

PART 1 – GENERAL

1.1 SUMMARY

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

1.2 SECTION INCLUDES

NOTE TO SPECIFIER: Edit for applicable procedures & materials

- A. Large Format Porcelain Slabs
- B. Installation Products; adhesives, mortars, grouts and sealants
- C. Waterproofing membranes for porcelain tile work
- D. Anti-fracture membranes for porcelain tile work
- E. Sound control underlayments for porcelain tile work
- F. Thresholds, trim, cementitious backer units and other accessories specified herein.

1.3 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

1.4 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

1.5 ENVIRONMENTAL PERFORMANCE REQUIREMENTS

- A. Environmental Performance Criteria: The following criteria are required for products included in this section. Refer to Division 1 for additional requirements:
 - 1. Products manufactured regionally within a 500 mile radius of the Project site;
 - 2. Adhesive products must meet or exceed the VOC limits of South Coast Air Quality Management District Rule (SCAQMD) #1168 and Bay Area Air Quality Management District (BAAQMD) Reg. 8, Rule 51.

1.6 RELATED SECTIONS

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

- A. Section 03 30 00 Cast-in-Place Concrete
- B. Section 03 39 00 Concrete Curing
- C. Section 03 41 00 Precast Structural Concrete
- D. Section 03 53 00 Concrete Topping
- E. Section 04 20 00 Unit Masonry (CMU wall substrates)
- F. Section 04 43 00 Stone Masonry
- G. Section 06 10 00 Rough Carpentry (plywood sub-floors)
- H. Section 07 13 00 Sheet Waterproofing
- I. Section 07 14 00 Fluid Applied Waterproofing
- J. Section 07 50 00 Membrane Roofing
- K. Section 07 92 00 Joint Sealants
- L. Section 09 28 00 Backing Boards and Underlayments
- M. Section 09 29 00 Gypsum Board
- N. Section 09 30 00 Tiling
- O. Section 10 28 00 Toilet, Bath, and Laundry Accessories

1.7 ALLOWANCES

NOTE TO SPECIFIER: Edit for detail of applicable ALLOWANCES; coordinate with Section 012100 Allowances. Allowances in the form of unit pricing are sometimes used when the scope of the tile work at time of bid is undetermined.

1.8 ALTERNATES

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

1.9 REFERENCE STANDARDS

NOTE TO SPECIFIER: edit for applicable reference standards

- A. American Iron and Steel Institute (AISI) Specification for the Design of Cold-Formed Steel Structural Members
- B. American National Standards Institute (ANSI) A137.1 American National Standard Specifications For Ceramic Tile
- C. American National Standards Institute (ANSI) A108.01 - A108.17 American National Standard Specifications For The Installation Of Ceramic Tile
- D. American National Standards Institute (ANSI) A118.1 - A118.15 American National Standard Specifications For The Installation Of Ceramic Tile
- E. American Plywood Association (APA) Y510T Plywood Design Specifications
- F. American Society For Testing And Materials (ASTM) C36 Standard Specification for Gypsum Wallboard
- G. American Society For Testing And Materials (ASTM) C627 Standard Test Method for Evaluating Ceramic Floor Tile Installation Systems Using the Robinson-Type Floor Tester
- H. American Society For Testing And Materials (ASTM) C794 Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants
- I. American Society For Testing And Materials (ASTM) C847 Standard Specification for Metal Lath
- J. American Society For Testing And Materials (ASTM) C920 Standard Specification for Elastomeric Joint Sealants
- K. American Society For Testing And Materials (ASTM) C955 Standard Specification for Load Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Board and Metal Plaster Bases
- L. American Society For Testing And Materials (ASTM) D1248 Standard Test Method for Staining of Porous Substances by Joint Sealants
- M. American Society For Testing And Materials (ASTM) D4263 Standard Test Method for Indicating Moisture in Concrete by The Plastic Sheet Method
- N. American Society For Testing And Materials (ASTM) E492 Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine
- O. American Society For Testing And Materials (ASTM) E989 Standard Classification for Determination of Impact Insulation Class (IIC)
- P. American Society of Mechanical Engineers (ASME) - ASME A112.6.3 Floor and Trench Drains
- Q. Canadian Sheet Steel Building Institute (CSSBI) Lightweight Steel Framing Binder (Publication 52M)
- R. Federal Housing Administration (FHA) Bulletin No. 750 Impact Noise Control in Multifamily Dwellings
- S. Housing and Urban Development (HUD) TS 28 A Guide to Airborne, Impact and Structure-borne Noise-Control in Multifamily Dwellings
- T. International Organization for Standardization (ISO) 13007 Standards for Grouts and Adhesives
- U. Materials And Methods Standards Association (MMSA) Bulletins 1-16
- V. Metal Lath/Steel Framing Association (ML/SFA) 540 Lightweight Steel Framing Systems Manual
- W. Steel Stud Manufacturers Association (SSMA) Product Technical Information and ICBO Evaluation Service, Inc. Report ER-4943P
- X. Terrazzo, Tile And Marble Association Of Canada (TTMAC) Specification Guide 09300 Tile Installation Manual
- Y. Tile Council Of North America (TCNA) Handbook For Ceramic, Glass, and Stone Tile Installation

1.10 SYSTEM DESCRIPTION

NOTES TO SPECIFIER:

- **The systems below are examples; edit based on project specific conditions.**
- **LATICRETE warranties and system recommendations do not supersede building code requirements. Building code waivers may need to be obtained for large format “adhered veneer” exterior façade installations where panel sizes:**

1. Exceed 24 inches (600 mm) in any face dimension
 2. Exceed 3 square feet (0.27 square meters) in total facial area, or
 3. Are less than .25 inches (6 mm) thick
- Consult with local building code / building code officials as required.
- A. NEOLITH large format porcelain panels installed over concrete floor slabs using latex / polymer fortified Portland cement thin-set mortar and epoxy grouted joints.
 - B. NEOLITH large format porcelain panels installed on exterior masonry façade walls using latex / polymer fortified Portland cement thin-set mortar and latex / polymer fortified Portland cement grout joints.
 - C. NEOLITH large format porcelain panels installed on interior walls over cementitious backer board on steel / wood framing members using latex / polymer fortified Portland cement thin-set mortar and epoxy grouted joints.

1.11 SUBMITTALS

NOTE TO SPECIFIER: Edit for applicable requirements

- A. Submittal Requirements: Submit the following "Required LEED Criteria" certification items as listed below. Refer to Division 1 for additional requirements:
 1. A completed LEED Environmental Building Materials Certification Form. Information to be supplied generally includes:
 - a. Manufacturing plant locations for tile installation products.
 - b. LEED Credits as listed in Part 1.4B "LEED Credit Submittals"
 - c. Recycled content; pre-consumer or post-consumer; or;
Project specific information gathered using the LATICRETE LEED Project Certification Assistant available at www.laticrete.com/green.
 2. UL GREENGUARD Certification Program For Chemical Emissions For Building Materials, Finishes And Furnishings, UL 2818 or UL GREENGUARD Gold certificates provided by the tile installation materials manufacturer on UL GREENGUARD letterhead stating "This product has been UL GREENGUARD Gold Product Certified For Low Chemical Emissions by the UL Environment under the UL GREENGUARD Certification Program For Chemical Emissions For Building Materials, Finishes And Furnishings" for each tile installation product used to verify Low VOC product information.
 3. Contractor's certification of LEED Compliance: Submit Contractor's certification verifying the installation of specified LEED Compliant products.
 4. Product Cut Sheets for all materials that meet the LEED performance criteria. Submit Product Cut Sheets with Contractor or Sub-contractor's stamp, as confirmation that submitted products were installed on Project.
 5. Material Safety Data Sheets for all applicable products.
- B. LEED Credit Submittals for the following:
 1. LEED Reference Guide for Green Building Design and Construction, 2009 Edition EQ Credit 4.1: Manufacturer's product data for tile installation materials, including UL GREENGUARD Gold Certificate on UL GREENGUARD letterhead stating product VOC content.
 2. LEED Reference Guide for Green Building Design and Construction, 2009 Edition EQ Credit 4.2: Manufacturer's product data for tile installation materials, including UL GREENGUARD Gold Certificate on UL GREENGUARD letterhead stating product VOC content.
 3. LEED Reference Guide for Green Building Design and Construction, 2009 Edition EQ Credit 4.3: Manufacturer's product data for tile installation materials, including UL GREENGUARD Gold Certificate on UL GREENGUARD letterhead stating product VOC content.
 4. LEED Reference Guide for Green Building Design and Construction, 2009 Edition MR Credit 2: (Divert 50% from Disposal) Manufacturer's packaging showing recycle symbol for appropriate disposition in construction waste management.
 5. LEED Reference Guide for Green Building Design and Construction, 2009 Edition Credit MR 4: Manufacturer's product data showing post-consumer and/or pre-consumer recycled content.
 6. LEED Reference Guide for Green Building Design and Construction, 2009 Edition Credit MR 5: (Extracted, Processed & Manufactured Regionally): Product data indicating location of material manufacturer for regionally manufactured materials.

7. LEED Schools Reference Guide (Educational Projects Only), 2007 Edition Credit EQ 9 (Enhanced Acoustical Performance): Impact noise reduction test reports and product data on sound control product(s).
8. LEED Schools Reference Guide (Educational Projects Only), 2007 Edition Credit EQ 10 (Mold Prevention): Manufacturer's packaging and/or data showing anti-microbial protection in product(s).
- C. Submit shop drawings and manufacturers' product data under provisions of Section (01 30 00) (01 34 00)
- D. Submit samples of each type/style/finish/size/color of porcelain tile, trim unit, or threshold under provisions of Section (01 30 00) (01 34 00)
- E. Submit manufacturers' installation instructions under provisions of Section (01 30 00) (01 34 00)
- F. Submit manufacturer's certification under provisions of Section (01 45 00) that the materials supplied conform to ANSI A137.1 for ceramic tile.
- G. Submit proof of warranty.
- H. Submit sample of installation system demonstrating compatibility/functional relationships between adhesives, mortars, grouts and other components under provision of Section (01 30 00) (01 34 00). Submit proof from tile or stone manufacturer or supplier verifying suitability of tile or stone for specific application and use; including dimensional stability, water absorption, freeze/thaw resistance (if applicable), resistance to thermal cycling, and other characteristics that the may project may require. These characteristics must be reviewed and approved by the project design professional(s).
- I. Submit list from manufacturer of installation system/adhesive/mortar/grout identifying a minimum of three (3) similar projects, each with a minimum of ten (10) years service.
- J. For alternate materials, at least thirty (30) days before bid date submit independent laboratory test results confirming compliance with specifications listed in Part 2 - Products.

1.12 QUALITY ASSURANCE

NOTES TO SPECIFIER:

1. 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.
2. 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).
3. Various programs administered by associations, non-profit educational organizations, unions, and private companies serve the tile industry by providing education, hands-on training, and evaluation of the skills and competency of installers and contractors. It is important to distinguish between the many programs available:
 - Hands-on training
 - Evaluation/certification of installation skills
 - On-line training
 - On-line knowledge evaluation (without a hands-on component)

As with all programs, the rigor and credibility of the program must also be considered.

The following non-profit programs are well-established and recognized by the Tile Council of North America's (TCNA) Handbook Committee (listed alphabetically):

Ceramic Tile Education Foundation (CTEF) Certified Tile Installer Program: CTEF tests hands-on installation skills and knowledge. Installers must achieve the minimum required score on both tests to earn the "CTEF Certified Installer" designation. Contractors that employ CTEF Certified Installers are listed in the CTEF Contractor Directory, found in this *Handbook* and on the CTEF website. See www.tilecareer.org for more information.

International Masonry Institute (IMI) Contractor College Program: IMI conducts professional and technical courses for union masonry and tile contractors, which lead to certification in installation and project supervision. See www.imiweb.org for more information.

Journeyman Tile Layer Apprenticeship Programs: Installers recognized by the U.S. Department of Labor (DOL) as Journeyman Tile Layers are required to fulfill and document several years of training and on-the-job experience as apprentices to become Journeymen. The majority of these setters earn their Journeyman status through union-affiliated training programs, although some non-union tile contractors administer their own DOL-recognized apprenticeship programs and employ journeyman tile layers. Contractors that employ union Journeyman Tile Setters can be found through the union locals that list their signatory contractors, primarily the Bricklayer and Allied Craftworkers (BAC) and the United Brotherhood of Carpenters (UBC). See www.bacweb.org and www.carpenters.org for more information.

National Tile Contractors Association (NTCA) Five Star Contractor Program: NTCA is a tile contractors association, with membership open to all tile contractors. Their Five Star program is a peer review program to recognize NTCA members who have demonstrated a track record of providing successful installations. Earning the Five Star designation requires recommendations from customers, suppliers, and peers as well as participation in continuing education, training, and safety programs. See www.tile-assn.com for more information.

Tile Contractors' Association of America (TCAA) Trowel of Excellence Program: TCAA is a contractors association for BAC signatory contractors. Its Trowel of Excellence program is a peer review program to recognize TCAA members who have demonstrated a track record of providing successful installations. Earning the Trowel of Excellence designation requires letters of reference, submittal of a detailed project description and photos, employee participation in educational programming, and proof of financial responsibility. See www.tcaainc.org for more information.

- A. Tile Manufacturer (single source responsibility): Company specializing in porcelain tile 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.
- B. 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.
- C. Submit laboratory confirmation of adhesives, mortars, grouts and other installation materials:
 1. Identify proper usage of specified materials using positive analytical method.
 2. Identify compatibility of specified materials using positive analytical method.
 3. Identify proper color matching of specified materials using a positive analytical method.
- D. Installer qualifications: company specializing in installation of porcelain tile, trim units and thresholds with five (5) years documented experience with installations of similar scope, materials and design.

1.13 MOCK-UPS

- A. Provide mock-up of each type/style/finish/size/color of porcelain tile, along with respective installation adhesives, mortars, grouts and other installation materials, under provisions of Section(s) (01 43 00) (01 43 39).

1.14 PRE-INSTALLATION CONFERENCE

Pre-installation conference: At least three weeks prior to commencing the work attend a meeting at the jobsite to discuss conformance with requirements of specification and job site conditions. Representatives of owner, architect, general contractor, tile subcontractor, Tile Manufacturer, Installation System Manufacturer and any other parties who are involved in the scope of this installation must attend the meeting.

1.15 DELIVERY, STORAGE AND HANDLING

- A. Acceptance at Site: deliver and store packaged materials in original containers with seals unbroken and labels, including grade seal, intact until time of use, in accordance with manufacturer's instructions.
- B. Store porcelain tile and installation system materials in a dry location; handle in a manner to prevent chipping, breakage, and contamination.

- C. NEOLITH large format porcelain panels can be stored both upright and horizontal. If panels are placed on top of each other, ensure that each panel is clean and that the surface that the panels are resting on is flat. If panels are stored in their vertical position, rest them on their long side. This side must be protected by wood, cardboard, polystyrene or rubber cement.
- D. To correctly lift and handle NEOLITH large format panels using a forklift, position the forks at a distance of at least one meter (3.3 ft) from each other, perpendicular to the long side of the pallet and at the center of the pallet.
- E. 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.
- F. Store Portland cement mortars and grouts in a dry location.

1.16 PROJECT/SITE CONDITIONS

- A. Provide ventilation and protection of environment as recommended by manufacturer.
- B. Prevent carbon dioxide damage to porcelain tiles, adhesives, mortars, grouts and other installation materials, by venting temporary heaters to the exterior.
- C. Maintain ambient temperatures not less than 50°F (10°C) or more than 100°F (38°C) during installation and for a minimum of seven (7) days after completion. Setting of Portland cement is retarded by low temperatures. Protect work for extended period of time and from damage by other trades. Installation with latex Portland cement mortars requires substrate, ambient and material temperatures at least 37°F (3°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 & cold) and drafts until cured to prevent premature evaporation of moisture. Epoxy mortars and grouts require surface temperatures between 60°F (16°C) and 90°F (32°C) at time of installation. It is the General Contractor's responsibility to maintain temperature control.

1.17 SEQUENCING AND SCHEDULING

NOTES TO SPECIFIER: [Edit for project specific sequence and scheduling](#)

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

1.18 WARRANTY

NOTE TO SPECIFIER: [Select one of the following system warranties.](#)

The Contractor warrants the work of this Section to be in accordance with the Contract Documents and free from faults and defects in materials and workmanship for a period of 25 years. The manufacturer of adhesives, mortars, grouts and other installation materials shall provide a written twenty five (25) year warranty, which covers materials and labor - reference LATICRETE Warranty Data Sheet 025.0APD for complete details and requirements.

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 - reference LATICRETE Warranty Data Sheet 230.15 APD for complete details and requirements.

1.19 MAINTENANCE

Submit maintenance data under provisions of Section(s) (01 74 13) (01 74 16) (01 74 23). Include cleaning methods, cleaning solutions recommended, stain removal methods, as well as polishes and waxes recommended.

1.20 EXTRA MATERIALS STOCK

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

PART 2 - PRODUCTS

2.1 TILE MANUFACTURERS

- A. The size: www.thesize.es as supplied by Fox Marble; 1315 Armstrong Ave., San Francisco, CA 94124; www.fox-marble.com

2.2 WALL TILE MATERIALS

NOTE TO SPECIFIER: edit for each tile type

- A. Porcelain Tile: **NEOLITH 6mm or 6+ (meshed) Porcelain Surfaces**
B. Grade:
C. Size:
D. Edge:
E. Finish:
F. Color:
G. Special shapes:
H. Location:

2.3 FLOOR TILE MATERIALS

NOTE TO SPECIFIER: edit for each tile type

- A. Porcelain Tile: **NEOLITH 6mm or 6+ (meshed) Porcelain Surfaces**
B. Grade:
C. Size:
D. Edge:
E. Finish:
F. Color:
G. Special shapes:
H. Location:

2.4 TILE INSTALLATION MATERIALS MANUFACTURER

- A. LATICRETE International, Inc., 1 Laticrete Park North, Bethany, CT 06524-3423 USA Phone 800-243-4788, (203) 393-0010 technicalservices@laticrete.com, www.laticrete.com; www.laticrete.com/green

2.5 TILE INSTALLATION ACCESSORIES

NOTE TO SPECIFIER: Edit applicable tile installation accessories.

- A. Waterproofing / Crack Isolation Membrane to be thin, cold applied, single component liquid and load bearing. 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 and shall also meet the following physical requirements:
- | | |
|--|---------------------------|
| 1. Hydrostatic Test (ASTM D4068): | Pass |
| 2. Elongation @ break (ASTM D751): | 20-30% |
| 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 (TCA/ASTM C627): | Extra Heavy |
| 8. Total VOC Content: | < 0.05 mg/m ³ |

(Basis of Design: LATICRETE® HYDROBAN®)

- B. Epoxy Waterproofing Membrane to be 3 component epoxy, trowel applied specifically designed to be used under porcelain 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 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: | <3.4 g/L |

(Basis of Design: LATAPOXY® Waterproof Flashing Mortar)

- C. Wire Reinforcing:
1. 2 inch x 2 inch (50 x 50 mm) x 16 ASW gauge or 0.0625 inch (1.6mm) diameter galvanized steel welded wire mesh complying with ANSI A108.02 3.7, ASTM A185 and ASTM A82.
 2. 3.4 lb. per square yard (1.53 kg per square meter) welded, galvanized diamond wire complying with ASTM C847 for interior work.
- D. Cleavage membrane: 15 pound asphalt saturated, non-perforated roofing felt complying with ASTM D226, 15 pound coal tar saturated, non-perforated roofing felt complying with ASTM D227 or 4.0 mils (0.1 mm) thick polyethylene plastic film complying with ASTM D4397.
- E. Cementitious backer board units: size and thickness as specified, complying with ANSI A118.9.
- F. Thresholds: Provide marble saddles complying with ASTM C241 for abrasion resistance and ASTM C503 for exterior use, in color, size, shape and thickness as indicated on drawings.

2.6 TILE INSTALLATION MATERIALS

NOTE TO SPECIFIER: Edit applicable installation materials.

- A. Moisture Vapor Reduction to be epoxy based and UL GREENGUARD Gold compliant as well as meet the following physical requirements:
- | | |
|---|---|
| 1. Shear Bond to Concrete (ANSI A118.12-5.1.5): | >285 psi (2.0 MPa) |
| 2. Alkalinity Resistance (ASTM C267): | Pass |
| 3. Permeability (ASTM F1869): | 9.7 lbs/1,000ft ² /24 hours down to 0.2 lbs/1,000 ft ² /24hours (248 µg/s•m ² down to 11 µg/s•m ²) |
| 4. Total VOC Content: | ≤0.22 mg/m ³ |

(Basis of Design: LATICRETE® NXT™ Vapor Reduction Coating^{††})

- B. Latex Portland Cement Mortar for thick beds, screeds, leveling beds and scratch/plaster coats to be weather, frost, shock resistant, GreenGuard compliant, and meet the following physical requirements:
- | | |
|--|--------------------------|
| 1. Compressive Strength (ANSI A118.4 Modified): | >4000 psi (27.6 MPa) |
| 2. Water Absorption (ANSI A118.6): | ≤ 5% |
| 3. Service Rating (TCA/ASTM C627): | Extra Heavy |
| 4. Smoke & Flame Contribution (ASTM E84 Modified): | 0 |
| 5. Total VOC Content: | < 0.05 mg/m ³ |

(Basis of Design: LATICRETE® 3701 Fortified Mortar Bed)

- C. Self-Leveling Underlayment shall be 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 in. (3 to 32mm) thick in one pour.
- | | |
|---|--------------------------|
| 1. 28 Day Compressive Strength (ASTM C1708.): | >4000 psi (27.6 MPa) |
| 2. Tensile Bond Strength (ASTM C1583): | >500 psi (3.5 MPa) |
| 3. Time To Foot Traffic: | 1 – 4 Hours |
| 4. Total VOC Content: | < 0.05 mg/m ³ |

(Basis of Design: LATICRETE NXT LEVEL PLUS™)

- D. Sound Abatement & Crack Isolation Mat shall be load bearing, shock and vibration resistant. It shall be certified by independent laboratory testing to meet the specified acoustical performance when installed in a Floor Assembly with a 6" (150mm) concrete slab, as well as meet the following physical requirements:

1. Service Rating (ASTM C627):	Light
2. Point Load (ANSI A118.12 5.2):	>1,250 psi (8.6 MPa)
3. Installed Weight (ASTM C905 Modified):	2.6 lbs./ft ² (12.8 kg/m ²)
4. Delta Impact Insulation Class (ΔIIC; ASTM E2179):	20

(Basis of Design: LATICRETE® 170 Sound & Crack Isolation Mat)

- E. Epoxy Adhesive to be chemical resistant 100% solids epoxy with high temperature resistance, GreenGuard compliant, conform to ISO R2, and meet the following minimum physical requirements:

1. Compressive strength (ANSI A118.3):	>5000 psi (34.4 MPa)
2. Shear Bond Strength (ANSI A118.3):	>1250 psi (8.6 MPa)
3. Thermal Shock Resistance (ANSI A118.3):	>600 psi (4.1 MPa)
4. Tensile Strength (ANSI A118.3):	>1400 psi (9.6 MPa)
5. Shrinkage (ANSI A118.3):	0 – 0.1%
6. Total VOC Content:	< 0.05 mg/m ³
7. Cured Epoxy Adhesive to be chemically and stain resistant to ketchup, mustard, tea, coffee, milk, soda, beer, wine, bleach (5% 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.	

(Basis of Design: LATAPOXY® 300 Adhesive)

- F. Latex Portland Cement Thin Bed Mortar for thin set and slurry bond coats to be weather, frost, shock resistant, non-flammable, GreenGuard compliant, conform to ISO C2TES₁, and meet the following physical requirements:

1. Compressive strength (ANSI A118.4):	>2500 psi (17.2 MPa)
2. Bond strength (ANSI A118.4):	>450 psi (3.1 MPa)
3. Smoke & Flame Contribution (ASTM E84 Modified):	0
4. Total VOC Content:	< 0.05 mg/m ³

(Basis of Design: LATICRETE® 254 Platinum)

- G. Epoxy Grout (Commercial/Residential) shall be non-toxic, non-flammable, non-hazardous during storage, mixing, application and when cured and shall meet the following physical requirements:

1. Compressive Strength (ANSI A118.3):	3800 psi (26.2 MPa)
2. Shear Bond Strength (ANSI A118.3):	1100 psi (7.6 MPa)
3. Tensile Strength (ANSI A118.3):	1100 psi (7.6 MPa)
4. Thermal Shock (ANSI A118.3):	>800 psi (5.5 MPa)
5. Water Absorption (ANSI A118.3):	< 0.05%
6. Vertical Joint Sag (ANSI A118.3):	Pass
7. Total VOC Content:	< 0.05 mg/m ³
8. Cured Epoxy Grout to be chemically and stain resistant to ketchup, mustard, tea, coffee, milk, soda, beer, wine, bleach (5% solution), ammonia, juices, vegetable oil, brine, sugar, cosmetics, and blood, as well as chemically resistant to dilute acids and dilute alkalis.	

(Basis of Design: LATICRETE® SPECTRALOCK® PRO Premium Grout)

- H. Latex Portland Cement Grout to be weather, frost and shock resistant, GreenGuard compliant, as well as meet the following physical requirements:

1. Compressive Strength (ANSI A118.7):	4000 psi (27.58 MPa)
--	----------------------

- | | |
|--|--------------------------|
| 2. Tensile Strength (ANSI A118.7): | >500 psi (3.45 MPa) |
| 3. Flexural Strength (ANSI A118.7): | >1250 psi (8.6 MPa) |
| 4. Water Absorption (ANSI A118.7): | 5% |
| 5. Linear Shrinkage (ANSI A118.7): | < 0.05 % |
| 6. Smoke & Flame Contribution (ASTM E84 Modified): | 0 |
| 7. Total VOC Content: | < 0.05 mg/m ³ |

(Basis of Design: LATICRETE® PERMACOLOR® Grout)

- I. Expansion and Control Joint Sealant to be a one component, neutral cure, exterior grade silicone sealant and meet the following requirements:
- | | |
|---|--|
| 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) |

(Basis of Design: LATICRETE® LATASIL™)

PART 3 – EXECUTION

3.1 SUBSTRATE EXAMINATION

NOTES TO SPECIFIER: Edit based on project specific conditions / requirements. Steam unit design must take into consideration the effect of moisture vapor transmission (MVT) on opposite side of steam unit walls. MVT can cause efflorescence and can affect paints and other adhered finishes.

- A. Verify that surfaces to be covered with large format porcelain panels and waterproofing / crack isolation are:
1. Sound, rigid and conform to good design/engineering practices;
 2. Systems, including the framing system and panels, over which large format porcelain panels will be installed shall be in conformance with the International Residential Code (IRC) for residential applications, the International Building Code (IBC) for commercial applications, or applicable building codes. The project design should include the intended use and necessary allowances for the expected live load, concentrated load, impact load, and dead load including the weight of the finish and installation materials. In addition to deflection considerations, above-ground installations are inherently more susceptible to vibration. Consult grout, mortar, and membrane manufacturer to determine appropriate installation materials for above-ground installations. A crack isolation and higher quality setting materials can increase the performance capabilities of above-ground applications. However, the upgraded materials cannot mitigate structural deficiencies including floors not meeting code requirements and/or over loading or other abuse of the installation in excess of design parameters;
 3. The actual weight of materials and construction assemblies, including concentrated dead loads of fixed service and other equipment, shall be utilized as prescribed by state and local building codes to estimate dead loads for the purpose of structural design;
 4. Lateral and other bracing must be constructed as prescribed by code and/or engineered wood manufacturers' literature to achieve specified design deflection values;
 5. Clean and free of dust, dirt, oil, grease, sealers, curing compounds, laitance, efflorescence, form oil, loose plaster, paint, and scale;
 6. For thin-bed installations, maximum allowable variation is 1/8" in 10' (3mm in 3m) from the required plane, with no more than 1/16" variation in 24" (1.5mm variation in 600mm) when measured from the high points in the surface. For modular substrate units, such as exterior glue plywood panels or adjacent concrete masonry units, adjacent edges cannot exceed 1/32" (0.8mm) difference in height.
 7. To fully evacuate water, shower pan membranes and bonded waterproofing membranes in wet areas must slope to and connect with a drain. Plumbing code typically requires membranes to be sloped a minimum of 1/4" per ft. (6mm per 300mm) and extend at least 3" (75mm) above the height of the curb or threshold. Account for the perimeter floor height required to form adequate slopes. Membranes must be installed over the other horizontal surfaces in wet areas subject to deterioration, like shower seats. They

must be sloped and configured so as to direct water to the membrane connected to the drain. The weep holes of clamping ring drains enable water to pass from the membrane into the plumbing system. Crushed stone or tile, or other positive weep protectors, placed around/over weep holes help prevent their blockage. To form a watertight seal, membranes must have adequate contact with the clamping ring of the drain or with the bonding area of an integrated bonding flange.

8. Not leveled with gypsum or asphalt based compounds; 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 ft² / 24 hours (283 µg/s·m²) per ASTM F1869 or 75% relative humidity as measured with moisture probes per ASTM F2179. Consult with the tile manufacturer to determine if there are any other potential limitations on maximum allowable moisture content for substrates under their tiles. 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.
 9. Dry as per American Society for Testing and Materials (ASTM) D4263 “**Standard Test for Determining Moisture in Concrete by the Plastic Sheet Method.**”
 10. Steam rooms are highly specialized applications. Design and installation are critical to avoid damage to adjoining materials from vapor migration. Design criteria must include consideration of necessary insulation and temperature/humidity differential.
- B. Concrete surfaces shall also be:
1. Cured a minimum of 28 days at 70°F (21°C), including an initial seven (7) day period of wet curing;
 2. Wood float finished, or better, if the installation is to be done by the thin bed method;
- C. Advise General Contractor and Architect of any surface or substrate conditions requiring correction before tile work commences. ***Beginning of work constitutes acceptance of substrate or surface conditions.***

3.2 SURFACE PREPARATION

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

- A. CEMENTITIOUS BACKER UNIT (CBU) OVER STEEL FRAMING
1. All designs, specifications and construction practices shall be in accordance with industry standards. Refer to latest editions of:
American Iron and Steel Institute (AISI) “**Specification for the Design of Cold-Formed Steel Structural Members**” [www.steel.org];
Canadian Sheet Steel Building Institute (CSSBI) “**Lightweight Steel Framing Binder {Publication 52M}**” [www.cssbi.ca];
Steel Stud Manufacturers Association (SSMA) “**Product Technical Information**” and “**ICBO Evaluation Service, Inc. Report ER-4943P**” [www.ssma.com];
Metal Lath/Steel Framing Association “**Steel Framing Systems Manual.**”
 2. Prior to commencing work, installer must submit to Architect/Structural Engineer for approval, shop drawings showing wall/façade construction and attachment details. All attachments must be designed to prevent transfer of building or structural movement to the wall/façade.
 3. Construct all framing with galvanized or other rust resistant steel studs and channels; minimum requirements:
Stud Gauge: 16 gauge (1.5mm);
Stud Steel: conforming to ASTM A570 – latest edition with a minimum yield point of 50 ksi;
Stud Spacing: not to exceed 16” (400mm) on center;
Stud Width: 6” (150mm);
Horizontal Bridging: Not to exceed 4’ (1.2m) on center; 16 gauge CR channel typical ***or as specified by structural engineer.***
 4. Studs shall be seated squarely in the channel tracks with the stud web and flange abutting the track web, plumbed or aligned, and securely attached to the flanges or web of both the upper and lower tracks by welding. Similarly connect horizontal bridging/purlins and anti-racking diagonal bracing ***as determined by structural engineer.*** Grind welds smooth and paint with rust inhibiting paint. Finished frame and components must be properly aligned, square and true.
 5. Provide adequate support of framing elements during erection to prevent racking, twisting or bowing. Lay out the CBU/Fiber Cement Underlayment installation so all board edges are supported by metal framing (studs vertically and purlins horizontally). Cut/fit the CBU and add additional framing elements as required to support board edges. Stagger boards in courses to prevent continuous vertical joints and allow 1/8-3/16” (3 - 5mm) between sheets.

6. Fasten the CBU/Fiber Cement Underlayment with 7/8" (22mm) minimum length, non-rusting, self-embedding screws for metal studs (BUILDEX® Catalog item 10-24 17/16 Wafer T3Z or equivalent). Fasten the boards every 6" (150mm) at the edges and every 8" (200mm) in the field. Stagger placement of screws at seams. Place screws no less than 3/8" (9mm), and no more than 1" (25mm), from board edges.
7. Tape all the board joints with the alkali resistant 2" (50mm) wide reinforcing mesh provided by the CBU/Fiber Cement Underlayment manufacturer imbedded in the same mortar used to install the ceramic tile, mosaic, pavers, brick or stone.
8. Compliance with design criteria and state and local building codes must approved and certified by a qualified structural engineer. Use more stringent design criteria when necessary to comply with state and local building code stiffness requirements for thin veneers.

B. REQUIREMENTS:

Steam Rooms require a waterproofing membrane on all surfaces to prevent moisture from penetrating adjoining spaces. Additionally, a vapor barrier (6 mil thick polyethylene sheeting or #15 Builders Felt) must be installed over the steel framing and behind the cement backer board. Vapor barrier shall be designed for relative temperature exposure. Install vapor barrier so that it laps over the shower pan waterproofing membrane so that condensation can drain into the shower pan (not behind it) - see LATICRETE detail SR-614B. All steam rooms will require adequate insulation on walls and ceilings to reduce moisture condensation at temperature variations. Slope ceilings 2" per foot (50mm per 300mm) minimum to avoid condensation from dripping onto occupants. Install open slip joints in all corners between walls and ceiling and to divide areas that exceed 16' (480cm) in length.

Structure to receive the installation assembly must be sound, solid, well bonded, stripped clean and free from dust, wax, grease, sealer and all other contamination which may reduce or prevent adhesion per ANSI A108.02 (4.0).

- C. Bonded Thick Bed - Pitch Layer Over Floor Substrate** - To provide pitch over a concrete deck, use LATICRETE 3701 Fortified Mortar Bed applied over a slurry bond coat consisting of LATICRETE 254 Platinum). Reference section 3.4 "**Bonded Thick Bed Mortar (Floor)**". Apply mortar over dampened substrate. Pitch layer 1/4" per 1' (6mm per 300mm) per ANSI A108.1A (2.3.4).

3.3 INSTALLATION ACCESSORIES

A. Waterproofing and Crack Isolation:

NOTES TO SPECIFIER:

1. **Adhesives/mastics, mortars and grouts for porcelain tiles are not replacements for waterproofing membranes and will not prevent water penetration into occupied or storage spaces below. Drains must be two-part clamping ring style drains with weepers and as per ASME A112.6.3. Place tile spacers or gravel around weep holes to prevent mortar from clogging the weep holes.**
2. **For steam room installations, Waterproofing Membrane must be installed over pre-sloped floor substrate, on walls and ceilings. Membrane must be used on all areas in the steam room. Loop membrane into all slip joints to allow for movement in these areas.**
3. **Porcelain tiles installed by the thin bed method can be damaged by shrinkage related substrate cracking. Specify Crack Isolation Membrane to reduce crack propagation into tilework. Do not use crack isolation membranes if substrate cracking:**
 - a. **is due to structural movement;**
 - b. **involves vertical and/or differential movement;**
 - c. **involves horizontal movement >1/8" (3mm).**

Install waterproofing and crack isolation membrane in compliance with current revisions of ANSI A108.1 (2.7 Waterproofing, ANSI A108.13, and A108.17 (1.0 – 3.0). Review the installation and plan the application sequence. Pre-cut LATICRETE® Waterproofing/Anti-Fracture Fabric (if required), allowing 2" (50mm) for overlap at ends and sides to fit the areas as required. Roll up the pieces for easy handling and placement. Shake or stir LATICRETE HYDRO BAN® before using.

Pre-Treat Cracks and Joints - Fill all substrate cracks, cold joints and control joints to a smooth finish using a LATICRETE latex-fortified thin-set. Alternatively, a liberal coat* of LATICRETE 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 LATICRETE HYDRO BAN approximately 8" (200mm) wide over substrate cracks, cold joints, and control joints using a paint brush or heavy napped paint roller.

Pre-Treat Coves and Floor/Wall Intersections - Fill all substrate coves and floor/wall transitions to a smooth finish and changes in plane using a LATICRETE latex-fortified thin-set. Alternatively, a liberal coat* of LATICRETE HYDRO BAN applied with a paint brush or trowel may be used to fill in cove joints and floor/wall transitions <1/8" (3mm) in width. Apply a liberal coat* of LATICRETE HYDRO BAN approximately 8" (200mm) wide over substrate cracks, cold joints, and control joints using a paint brush or heavy napped paint roller.

Pre-Treat Drains - Drains must be of the clamping ring type, with weepers as per ASME A112.6.3. Apply a liberal coat* of LATICRETE HYDRO BAN around and over the bottom half of drain clamping ring. Cover with a second liberal coat of LATICRETE HYDRO BAN. When the LATICRETE HYDRO BAN dries, apply a bead of LATICRETE LATASIL™ where the LATICRETE HYDRO BAN meets the drain throat. Install the top half of drain clamping ring.

Pre-Treat Penetrations - Allow for a minimum 1/8" (3mm) space between drains, pipes, lights, or other penetrations and surrounding porcelain tiles. Pack any gaps around pipes, lights or other penetrations with a LATICRETE latex-fortified thin-set. Apply a liberal coat* of LATICRETE HYDRO BAN around penetration opening. Cover the first coat with a second liberal coat* of LATICRETE HYDRO BAN. Bring LATICRETE HYDRO BAN up to level of tiles. When LATICRETE HYDRO BAN has dried to the touch seal with LATICRETE LATASIL.

Main Application - Allow any pre-treated areas to dry to the touch. Apply a liberal coat* of LATICRETE® 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 LATICRETE HYDRO BAN over the first coat. Let the top coat of LATICRETE HYDRO BAN dry to the touch approximately 1 – 2 hours at 70°F (21°C) and 50% RH. When the top coat has dried to the touch inspect the surface for pinholes, voids, thin spots or other defects. LATICRETE HYDRO BAN will dry to an olive green color when fully cured. Use additional LATICRETE HYDRO BAN to seal any defects.

Movement Joints - Apply a liberal coat* of LATICRETE HYDRO BAN, approximately 8" (200mm) wide over the areas. Then embed and loop the 6" (150mm) wide LATICRETE Waterproofing/Anti-Fracture Fabric and allow the LATICRETE HYDRO BAN liquid to bleed through. Immediately apply a second coat of LATICRETE HYDRO BAN.

Bonding to TCNA Compliant Poured Gypsum Underlayment Poured gypsum-based- underlayment's must meet TCNA requirements for compressive strength and the performance requirements of ASTM C627 for the anticipated service level designated by the design professional. Poured gypsum underlayment thickness and application varies, consult the manufacturer for specific recommendations. The underlayment must be dry and properly cured following the manufacturer's recommendations to achieve a permanent installation. Surfaces to be covered must be clean, structurally sound and meet the maximum allowable deflection standard of L/360 for ceramic tile and L/480 for stone under total anticipated load. Expansion joints must be installed in accordance with ANSI/TCNA guidelines. Prime all surfaces to receive HYDRO BAN with properly applied manufacturer's sealer or with a primer coat of HYDRO BAN, consisting of 1 part HYDRO BAN, diluted with 4 parts clean, cool tap water. In a clean pail, mix at low speed to obtain a homogeneous solution. The primer can be brushed, rolled or sprayed to achieve an even coat. Apply the primer coat to the floor at a rate of 250 to 300 ft²/gallon (6.1 to 7.5 M²/L) of diluted HYDRO BAN. Allow the primer coat to dry completely (approximately 24 hrs., depending on substrate and air temperature and humidity). When dry apply two full coats of HYDRO BAN® to the primed area following the guidelines in this data sheet and DS 663.5 HYDRO BAN Installation Instructions.

* Dry coat thickness is 20 – 30 mil (0.02 - 0.03” or 0.5 - 0.8mm); consumption per coat is approximately 0.01 gal/ft² (approx. 0.4 L/m²); coverage is approximately 100 ft² /gal (approx. 2.5 m²/L). LATICRETE Waterproofing/Anti-Fracture Fabric can be used to pre-treat cracks, joints, curves, corners, drains, and penetrations with LATICRETE HYDRO BAN.

Protection - Provide protection for newly installed membrane, even if covered with a thin-bed porcelain tile installation against exposure to rain or other water for a minimum of 2 hours at 70°F (21°C) and 50% RH. For temperatures between 45°F and 69°F (7°C to 21°C) allow a minimum 24 hour cure period.

Flood Testing - Allow membrane to cure fully before flood testing, typically a minimum 2 hours at 70°F (21°C) and 50% RH. Cold conditions will require a longer curing time. For temperatures between 50°F and 69°F (10°C to 21°C) allow a minimum 24 hour cure period prior to flood testing.

Use the following LATICRETE System Materials:
LATICRETE® HYDRO BAN™

References:

LATICRETE Detail Drawings: [WP300](#), [WP301](#), [WP302](#), [WP303](#)

LATICRETE Data Sheets: [663.0](#), [663.5](#)

LATICRETE MSDS: [HYDRO BAN](#), [Fabric](#)

GREENGUARD Certificate: [HYDRO BAN](#)

LATICRETE Technical Data Sheets: [188](#), [189](#), [203](#)

3.4 INSTALLATION – TILE

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

B. **Moisture Vapor Reduction Membrane:
Vapor Reduction Coating:**

Surface Preparation – Concrete slabs must be clean, structurally sound, absorptive, and have an ICRI concrete surface profile (CSP) of 3 - 5. All dirt, oil, paint, laitance, efflorescence, sealers, curing compounds and any other bond breaking contaminants must be removed down to the full depth of contamination by shot blasting or other mechanical means then swept and vacuumed clean. Use of chemicals to remove contaminants is prohibited. Use of sweeping compound is not recommended as they may contain oil which will act as a bond breaker. Do not use over gypsum or asphalt based products. Per ASTM F3010, concrete slab to receive LATICRETE® NXT™ Vapor Reduction Coating must have a tensile pull-off strength of 200 psi (1.4 MPa) or greater when tested in accordance with ASTM C1583. Surface temperature must be 50–90°F (10–32°C) during application and for 24 hours after installation. In all cases, the surface temperature of the prepared concrete slab must be warm enough to avoid condensation on the surface of the concrete.

Joints, Cracks, Surface Depressions and Other Irregularities - All joints and cracks should be evaluated and repaired if necessary prior to installation of LATICRETE NXT Vapor Reduction Coating. A good crack repair technique depends on knowing the causes and selecting appropriate repair procedures that take these causes into account. Repairing a crack without addressing the cause may only be a temporary fix. Successful long-term repair procedures must address the causes of the cracks as well as the cracks themselves. Refer to ACI 224.1R-07 for guidance on evaluation and repair of cracks in concrete. LATICRETE product application over moving cracks and joints is not recommended.

1. Moving joints (e.g. expansion joints, isolation joints, etc.) and dynamic (moving) cracks must be honored up through the LATICRETE® NXT™ Vapor Reduction Coating. LATICRETE is not responsible for vapor emission through untreated joints or for areas where cracks may develop later.

2. All non-moving joints and dormant cracks (e.g. saw cuts, surface cracks, grooves, control joints, etc.) must be cleaned out and free of all loose debris. Non-structural cracks up to 1/8" (3 mm) in width can be filled with LATICRETE NXT Vapor Reduction Coating epoxy during main application. Inspect these areas to ensure cracks are completely filled with no voids.

Non-moving joints, dormant cracks greater than 1/8" (3 mm) wide, can be patched with mixture of 1 part LATICRETE NXT Vapor Reduction Coating and 3 parts clean, washed play sand. In a suitable container, such as an empty NXT Vapor Reduction Coating pail, pour 1 part LATICRETE NXT Vapor Reduction Coating pre-blended to 3 parts clean, washed play sand, using a 300 rpm drill with jiffy paddle, mix together for 2-3 minutes until the LATICRETE NXT Vapor Reduction Coating and qualified sand mixture is consistent. Slowly pour the mixture into the crack, using the flat side of a trowel force the epoxy/sand mixture into the crack. Surface crazing and hairline cracks do not need filling. Construction Joints, Expansion Joints and Large moving cracks that have lost aggregate lock (one side of crack is higher than the other) have structural implications and cannot be repaired using this method.

Moisture Evaluation - Moisture testing must be conducted in accordance with finish floor goods and adhesive manufacturers' requirements prior to LATICRETE NXT Vapor Reduction Coating application. When evaluating moisture conditions the HVAC system or a temporary enclosure must be operational and in place for the minimum specified time period recommended in the moisture test standard. The concrete floor slabs and the ambient air space above the floor must be at service temperature and relative humidity for at least 48 hours before taking moisture measurements in the concrete slab. These conditions must remain throughout the test period to ensure accurate results.

MVER/ RH	Mil Thickness	ft ² /gal (m ² /L)
≤25 lbs. (1415 µg)/ 100%	12	133 (3.2)
Each full unit will yield approximately 865 ft ² (80.4 m ²) **.		
Each mini unit will yield approximately 319 ft ² (29.6 m ²) **.		

Mixing - Before using, store resins at room temperature 65-85°F (18-30°C) for 24 hours to ensure ease of mixing. Mix Components A and B at a ratio of 1:2.3 by volume (components are packaged into the pails to the specified ratio). Pour the A component into the larger B component steel pail. Verify that all of the Part A liquid is drained from pail. Mix with a slow speed drill (<300 RPM) with a jiffy blade for 3 minutes, assuring mixture is fully uniform and that all ribbons of contrasting shade are completely eliminated. Pour the fully mixed material onto the substrate immediately after mixing.

Application - Pour ribbons of LATICRETE® NXT™ Vapor Reduction Coating onto the prepared concrete and spread using appropriate round or square notch squeegee that is designed to apply the desired mil thickness in a single coat. Apply an even coat making sure to cover all areas thoroughly. Immediately following, while epoxy is still wet, use a high quality 3/8" (9 mm) nap non-shedding paint roller to back-roll at 90° from the squeegee direction to help ensure full coverage and uniform thickness. Replace worn squeegee blades and paint rollers when necessary to help ensure proper application. Use a paint brush to apply epoxy around penetrations, columns, and any other obstructions. Periodically check mil thickness using a LATICRETE NXT Wet Film Thickness Gauge. Allow to cure for 12 hours at 50-90°F (10-32°C) prior to installation of underlayment or finish flooring. Always consult flooring and adhesive manufacturer's installation instructions, restrictions and confirm compatibility with LATICRETE NXT Vapor Reduction Coating. Always test performance and compatibility of floor systems prior to application.

Coverage - Each full unit will yield approximately 650 – 1,040 ft² (60.4 – 96.6 m²). Each mini unit will yield approximately 240 - 360 ft² (22.3 – 33.4 m²).

Flooring and Self Leveling Underlayments Installation - In all cases the LATICRETE NXT Vapor Reduction Coating surface must be protected from traffic, dust, debris, rain, and any other contaminants. LATICRETE NXT self-leveling underlayments shall be installed over LATICRETE NXT Vapor Reduction Coating as soon as the epoxy is slightly tacky to the touch with no transfer; typically 12 hours after application depending on ambient and substrate conditions. The maximum time to install LATICRETE® NXT™ self-leveling underlayments over LATICRETE NXT Vapor Reduction Coating is 24 hours. If LATICRETE NXT Vapor Reduction Coating is left open longer than 24 hours or the surface becomes contaminated, contact LATICRETE Technical Sales Representative. LATICRETE NXT self-leveling underlayments require the use of LATICRETE NXT Primer. Refer to TDS 230N for detailed primer installation instructions. If finish floor goods are to be installed directly on top of LATICRETE NXT Vapor

Reduction Coating, then the epoxy surface must be allowed to cure until non-tacky to the touch, typically after a minimum of 24 hours. Always refer to finished floor manufacturer's recommendations regarding installation instructions, restrictions, moisture conditions and compatibility. Always test performance suitability and compatibility of finished floor systems prior to their application. Sample surfaces should be installed as a field test so as to be representative of entire surface and tested for intended use.

Use the following LATICRETE System Materials:

LATICRETE NXT Vapor Reduction Coating

- C. **Bonded Thick Bed Method (Floor):** Verify 1“(25mm) nominal bed thickness has been allowed. Apply LATICRETE 254 Platinum with a flat trowel as a slurry bond coat approximately 1/16” (1.5mm) thick over clean concrete slab, in compliance with current revision of ANSI A108.1A (2.2 and 5.2). Place LATICRETE 3701 Fortified Mortar Bed over slurry bond coat while LATICRETE 254 Platinum slurry bond coat is wet and tacky. Omit reinforcing wire fabric and fully compact bed by tamping. Allow the thick bed mortar to cure for a minimum of 7 days at 70 degrees F / 21 degrees C, prior to installing NEOLITH large format slabs.

For installation of NEOLITH large format slabs over cured (pre-floated) latex-Portland cement thick bed mortar, follow **Thin Bed Method**.

Use the following LATICRETE System Materials:

LATICRETE 3701 Fortified Mortar Bed

LATICRETE 254 Platinum

References:

LATICRETE Data Sheets: [100.0](#); [677.0](#)

LATICRETE MSDS: [3701FMB](#); [254](#)

GREENGUARD Certificates: [3701FMB](#), [254](#)

LATICRETE Technical Data Sheets: [106](#), [114](#), [154](#), [204](#)

- D. **Thick Bed (Wire Reinforced) Method:** Minimum bed thickness of 2” (50mm) must be maintained. Place latex-Portland cement thick bed mortar to a depth approximately one-half finished bed thickness in compliance with current revision of ANSI A108.01 (3.2.1.1 & 3.2.4) and A108.1B. Lay 2” x 2” (50mm x 50mm), 16 gauge (1.5mm), 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 and compact mortar by tamping with flat trowel. Screed mortar bed level and provide correct slopes to drains. Clean excess mortar/adhesive from finished surfaces. Allow the thick bed mortar to cure for a minimum of 7 days at 70 degrees F / 21 degrees C, prior to installing NEOLITH large format slabs. For installation of NEOLITH large format slabs over cured (pre-floated) latex-Portland cement thick bed mortar, follow **Thin Bed Method**.

Use the following LATICRETE System Materials:

LATICRETE® 3701 Fortified Mortar Bed

LATICRETE 254 Platinum

References:

LATICRETE Data Sheets: [100.0](#); [677.0](#)

LATICRETE MSDS: [3701FMB](#); [254](#)

GREENGUARD Certificates: [3701FMB](#), [254](#)

LATICRETE Technical Data Sheets: [106](#), [114](#), [204](#)

- E. **Self-Leveling Underlayment:** Use LATICRETE NXT™ Level Plus, and related LATICRETE NXT Primer, as a self-leveling underlayment to attain proper floor flatness.

Surface Preparation - Concrete slabs must have a minimum ICRI concrete surface profile (CSP) of 3. For more detailed ICRI CSP information refer to ICRI Guideline No. 03732. Use of chemicals to remove contaminants or to create a surface profile is not recommended. Use of a sweeping compound is not recommended as they may contain oil which will act as a bond breaker. 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. In addition, tensile strength testing of the concrete substrate, per ASTM C1583 or ICRI Guideline No. 03739, must show a minimum of 100 psi (0.7 MPa) tensile strength prior to installation of LATICRETE® self-leveling underlayment. Any areas that do not meet 100 psi (0.7 MPa) tensile strength must be removed and repaired.

General Priming Information: All surfaces must be primed prior to the installation of LATICRETE NXT™ self-leveling underlayments. LATICRETE® NXT™ Primer is a concentrate and must be diluted with clean potable water prior to application. Dilution ratio and application methods vary depending on substrate. Always stir or shake LATICRETE NXT Primer concentrate prior to diluting. Mix primer with clean potable water according to the **LATICRETE NXT Primer DILUTION / APPROXIMATE COVERAGE** chart below. Water must always be carefully measured in order to ensure proper dilution is achieved. Use a mixing paddle to thoroughly combine primer and water. LATICRETE NXT Primer can be broom, roller, mop, or spray applied. Substrate temperature must be a minimum 40°F (4°C) during primer application and throughout drying time. Additionally, air temperature must be maintained between 50–90°F (10–32°C) during primer application and throughout drying time. The primed surface must also be protected from weather, water and direct sunlight.

LATICRETE NXT™ Primer DILUTION / APPROXIMATE COVERAGE			
SUITABLE SUBSTRATES	Dilution Ratio = Primer:Water	Approximate Coverage per Gallon Diluted with Water	Approximate Coverage²
Normal Suction: Concrete	1:3	100 ft ² (9.3 m ²)	400 ft ² (37.1 m ²)
High-Suction: Highly Porous, Dry Concrete / NXT Underlayments / Cement Mortar Beds	1st coat: 1:5 2nd coat: 1:3	50 ft ² (4.6 m ²)	250 ft ² (23.2 m ²)
Exterior Glue Plywood	1:1	100 ft ² (9.3 m ²)	200 ft ² (18.5 m ²)
Non-Suction: Ceramic, Stone, Quarry Tile / VCT, VAT, Sheet Vinyl / Cement Terrazzo	1:1 with slurry	100 ft ² (9.3 m ²)	200 ft ² (18.5 m ²)
LATICRETE NXT Vapor Reduction Coating	1:1 with slurry	100 ft ² (9.3 m ²)	200 ft ² (18.5 m ²)

WATER DROP TEST

The water drop test described in this document is a subjective, qualitative test that may be conducted in order to help an experienced contractor form an opinion as to how a slab should be primed. However, this test may not be definitive.

To help determine the appropriate primer dilution, properly prepare slab in accordance with this guide then apply several dime to quarter size drops of water to properly prepared surface and observe.

a) **High-Suction** = Water completely absorbs into surface within 15 seconds; surface may appear dark and wet with no visible water remaining on surface
 b) **Normal-Suction** = Water absorbs or partially absorbs within 30 seconds but not less than 15 seconds; bead of water may slowly shrink as it absorbs while dark, wet spot on surface slowly expands
 c) **Non-Suction** = Water beads up and does not absorb at all within 30 seconds; bead of water does not shrink or absorb, wet spot on surface does not expand

Normal Suction Concrete: Dilute LATICRETE® NXT™ Primer 1:3 (1 part primer to 3 parts water). Apply a single coat of diluted Primer/water mix to the point of refusal so that the substrate is completely covered and small puddles form in low spots. While LATICRETE NXT Primer is still wet use a push broom to work primer into the substrate so that puddles are spread evenly over the surface, absorbed and a uniform film has been applied. Remove any remaining puddles by brooming and spreading over the surface. Then proceed below to the **All Suitable Substrates** and **Protect Primer Application** sections.

High-Suction Concrete: Apply two coats of LATICRETE® NXT™ Primer allowing adequate time to dry between coats. For the first coat, dilute LATICRETE NXT Primer 1:5 (1 part primer to 5 parts water). Apply first coat of diluted primer/water mix to the point of refusal so that the substrate is completely covered and small puddles form in low spots. While primer is still wet use a push broom to work primer into the substrate so that puddles are spread evenly over the surface, allowed to absorb and a uniform film remains on the surface. Remove any remaining puddles by brooming and spreading over the surface. Allow the primer to dry. The first coat is considered dry when a minimum of 3 hours dry time has elapsed, the primer turns from milky white to clear, is dry to the touch, and there is no release of primer from the substrate. First coat must not be opened to trade traffic prior to installation of second coat. If the primed floor becomes contaminated by trade traffic, construction dust, debris, or any other bond inhibiting substance, or is exposed to water/excessive moisture prior to second coat application, the contaminated first coat of Primer must be completely removed by shot blasting, scarification or other mechanical means, properly re-primed and allowed to dry.

For the second coat, dilute LATICRETE NXT Primer 1:3 (1 part primer to 3 parts water). Apply second coat of diluted primer/water mix to the point of refusal so that the substrate is completely covered and small puddles form in low spots. While second coat of primer is still wet use a push broom to work primer into the substrate so that puddles are spread evenly over the surface and a uniform film has been applied. Then follow the **All Suitable Substrates** and **Protect Primer Application** sections.

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 have been properly prepared in accordance with this guide and moisture mitigation manufacturer's instructions. Concrete slabs that are considered Non-Suction will require additional preparation prior to primer application. See **Non-Suction Concrete** in the **Substrate Types/General Requirements** section for more information.

Dilute LATICRETE NXT Primer 1:1 (1 part Primer to 1 part water). Apply a single coat of diluted primer/water mix to the point of refusal so that the substrate is completely and evenly covered. While primer is still wet and white, immediately lightly scatter LATICRETE NXT self-leveling dry powder into the wet primer. Using a push broom, work the dry powder into the wet primer/water mixture forming a slurry. Continue to broom so that puddles are spread evenly over the surface and a uniform film has been applied. Then follow **All Suitable Substrates** and **Protect Primer Application**. For more information on this method contact the Technical Service Department.

LATICRETE® NXT™ Vapor Reduction Coating / Moisture Mitigation Systems: Ensure that an acceptable system has been installed in accordance with manufacturer's instructions. If mitigation system manufacturer requires the use of a specific Primer, follow manufacturer's priming instructions using the required primer. If LATICRETE NXT primer will be used follow **Non-Suction Priming** instructions.

LATICRETE NXT Underlayments and other **Cement Mortar Beds:** Follow **High-Suction** priming instructions for priming on top of LATICRETE NXT underlayments and other cement mortar beds.

All Suitable Substrates: Remove any remaining puddles by brooming and spreading evenly over the surface. Allow the LATICRETE NXT Primer to completely dry for a minimum of 3 – 5 hours at 70°F (21°C) and 50% Relative Humidity. LATICRETE NXT Primer coat is considered dry when a minimum of 3 hours dry time has elapsed, the primer turns from milky white to clear, is dry to the touch, and there is no release of primer from the substrate. Surface may feel slightly tacky. Drying time will vary depending on surface and ambient air conditions. Substrate temperature must be a minimum 40°F (4°C) during primer application and throughout drying time. Additionally, air temperature must be maintained between 50–90°F (10–32°C) during primer application and throughout drying time. Primer must also be protected from weather and direct sunlight. Temperatures below 70°F (21°C) and/or relative humidity above 50% will increase drying time. Insufficient drying or poor film formation will result in pinholes and poor bond strength and may cause LATICRETE® NXT™ self-leveling underlayment to de-bond. If primer dries within 30 minutes or if a 24 hour period is exceeded after primer application, the surface must be primed again.

Protect Primer Application: When walking over new primer application prior to installation of a LATICRETE NXT self-leveling underlayment, shoes must be protected with clean, slip-on type booties (i.e. Tyvek). Primed floor must not be opened to trade traffic prior to installation of LATICRETE NXT underlayments. If the primed floor becomes contaminated by trade traffic, construction dust, debris, or any other bond inhibiting substance, or is exposed to water/excessive moisture prior to second coat application, the contaminated first coat of primer must be completely removed by shot blasting, scarification or other mechanical means, properly re-primed and allowed to dry.

Mixing – LATICRETE NXT Level Plus should be mixed with 5.0 – 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 for 2–3 min with a heavy duty drill (650 rpm) to obtain a lump free mix. LATICRETE NXT Level Plus can also be used in most pump equipment. Please consult with a LATICRETE representative to verify equipment compatibility. A flow test should always be performed to ensure that the mix is homogeneous and free from separation. The ideal flow range for LATICRETE NXT Level Plus is 11–12" (280 – 300 mm) using a LATICRETE Flow Test Kit. See TDS 235N –Flow Test Method - for more detailed instructions on performing flow tests.

Perimeter Isolation Strip - It is essential that all walls and building elements are isolated from the self-leveling underlayment pours to ensure proper expansion allowance against all restraining surfaces. Note: It is recommended to install a perimeter isolation strip before the installation of LATICRETE NXT Level Plus. Attach the perimeter isolation strip to the perimeter wall of the entire subfloor, as well as around the perimeter of any protrusions, in order to isolate the floor and wall/restraining surfaces. Temporarily fasten perimeter isolation strip in place with staples masking, duct, or carpet tape. The perimeter isolation strip can then be removed after the tiles have set firm. The joints can then be filled with LATICRETE LATASIL™.

Main Application - Substrate temperature should be between 40-90°F (4-32°C) during application and air temperature maintained between 50–90°F (10–32°C). Protect areas from direct sunlight. Do not use damp curing methods or curing and sealing compounds. If required to meet level tolerances, survey surface using a digital or electronic leveling device and apply level pegs as required. Adequate ventilation should be provided to ensure uniform drying. Pump or pour blended material onto substrate at an average thickness ranging between 1/8" to 1 1/4" (6–32 mm) for all surfaces. Immediately following placement lightly smooth the surface and pour lines, when not using elevation pins the use of a gauge rake will assist in controlling material depth. Do not expose LATICRETE self-leveling underlayments to rolling dynamic loads, such as forklifts or scissor lifts, for at least 72 hours after installation. Proper application is the responsibility of the user. Floor will be ready for foot traffic in 1-4 hours. Finished floor goods may be installed as soon as 16 hours after application of LATICRETE NXT Level Plus, subject to thickness, drying conditions and type of flooring materials. Coverage will be dependent upon relative rough-ness of substrate, but the following is typical: 1/8" thickness is approximately 49 ft²; 1/4" thickness is approx. 24 ft²; 1/2" thickness is approx. 12 ft²

Use the following LATICRETE System Materials:

LATICRETE NXT LEVEL PLUS
LATICRETE NXT PRIMER

References:

LATICRETE Data Sheets: [505.0](#); [502.0](#)

LATICRETE SDS: [NXT Primer](#); [NXT Level Plus](#)

F. Sound Abatement and Crack Isolation Mat:

NOTES TO SPECIFIER: The sound reduction performance of porcelain tile 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.

It is essential that all walls and building elements are isolated from the floor. The use of acoustical ceiling panels in the space below would provide additional sound control.

Perimeter Isolation – It is recommended to install a perimeter isolation strip before placing and trimming LATICRETE® 170 Sound & Crack Isolation Mat. Attach the perimeter isolation strip to the perimeter wall around the entire subfloor, as well as around the perimeter of any protrusions, in order to isolate or break the vibration transmission path between the floor and the wall. Temporarily fasten perimeter isolation strip in place with masking, duct or carpet tape.

Main Application – Use LATICRETE 254 Platinum or LATICRETE Sure Set™ to adhere the LATICRETE 170 Sound & Crack Isolation Mat to the substrate. Use a ¼” x ¼” (6 mm x 6 mm) notched trowel and comb mortar over substrate, apply only enough mortar as can be covered within 25 minutes. Unroll the LATICRETE 170 Sound & Crack Isolation Mat into place, in the thin-set adhesive mortar. Once installed, use a 25 – 45 lb. (11.3 – 20 kg) roller to embed the LATICRETE 170 Sound & Crack Isolation Mat firmly into the adhesive mortar. Allow to cure for 24 hours at 70°F (21°C). Install LATICRETE 170 Sound & Crack Isolation Mat over the entire area to be treated. Do not overlap edges but be sure the edges of each piece butt firmly together. Trim length of mat to desired length and width. Once fully cured, install porcelain tile, porcelain or stone finish as directed in section 3.4 **Thin Bed Method**.

Use the following LATICRETE System Materials:

LATICRETE® 170 Sound & Crack Isolation Mat

References:

LATICRETE Data Sheet: [170.0](#)

LATICRETE MSDS: [170](#)

- G. **Pre-float Method:** Over clean, dimensionally stable and sound concrete or masonry substrates, apply thick-bed mortar as scratch/leveling coat in compliance with current revision of A108.1A (1.0, 1.4 & 5.1). Float surface of scratch/leveling coat plumb, true and allow the thick bed mortar to cure for a minimum of 7 days at 70 degrees F / 21 degrees C, prior to installing NEOLITH large format slabs. For installation of NEOLITH large format slabs over cured (pre-floated) latex-Portland cement thick bed mortar, follow **Thin Bed Method**.

Use the following LATICRETE System Materials:

LATICRETE® 3701 Fortified Mortar Bed

LATICRETE 254 Platinum

References:

LATICRETE Data Sheets: [100.0](#), [677.0](#)

LATICRETE MSDS: [3701FMB](#), [254](#)

GREENGUARD Certificates: [3701FMB](#), [254](#)

LATICRETE Technical Data Sheets: [105](#), [106](#), [114](#), [118](#), [122](#), [128](#), [130](#), [143](#), [199](#), [204](#)

- H. **Lath & Plaster Method:** Install cleavage membrane complying with current revision of ANSI A108.02 (3.8 Membrane or cleavage membrane). Install metal lath complying with the current revision of ANSI A108.01 (3.3 Requirements for lathing and Portland cement plastering), ANSI A108.02 (3.6 Metal lath) and A108.1A (1.0 – 1.2, 1.4, & 5.1). Apply latex-Portland cement mortar as scratch/leveling coat over wire lath, concrete or masonry in compliance with current revision of ANSI A108.01 (3.3.5.1) and A108.1A (1.4). Float surface of scratch/leveling coat plumb, true and allow the thick bed mortar to cure for a minimum of 7 days at 70

degrees F / 21 degrees C, prior to installing NEOLITH large format slabs. For installation of NEOLITH large format slabs over cured (pre-floated) latex-Portland cement thick bed mortar, follow **Thin Bed Method**.

Use the following LATICRETE System Materials:

LATICRETE 3701 Fortified Mortar Bed
LATICRETE 254 Platinum

References:

LATICRETE Data Sheets: [100.0](#), [677.0](#)

LATICRETE MSDS: [3701FMB](#), [254](#)

GREENGUARD Certificates: [3701FMB](#), [254](#)

LATICRETE Technical Data Sheets: [105](#), [106](#), [114](#), [118](#), [122](#), [130](#), [199](#), [204](#)

- I. **Thin Bed Method:** Installations are to comply with current revisions of ANSI A108.02, A108.1B and ANSI A108.5. Select an appropriately-sized 'Euro-notch' trowel (e.g. Tile Masters' 1Y, 1YW, or 2YW trowels) or slant-notch trowel (e.g. Raimondi 5/16" x 5/16" or 8mm x 8mm) that will provide full bedding and coverage to the panel backs. Use flat side of trowel to apply the adhesive mortar into full contact with the substrate. Immediately following, apply mortar with notched side of trowel. Spread only as much mortar as can be covered while the mortar surface is still wet and tacky. Mortar is to be applied to the panel backs using the notched side of the trowel, with mortar ridges running parallel to the longest panel edge.. Trowel ridges on both the panel backs and substrate must be parallel to each other when panels are installed to assist in achieving 100% adhesive coverage to panel backs. Mechanical edge-leveling systems are strongly recommended to help minimize lippage between panel edges. Consult edge-leveling system manufacturer for detailed instructions on use of their systems. Use vibrating palm sanders, applied to panel surfaces, to assist in releasing trapped air from beneath panels. Clean excess latex Portland-cement mortar from tile face and joints between pieces, immediately. Allow installation to cure for minimum 72 hours at 70° F (21° C), prior to grouting.

Use the following LATICRETE System Materials:

LATICRETE 254 Platinum

References:

LATICRETE Data Sheet: [677.0](#)

LATICRETE MSDS: [254](#)

GREENGUARD Certificate: [254](#)

LATICRETE Technical Data Sheets: [105](#), [118](#), [129](#), [209](#)

- J. **100% Solids Epoxy Thin Bed Method:** Install epoxy adhesive in compliance with current revisions of ANSI A108.02 (3.14) and ANSI A108.6. Select an appropriately-sized 'Euro-notch' trowel (e.g. Tile Masters' 1Y, 1YW, or 2YW trowels) or slant-notch trowel (e.g. Raimondi 5/16" x 5/16" or 8mm x 8mm) that will provide full bedding and coverage to the panel backs. Use flat side of trowel to apply the adhesive mortar into full contact with the substrate. Immediately following, apply mortar with notched side of trowel. Spread only as much mortar as can be covered while the mortar surface is still wet and tacky. Mortar is to be applied to the panel backs using the notched side of the trowel, with mortar ridges running parallel to the longest panel edge. Trowel ridges on both the panel backs and substrate must be parallel to each other when panels are installed to assist in achieving 100% adhesive coverage to panel backs. Mechanical edge-leveling systems are strongly recommended to help minimize lippage between panel edges. Consult edge-leveling system manufacturer for detailed instructions on use of their systems. Use vibrating palm sanders, applied to panel surfaces, to assist in releasing trapped air from beneath panels. Clean excess latex Portland-cement mortar from tile face and joints between pieces, immediately. Allow installation to cure for minimum 72 hours at 70° F (21° C), prior to grouting.

Use the following LATICRETE System Materials:

LATAPOXY® 300 Adhesive

References:

LATICRETE Data Sheets: [633.0](#)

LATICRETE MSDS: [300 Part A](#), [300 Part B](#), [300 Part C](#)

GREENGUARD Certificate: [300](#)

LATICRETE Technical Data Sheets: [105](#), [118](#), [128](#), [154](#), [199](#), [209](#)

K. **Grouting:**

NOTE TO SPECIFIER: select one of following and specify color for each type/color of porcelain panel:

1. Chemical Resistant, Water Cleanable Tile-Grouting Epoxy (ANSI A118.3): Allow porcelain panel installations to cure a minimum of 72 hours @ 70° F (21°C), prior to grouting and exposure to light foot traffic. Store liquid components of LATICRETE SPECTRALOCK® PRO Premium Grout† for 24 hours @ 70-80°F (21-27°C) prior to use to facilitate mixing and application. Substrate temperature must be 40-95°F (4-35°C). Verify joints are free of dirt, debris or grout spacers. Sponge wipe dust/dirt off tilework and remove water standing in joints. Apply grout release to face of non-slip or rough textured porcelain tiles to facilitate cleaning. Cut open pouch and pour LATICRETE SPECTRALOCK PRO Premium Grout Part A Liquid into a clean mixing pail. Then open pouch and pour LATICRETE SPECTRALOCK PRO Premium Grout Part B Liquid into the mixing pail. Mix by hand or with a slow speed (<300 rpm) mixer until the two liquids are well blended. Then, while mixing, add LATICRETE SPECTRALOCK Grout Part C Powder and blend until uniform. For narrow joints, it is acceptable to leave out up to 10% of the LATICRETE SPECTRALOCK Grout Part C Powder to produce a more fluid mix. Install LATICRETE SPECTRALOCK PRO Premium Grout in compliance with current revisions of ANSI A108.02 (3.13) and ANSI A108.6 (3.0 - 4.0). Spread using a sharp edged, firm rubber float and work grout into joints. Using strokes diagonal (at 45° angle) to the grout lines, pack joints full and free of voids/pits. Then hold float face at a 90° angle to grouted surface and use float edge to "squeegee" off excess grout, stroking diagonally to avoid pulling grout out of filled joints. Once excess grout is removed, a thin film/haze will be left. Initial cleaning of the remaining film/haze can begin approximately 20 minutes after grouting (wait longer when temperatures are cooler). Begin by mixing one cleaning additive packet with 2 gallons (7.6 L) of clean water in a clean bucket to make cleaning solution. Dip a clean sponge into the bucket and then wring out cleaning solution until sponge is damp. Using a circular motion, lightly scrub grouted surfaces with the damp sponge to loosen grout film/haze. Then drag sponge diagonally over the scrubbed surfaces to remove froth. Rinse sponge frequently and change cleaning solution at least every 50 ft² (4.7m²). Discard sponges as they become "gummy" with residue. Check work as you clean and repair any low spots with additional grout. One (1) hour after finishing first cleaning, clean the same area again following the same procedure but utilizing a clean white scrub pad and fresh cleaning solution. Rinse scrub pad frequently. Drag a clean sponge diagonally over the scrubbed surfaces to remove froth. Use each side of sponge only once before rinsing and change cleaning solution at least every 50 ft² (4.7m²). Allow cleaned areas to dry and inspect surface of the porcelain panels. For persistent grout film/haze (within 24 hours), repeat scrubbing 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 them with freshly mixed LATICRETE® SPECTRALOCK® PRO Premium Grout†. *Cautions: Do not use acid cleaners on epoxy grouts.*

Use the following LATICRETE System Materials:

LATICRETE® SPECTRALOCK® PRO Premium Grout

References:

LATICRETE Data Sheets: [681.0](#), [681.5](#)

LATICRETE MSDS: [Premium Part A](#), [Premium Part B](#), [Part C Powder](#), [Cleaning Additive](#)

GREENGUARD Certificate: [PRO](#)

LATICRETE Technical Data Sheets: [111](#), [198](#), [212](#), [400](#)

2. Polymer Fortified Cement Grout (ANSI A118.7): Allow porcelain panel installations to cure a minimum of 72 hours @ 70° F (21°C), prior to grouting and exposure to light foot traffic.. Verify grout joints are free of dirt, debris or tile spacers. Sponge wipe dust/dirt off the faces of the porcelain panels and remove

any water standing in joints. Apply grout release to face of non-slip or rough textured porcelain panels to facilitate cleaning. Surface temperature must be between 40-90° F (4-32°C). Pour approximately 64 oz. (1.9 L) of clean, potable water into a clean mixing container. Add a 25 lb. (11.3 kg) bag of LATICRETE PERMACOLOR™ Grout to the container while mixing. Mix with a slow speed mixer to a smooth, stiff consistency. Install latex fortified cement grout in compliance with current revisions of ANSI A108.1A (7.0 Grouting of tile), ANSI A108.02 (4.5 Cleaning tile) and ANSI A108.10. Dampen dry surfaces with clean water. Spread using a sharp edged, hard rubber float and work grout into joints. Using diagonal (at 45° angle to direction of grout line) strokes, pack joints full and free of voids/pits. Hold float face at a 90° angle to grouted surface and use float edge to "squeegee" off excess grout, stroking diagonally to reduce pulling grout out of filled joints. Initial cleaning can begin as soon as grout has become firm, typically 15-20 minutes after grouting @ 70° F (21°C). Higher temperatures may require faster time to initial cleaning; wider joints or lower temperatures may require a longer time to initial cleaning. Begin initial cleaning by lightly dampening the entire grouted area with a damp sponge. Then wash clean the entire area with a damp (not wet) sponge. Drag a clean towel, dampened with water, or wipe a clean, dampened sponge, diagonally over the installation to remove any grout haze left after "squeegeeing." Rinse towel/sponge frequently and change rinse water at least every 200 ft² (19m²). Repeat this cleaning sequence again if grout haze is still present. Allow grout joints to become firm. Buff surface of grout with clean coarse cloth. Inspect joint for pinholes/voids and repair them with freshly mixed grout. Within 24 hours, check for remaining haze and remove it with warm soapy water and a nylon scrubbing pad, using a circular motion, to lightly scrub surfaces and dissolve haze/film. Do not use acid cleaners on latex Portland cement grout less than 10 days old.

Use the following LATICRETE System Materials:

LATICRETE® PERMACOLOR® Grout

References:

LATICRETE Data Sheets: [250.0](#)

LATICRETE MSDS: [2500](#)

GREENGUARD Certificates: [2500](#)

LATICRETE Technical Data Sheets: [201](#), [400](#)

- L. **Expansion and Control Joints:** Provide control or expansion joints as located in contract drawings and in full conformity, especially in width and depth, with architectural details.
1. Substrate joints must carry through, full width, to surface of porcelain panel installation.
 2. Install expansion joints in porcelain panel work over construction/cold joints or control joints in substrates.
 3. Install expansion joints where the porcelain panels abut restraining surfaces (such as perimeter walls, curbs, columns), changes in plane and corners.
 4. Joint width and spacing depends on application - follow TCNA "**Handbook for Ceramic, Glass, and Stone Tile Installation**" Detail "EJ-171 Expansion Joints" or consult sealant manufacturer for recommendation based on project parameters.
 5. Joint width: $\geq \frac{1}{8}$ " (3mm) and ≤ 1 " (25mm).
 6. Joint width: depth ~2:1 but joint depth must be $\geq \frac{1}{8}$ " (3mm) and $\leq \frac{1}{2}$ " (12mm).
 7. Layout (field defined by joints): 1:1 length: width is optimum but must be $\leq 2:1$. Remove all contaminants and foreign material from joint spaces/surfaces, such as dirt, dust, oil, water, frost, setting/grouting materials, sealers and old sealant/backer. Use LATICRETE® LATASIL™ 9118 Primer for permanent wet area applications. Install appropriate backing material (e.g. closed cell backer rod) based on expansion joint design and as specified in § 07 92 00. Apply masking tape to face of porcelain panels. Use caulking gun, or other applicator, to completely fill joints with sealant. Within 5-10 minutes of filling joint, 'tool' sealant surface to a smooth finish. Remove masking tape immediately after tooling joint. Wipe smears of excess sealant off all surfaces immediately.

Use the following LATICRETE System Materials:

LATICRETE® LATASIL™
LATICRETE LATASIL 9118 Primer

References:

LATICRETE Detail Drawings: [WP300](#), [WP301](#), [WP302](#), [WP303](#), [EJ-01](#), [EJ-06](#), [EJ-08](#),
[EJ-09](#), [EJ-10](#), [EJ-12](#), [EJ-13](#), [EJ-14](#)

(Sealant treatments only)

LATICRETE Data Sheets: [6200.1](#), [6526.1](#)

LATICRETE MSDS: [LATASIL](#), [Primer](#)

LATICRETE Technical Data Sheets: [211](#), [252](#)

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

3.5 CLEANING

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

3.6 PROTECTION

- A. Protect finished installation under provisions of section 01 50 00. To avoid damage to finished tile work, schedule floor installations to begin only after all structural work, building enclosure, and overhead finishing work are completed. Keep all traffic off finished tile floors until they have fully cured. Builder shall provide up to ¾" (19mm) thick plywood or OSB protection over non-staining Kraft® paper to protect floors after installation material has cured. Covering the floor with polyethylene or plywood in direct contact with the floor may adversely affect the curing process of grout and latex/polymer fortified Portland cement mortar.
- B. Keep floors installed with epoxy adhesive closed to traffic for 72 hrs. at 70°F (21°C), unless instructed differently by porcelain panel manufacturer.
- C. Use kneeling boards, or equivalent, to walk/work on newly tiled floors.
- D. Cure tile work in steam rooms for 10 days for epoxy based grout and 14 days for latex Portland cement based grout @ 70°F (21°C) putting into service. Extend period of protection of tile work at lower temperatures, below 60°F (15°C), and at high relative humidity (>70% R.H.) due to retarded set times of mortar/adhesives.
- E. Replace or restore work of other trades damaged or soiled by work under this section.
- F. Protect exterior installations from exposure to rain for 7 days at 70°F (21°C).

PART 4 – HEALTH AND SAFETY

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

"As a professional courtesy, LATICRETE offers technical services free of charge. The user maintains all responsibility for verifying the applicability and suitability of the technical service or information provided."

The right to copy, distribute and utilize for commercial purposes is granted exclusively to architects, engineers, and specification writers. Execution Statements are subject to change without notice. For latest revision, check our website @ www.laticrete.com

END OF SECTION

LATICRETE GUIDE SPEC – NEOLITH 5+mm Panels

Guide Specification: NEOLITH® 6mm and 6mm+ (meshed) Slabs
Interior and Exterior Floors, Walls, and Steam Rooms

09 30 00-25

R June 23, 2017

† United States Patent No.: 6881768 (and other Patents)

△ United States Invention Patent No.: 6,784,229 B2

All references are the intellectual property of their respective owners:

TCNA Handbook for Ceramic, Glass and Stone Tile Installation 48th Edition. Tile Council of North America, Inc. Anderson, SC, 2011.

American National Standard Specifications for Installation of Ceramic Tile. Tile Council of North America, Inc. Anderson, SC, 2011.

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

ISO 13007 Ceramic Tiles – Grouts and Adhesives, International Standards Organization for Standardization (ISO), Geneva, Switzerland, 2004.

Floor and Trench Drains - ASME A112.6.3. American Society of Mechanical Engineers. New York, NY, 2001

International Building Code. International Code Council. Country Club Hills, IL, 2006.

International Residential Code for One- and Two-Family Dwellings. International Code Council. Country Club Hills, IL, 2006.

LEED Reference Guide for Green Building Design and Construction. U.S Green Building Council. Washington, D.C., 2009.

LEED Schools Reference Guide. U.S. Green Building Council. Washington, D.C., 2007

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

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

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

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