.13) and ANSI A108.6 (3.0 to 4.0). Spread using a sharp edged, firm rubber float and work grout into joints. Using strokes diagonal (at 45 degrees angle) to grout lines, pack joints full, free of voids/pits. Holding float face at 90 degree angle to grouted surface use float edge to "squeegee" off excess grout, stroking diagonally. Once removed, a thin film/haze will be left. Initial cleaning of film/haze can begin 20 minutes after grouting (wait longer when temperatures are cooler). Mixing one cleaning additive packet with 2 gallons (7.6 L) of clean water in clean bucket. Dip clean sponge into bucket wring out cleaning solution until sponge is damp. Using circular motion, lightly scrub grouted surfaces with damp sponge to loosen film/haze. Drag sponge diagonally over scrubbed surfaces to remove froth. Rinse sponge frequently. Change cleaning solution every 50 sq ft (4.7 sq m). Check work as you clean. Repair any low spots with additional grout. 1 hour after finishing first cleaning, clean area again following same procedure but use a clean white scrub pad and fresh cleaning solution. Rinse scrub pad frequently. Drag a clean sponge diagonally over scrubbed surfaces to remove. Use each side of sponge only once before rinsing. Change cleaning solution 50 sq ft (4.7 sq m). Allow cleaned areas to dry and inspect surface. For persistent grout film/haze (within 24 hours), repeat procedure with undiluted white vinegar and clean pad. Rinse with clean water and allow surface to dry. Inspect grout joint for pinholes/voids and repair with freshly mixed grout. Do not use undiluted white vinegar on polished marble or limestone unless a test spot indicates no change in finish appearance. Do not use acid cleaners on epoxy grout less than 7 days old.
         2. Polymer Fortified Cement Grout (ANSI A118.7):

Surface Preparation: Before grouting, remove spacers and debris in grout joints. Remove dust and dirt with wet sponge. Do not leave water standing in joints. When grouting in hot weather refer to TDS 176 Hot Weather Tiling and Grouting. Apply grout release or sealer if necessary. Refer to TDS 400 Grout Guide for more information on grouting.

Substrate temperature: 40 to 90 degrees F (4 to 32 degrees C).

Mixing: 2 to 2.25 quarts (1.9 to 2.1 L) of clean potable water for 2 PERMACOLOR Select Color Packs and 25 lbs (11.3 kg) of Select Grout Base. Do not use with 1776 Grout Enhancer or any other latex additive. Place water in clean mixing container. Remove Color Packs from container and plastic sleeve. The internal bag is a water-dispersible pack. When using 25 lb. (11.3 kg) bag of PERMACOLOR Select, our both color packs directly in water. Mix with drill mixer until dispersed evenly in container and dispersible pack is no longer visible. Add PERMACOLOR Select Base. Mix with drill mixer, 300 rpm for 1 minute. Wait 5 minutes and remix for 1 minute. If using 12.5 lbs bag, drop one color pack into 1 to 1.1 quarts (.8 to 1.0 L) of clean water.

Application: Clean tile surface with damp sponge. Spread with sharp, firm rubber grout float or wall float for narrow wall joints. To remove excess grout hold float at 90 degree angle and pull it at a 45 degree angle diagonally across joints to avoid pulling out material.

Cleaning: For first cleaning wait 35 to 40 minutes at 70 degrees F (21 degrees C). Wider joints or cooler temperatures may extend wait time. Lightly wipe down entire area to be cleaned with a damp sponge. Wash with a damp sponge. Work diagonally to joints. Allow to dry 3 hours at 70 degrees F (21 degrees C). For second cleaning use a damp sponge or dry cloth to remove remaining grout haze.

* + - 1. Chemical Resistant Industrial Grouting (ANSI A118.5):
         1. Follow manufacturer' s recommendations for minimum cure time prior to grouting. Prior to use, store SPECTRALOCK 2000 IG components for 24 hours at 70 degrees F (21 degrees C). Substrate temperature must be 45 to 90 degrees F (7 to 32 degrees C). Verify joints are free of dirt, debris or grout spacers. Wipe dust/dirt off tile faces and remove water standing in joints. Apply grout release to face of absorptive, abrasive, non-slip or rough textured ceramic tile, pavers, bricks, stone or trim units that are not hot paraffin coated to facilitate cleaning. Pour SPECTRALOCK 2000 IG Part A and Part B into a clean mixing pail and mix thoroughly with drill mixer until liquids are completely blended. Add the SPECTRALOCK Part C powder. Mix thoroughly with a high speed mixer ( greater than 450 rpm) for a minimum 2 minutes and until uniformly blended. This aerates grout to a fluffy mix. Grout may remain in bucket while grouting. Spread using a sharp edged, hard rubber float and work grout into joints. Using diagonal 45 degree angle strokes to grout lines, pack joints full and free of voids. Hold float face at 90 degree angle to grouted surface and use float edge to "squeegee" off excess grout, stroking diagonally to reduce pulling grout out of filled joints. Initial cleaning can begin 15 minutes at 70 degrees F (21 degrees C) after grouting. Add wash cleaning additive to 2 gallons (7.6 L) of clean water and mix until fully dissolved. Do not mix cleaning additive to grout mix. Using a circular motion, lightly scrub grout joints and entire tile surface with a white nylon pad and plenty of water/cleaning additive solution to loosen residue and form joints. Drag a clean damp sponge or damp white terry cloth towel diagonally over scrubbed tile surface to remove froth and grout residue. Rinse sponge frequently and change rinse water often Wait 90 minutes at 70 degrees F (21 degrees C) before commencing final wash. Add Final Wash cleaning additive to 2 gallons (7.6 L) of clean water and mix until fully dissolved. Use same cleaning method as first wash but try to avoid contacting grout surface; clean tile only to loosen any remaining grout haze. Inspect joint for pinholes/voids and repair them with freshly mixed grout. After 12 hours, check for remaining haze and remove it by scrubbing with warm soapy water. Do not use acid cleaners on epoxy grout less than 7 days old.
      2. Expansion and Control Joints:
         1. Substrate joints must carry through, full width, to surface of tile, brick or stone.
         2. Install in tile, brick or stone work over construction/cold joints or control joints in substrates.
         3. Install where tile, brick or stone abut restraining surfaces such as perimeter walls, curbs, columns, changes in plane and corners.
         4. Joint width and spacing depends on application: F TCNA "Handbook for Ceramic, Glass, and Stone Tile Installation" Detail "EJ-171 Expansion Joints" or consult manufacturer.

\*\* NOTE TO SPECIFIER \*\* Different finish types may require different sealers. Impervious ceramic, and porcelain tiles do not require sealing. For finishes other than natural stone, consult Technical Services at 888-786-6343 extension 2, or via email, at [technicalservices@laticrete.com](mailto:technicalservices@laticrete.com) .

* + - 1. Floor Sealer: Read label and use only as directed. Always small inconspicuous area with a 24-hour cure time. New grout installations to cure 72 hours prior to application. Surfaces to be clean; free of waxes and coatings. May be applied to damp surfaces one hour after standing water is removed. Ensure application area is well-ventilated.
         1. Surface Temperature: 50 to 80 degrees F (10 to 27 degrees C).
         2. Shake well before using.
         3. Mask off surfaces not intended to be treated.
         4. Liberally apply even coat of STONETECH BulletProof Sealer using a paint pad, roller, brush or low-pressure sprayer. Allow sealer to penetrate surface for 10 to 15 minutes keeping surface wet with sealer, adding more sealer as needed.

Do not allow sealer to completely dry on surface

Thoroughly wipe dry the entire surface with clean absorbent towels.

* + - * 1. Apply 2nd coat for porous, absorbent surfaces if required within 30 to 40 minutes from initial application
        2. If sealer residue appears, rewet area of surface with sealer. Agitate with white nylon scrubbing pad to loosen residue. Wipe dry with clean, absorbent towel.
        3. Full cure: 24 to 72 hours. Surface use may resume in 6 to 8 hours. Cover treated surface with red rosin paper until full cure has been achieved.
        4. Clean tools used during application with water.
        5. Recommended Surfaces: Natural stone; honed or textured marble, granite, limestone, travertine, sandstone, Saltillo tile, and bluestone.
    1. Exterior Adhered Veneers Installation:

\*\* NOTE TO SPECIFIER \*\* Exterior adhered veneer installation techniques can be performed in several ways depending upon finish type. Specifier to select one of following installation methods, based on finish types project specific requirements.

* + - 1. Pre-float Method: Over clean, stable sound concrete and masonry. Apply float surface of latex-portland cement thick-bed mortar as scratch leveling coat per Masonry Veneer Manufacturer's Association (MVMA) "Installation Guide for Adhered Concrete Masonry Veneer" and manufacturer's instructions. Allow plumb and true surface to set firm. For thin brick, masonry veneer, and stone, follow "Exterior Adhered Veneers Method" for "Stacked Veneer" or "Pointed / Grouted" installations.
      2. Lath and Plaster Method: Install cleavage membrane/water resistive barrier complying with ASTM D226 (No. 15 Type 1), 2 separate layers of barrier complying with ICC-ES AC38, or combination of both using corrosion resistant fasteners per ASTM C1063 Sec. 7.10.2. Install metal lath complying with local building code and/or 2.5 lb. (1.1 kg) or 3.4 lb. (1.5 kg) diamond mesh lath (ASTM C847-10, ASTM C1780). Apply latex-portland cement mortar as scratch/leveling coat over lath per MVMA "Installation Guide for Adhered Concrete Masonry Veneer," manufacturer's instructions, and ASTM C1780. Allow plumb and true surface to set. For thin brick, masonry veneer, and stone, follow "Exterior Adhered Veneers Method" for "Stacked Veneer" or "Pointed / Grouted" installations.
      3. Exterior Adhered Veneers; Tile Council of North America / Marble Institute of America Methodology: Install latex portland cement mortar per ANSI A108.02 (3.11), A108.1B and ANSI A108.5. Use appropriate trowel notch size for proper bedding of tile, brick or stone. Work mortar into contact with substrate. Comb with notched side of trowel. Spread only as much mortar as can be covered while mortar surface is wet and tacky. Spread mortar onto back of large format tile/stone, rib/button/lug back tiles, pavers or sheet mounted ceramics/mosaics, in addition to troweling over substrate. Beat items into mortar with beating block or rubber mallet insuring full bedding and flatness. Allow to set firm. Clean excess mortar from tile or stone face and joints between pieces.
      4. Exterior Adhered Veneers; Pointed/Grouted - Masonry Veneer Manufacturer's Association Methodology: Moisten back of each veneer unit and top of scratch coat so surfaces appear damp but are free of standing water. Install masonry veneer adhesive mortar per MVMA "Installation Guide for Adhered Concrete Masonry Veneer" and manufacturer's instructions. Use appropriate installation tools ensuring proper bedding. Work masonry veneer adhesive mortar into good contact with the back of veneer unit making sure entire unit is buttered to a nominal 1/2 inch (12 mm) thickness. Do not cover just the perimeter. Work buttered units onto scratch coat by sliding back and forth or with slight rotating motion. Allow to set until firm. Clean excess latex portland cement mortar from masonry veneer or stone face and joints between pieces. Installing veneer from top down minimizes cleanup.
      5. Exterior Adhered Veneers (Stacked Veneer): Moisten back of veneer units and top of scratch coat. Surfaces to appear damp but free of standing water. Install masonry veneer adhesive mortar per MVMA "Installation Guide for Adhered Concrete Masonry Veneer" and/or instructions. Work mortar into good contact with the back of the veneer unit making sure entire unit is buttered to 1/2 inch (12 mm) thickness. Do not just cover the perimeter. Worked onto scratch coat sliding slightly back and forth or with slight rotating motion. Allow installation to set firm. Clean excess latex portland cement mortar from masonry veneer or stone face and joints between pieces. Appy from corners toward middle of wall, and from bottom toward top of wall.
      6. Grouting or Pointing; Pointing Mortar; for joints up to 1/2 inch (12 mm): Allow thin brick, masonry, and stone installations to cure a minimum 24 hours at 70 degrees F (21 degrees C). Verify grout joints are free of dirt, debris and tile spacers. Sponge or wipe dirt off veneer face and remove any water standing in joints. Surface temperature must be between 40 to 90 degrees F (4 to 32 degrees C). Use 2 quarts (1.9 L) of clean potable water for 25 lb (11.4 kg) of MVIS Premium Pointing Mortar. Place water in clean mixing container and add mortar slowly. Mix with slow speed mixer to smooth stiff consistency. Slake for 5 minutes. Installed using a grout bag. Fill joints to desired depth, ensuring mortar is forced into voids. Cure time will vary significantly with temperature and humidity. Allow to dry to "thumbprint" hardness. Trowel, rake and/or dry, soft bristled brush to finish.
      7. Waterproofing / Flashing: Designed and detailed by Architect. Flashings must always turn up against the area or material which is being protected in order to prevent water penetration. Provision must be made to divert any trapped water back to outside and away from face of building facade. Placing weep holes, tubes or absorbent wicks from 24 to 33 inch (610 to 838 mm) at base of flashing. Flashings must form a drip edge and extend a minimum of 3/8 inch (10 mm) beyond face of facade to prevent water from dripping down facade face. Check building codes for proper design, placement and implementation of flashing and weep systems. Copings must be flashed, at the joints between coping material (metal, stone, ceramic tile, pre-cast concrete), but preferably continuous along and beneath entire length of coping. Flashings which cannot be adhered or imbedded in wall construction are attached with reglets pre-cast into wall, or with mechanical attachments and sealed with sealants. Verify metals used in window frame and flashing to avoid galvanic corrosion.
      8. Weeps / Pressure Equalization Vents: Designed and detailed by Architect. Weeps: No less than 3/16 inch (5 mm) diameter. Spacing: 33 inches (838 mm) on-center max. Wick and Tube Weep Spacing: 16 inch (406 mm) on-center. Install weeps and vent tubes through movement joints, conforming to size, type and composition specified and per manufacturer's recommendations, on 24 inch (610 mm) on-center min. at locations indicated in shop drawings, plans and details. Ensure weeps and tubes are placed to reach waterproofing membrane and cavity they are designed to drain/vent. Keep clear of dirt, debris, sealant or other obstructions.
      9. Vapor Barrier: Install per type specified and per manufacturer's recommendations, on "warm in winter" side of wall cavity insulation. Complete within 2 weeks after building enclosure. Placement, composition and detail by project design professional.
      10. Expansion and Control Joints: As located in per specified width, depth, and drawings.
          1. Substrate joints must carry through, full width, to surface of tile, brick or stone.
          2. Install in tile, brick or stone work over construction/cold joints or control joints in substrates. Install where tile, brick or stone abut restraining surfaces; perimeter walls, curbs, columns, and changes in plane and corners.
          3. Joint Width: 1/8 inch (3 mm) to 1/2 inch (12 mm).
          4. Layout; field defined by joints: 1:1 length: width is optimum but must be 2:1 or less. Remove contaminants and foreign material from joint spaces/surfaces, Use LATASIL 9118 Primer for stainless steel, sandstone, metal, limestone, and other porous stones, PVC, fiber reinforced cement installations. Install appropriate backing material based on expansion joint design and as specified. Apply masking tape to face of tile, brick or stone veneer. Use caulking gun, or other applicator, to fill joints with sealant. Within 5 to 10 minutes of filling joint, ' tool' sealant surface to smooth finish. Remove masking tape immediately after tooling joint. Wipe excess sealant off surfaces immediately.

\*\* NOTE TO SPECIFIER \*\* Different finish types may require different sealers. Impervious ceramic, and porcelain tiles do not require sealing. However, some matte finish, and textured finish ceramic and porcelain tiles, may require a pre-grouting sealer, or grout release agent. For finishes other than natural stone, consult Technical Services at 888-786-6343 extension 2, or via email, at technicalservices@laticrete.com.

* + - 1. Sealer (Exterior Adhered Masonry Veneers): Read entire label and use as directed. Test small with 24-hour cure time to determine ease of application and results. Allow new grout to cure 72 hours prior to application. Surface to be clean and free of waxes and coatings. Apply to damp surfaces one hour after standing water is removed. Ensure area is well-ventilated until surface is dry.
         1. Surface temperature: 50 to 80 degrees F (10 to 27 degrees C).
         2. Mask off surfaces not intended to be treated.
         3. Liberally apply even coat of STONETECH Heavy Duty Exterior Sealer with paint pad, brush, roller or solvent-resistant, low-pressure sprayer. Do not thin.
         4. Allow to penetrate surface for 5 to 15 minutes; denser material may require more time. Distribute excess sealer over entire area to insure even penetration. Do not allow excess sealer to dry on the surface.
         5. Wipe surface dry with clean dry cloth. Remove excess sealer from surface.
         6. If 2nd coat is needed for absorbent surfaces. Apply 1 hour after first application.
         7. If residue appears, wipe surface with a towel dampened with sealer. Use a white nylon pad to loosen residue and follow with clean, white absorbent towel.
         8. Full cure: 24 to 72 hours. Surface use may resume in 4 to 6 hours.
         9. Clean up after job is complete.
      2. Adjusting: Correction of defective work for a period of 1 year following substantial completion. Defective work includes, tiles broken in normal abuse due to deficiencies in setting bed, loose tiles or grout, and other defects as a result of poor workmanship.
  1. FIELD QUALITY CONTROL
     1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.
  2. CLEANING AND PROTECTION
     1. Clean and products in accordance with the manufacturer's recommendations.
     2. Clean excess mortar/epoxy from veneer surfaces with water before they harden and as work progresses. Do not contaminate open grout/caulk joints while cleaning. Sponge and wash veneers diagonally across joints. Do not use acids for cleaning. Polish with clean dry cloth. Remove surplus materials and leave premises broom clean.
     3. Protect finished installation under provisions of section 01 50 00 - Temporary Facilities and Controls0. Schedule floor installations to begin after structural work, building enclosure, and overhead finishing work are completed.
     4. Keep traffic off tile floors until fully cured. Place 3/4 inch (19 mm) plywood or OSB over non-staining Kraft paper to protect floors after installation materials have cured.
     5. Due to slow rate of portland cement hydration and strength development at low temperatures, protect installations exposed to these conditions from traffic for longer than normal periods. Protection applies to substrate, installation of adhesives and joint grouts, post-installation (rain and temperature protection) until suitable cure, and also storage and handling of cladding material. Extend period of protection of tile work at lower temperatures, below 60 degrees F (15 degrees C), and at high relative humidity (great than 70 percent R.H.) due to retarded set times of mortar/adhesives. For every 18 degrees F (10 degrees C) below 70 degrees F (21 degrees C) cementitious and epoxy materials take twice as long to cure. Large format tiles and stones require longer curing periods in cooler temperatures. Keep traffic off finished work until cured. Include suitable protection in scope of work. Each component must reach a proper cure prior to installing subsequent installation product.
     6. Tent / shade and heat areas that will be subjected to freezing temperatures during installation and cure periods.
     7. Keep floors installed with epoxy adhesive closed to traffic for 24 hrs. at 70 degrees F (21 degrees C), and to heavy traffic for 48 hours at 70 degrees F (21 degrees C) unless instructed differently by manufacturer. Use kneeling boards, or equivalent, to walk/work on newly tiled floors.
     8. Cure tile work in swimming pools, fountains and other continuous immersion applications for 10 days for epoxy based grout and 14 days for latex portland cement based grout at 70 degrees F (21 degrees C) before flood testing or filling installation with water.
     9. Replace or restore work of other trades damaged or soiled by work under this section.
     10. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION