



Concrete Collaborative Concrete Floor Tiles

concrete
collaborative

SCOPE

Applies to interior floor installations of LAGUNA, SOLANA and, VENICE series tiles and exterior floor installations of TRAILS series tiles.

NOTES TO SPECIFIER

- LATICRETE® International, Inc. champions the use of Quality Labor for all tile and stone installations, specifically those represented by the NTCA Five Star Contractor Program (www.tile-assn.com/Member/FiveStar), the TCAA Trowel of Excellence Program (www.tcaainc.org/trowel-of-excellence.php), and the LATICRETE® Most Valued Partner (MVP) Program (www.laticrete.com/contractors/mvp_site.aspx).
- Detail and specify HYDRO BAN® in all wet or exterior areas, and over existing, non-structural, hairline cracks (\leq 1/8" or 3mm) in the substrate.
- A LATICRETE® "System" approach to installation is covered by a comprehensive 25 year warranty (Reference LATICRETE DS 025.0APD) for all interior and exterior floor installations.
- Refer to the Concrete Collaborative CSI format, architectural guide specification for comprehensive system recommendations for sound attenuation, moisture mitigation, electric radiant floor heating, and uncoupling underlayments.

INSTALLATION MATERIALS

Floor Tiles: LAGUNA, SOLANA, VENICE, and TRAILS series tiles produced by Concrete Collaborative:
www.concrete-collaborative.com.

Self-Leveling Underlayment: LATICRETE® NXT LEVEL PLUS used with LATICRETE NXT PRIMER™

Latex-Portland Cement Thick Bed Mortar: LATICRETE® 3701 Fortified Mortar Bed

Slurry Bond Coat (for bonded mortar beds on floors): LATICRETE® 254 Platinum

Waterproofing and Crack Isolation Membrane: HYDRO BAN®

Latex-Portland Cement Thinset Mortar: LATICRETE® 254R Platinum Rapid

Epoxy Thin-set Mortar (for metal stairs): LATAPOXY® 300 Epoxy Adhesive

Latex-Portland Cement Medium Bed Mortar: LATICRETE® 4-XLT Rapid

Latex-Portland Cement Grout: LATICRETE® PERMA COLOR™ Grout

100% Silicone Caulk: LATICRETE® LATASIL™ and LATICRETE® LATASIL 9118 Primer

Installation materials to be supplied by LATICRETE® International, Inc.; Bethany, CT; USA Telephone: 1 (203) 393-0010; Fax: 1 (203) 393-1684; E-mail: technicalservices@laticrete.com; Website: www.laticrete.com.

PREPARATIONS

Prior to commencing installation, the Contractor is to examine substrates and advise the General Contractor and Architect of all existing conditions and surface contamination which will require correction, before the work

commences. Before starting, substrates are to be cleaned to remove concrete curing compounds, sealers, soil, mortar, dirt, dust, paint, etc. Curing compounds and sealers must be removed by bead-blasting, grit / sand blasting, hydro blasting, diamond wheel grinder with dustless vacuum attachment, or equivalent methods of mechanical scarifying. For tiles with edges shorter than 15" (375mm), maximum allowable substrate variation is 1/4" in 10' (6mm in 3m) from the required plane, with no more than 1/16" variation in 12" (1.5mm variation in 300mm), when measured from the high points in the surface. For tiles with at least one edge 15" (375mm) in length, maximum allowable substrate 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. Use either LATICRETE® 3701 Fortified Mortar Bed, or LATICRETE® NXT Level Plus (interior only), and related LATICRETE® NXT Primer, as a self leveling underlayment. Dry and dusty concrete and masonry surfaces are to be water washed, with excess water removed, just prior to the application of LATICRETE® Systems Materials.

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.

- Substrate joints must carry through, full width, to surface of tiles.
- Install expansion joints in tile work over construction/cold joints or control joints in substrates.
- Install expansion joints where tiles abut restraining surfaces (such as perimeter walls, curbs, columns), changes in plane and corners.
- 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.
- Joint width: $\geq \frac{1}{8}$ " (3mm) and ≤ 1 " (25mm).
- Joint width: depth ~2:1 but joint depth must be $\geq \frac{1}{8}$ " (3mm) and $\leq \frac{1}{2}$ " (12mm).

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 all porous tile installations to increase sealant adhesion. Install appropriate backing material (e.g. closed cell backer rod) based on expansion joint design and as specified in section 07 92 00. Apply masking tape to face of tile, brick or stone veneer. 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 excess sealant off all surfaces immediately.

SELF-LEVELING UNDERLAYMENT INSTALLATION

If replacing an existing floor, all original finish and installation materials must be removed down to fresh substrate BEFORE Surface Prep stage can begin. Use LATICRETE® NXT Level Plus, and related LATICRETE® NXT Primer, as a self leveling underlayment to attain proper floor flatness, on interior applications only.

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 72 psi (0.5 MPa) tensile strength prior to installation of LATICRETE self-leveling underlayment. Any areas that do not meet 72 psi (0.5 MPa) tensile strength must be removed and repaired.

Priming - Use LATICRETE NXT PRIMER with every application. LATICRETE NXT PRIMER is a concentrate and must be diluted with clean potable water. Dilution ratio varies depending on the substrate. For Concrete substrates with a moisture mitigation membrane, per one gallon of primer, dilute 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, evenly covered and wet. While primer is still wet and white, immediately lightly scatter LATICRETE NXT LEVEL PLUS self-leveling underlayment dry powder into the wet primer. Using a push broom, work the dry powder into the wet primer/water mix forming a slurry. Continue to broom so that puddles are spread evenly over the surface and a uniform film has been applied. Coverage is approximately 285 ft² when mixed 1:1. Remove any remaining puddles by brooming and spreading evenly over the surface. Allow the primer to completely dry for a minimum of 3 – 5 hours at 70° F (21°C) and 50% Relative Humidity. Primer is considered dry when it is dry to the touch, turns from milky white to clear, there is no release of primer from the substrate and a minimum of 3 hours has elapsed. 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 underlayments to debond. If Primer dries within 30 minutes or if a 24 hour period is exceeded after primer application, the surface must be primed again. Primed floor must not be opened to trade traffic prior to installation of LATICRETE self-leveling underlayments. If primed floor becomes contaminated by trade traffic, construction dust, debris, flooded or any other bond inhibiting substance prior to LATICRETE product installation, the contaminated primer must be completely removed by shot blasting, scarification or other mechanical means, properly re-primed and allowed to dry prior to LATICRETE installation.

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 dependant upon relative rough-ness of substrate, but the following is typical: 1/8" thickness is approx 49 SF; 1/4" thickness is approx. 24 SF; 1/2" thickness is approx. 12 SF.

WATERPROOFING AND CRACK ISOLATION MEMBRANE INSTALLATION

Install waterproofing and crack isolation membrane in compliance with current revisions of ANSI A108.1 (2.7 Waterproofing), ANSI A108.13, and ANSI A108.17. 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 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 HYDRO BAN applied with a paint brush or trowel may be used to fill in non-structural joints and cracks. Apply a liberal coat* of HYDRO BAN approximately 8" (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 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 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 HYDRO BAN around and over the bottom half of drain clamping ring. Cover with a second liberal coat of HYDRO BAN. When the HYDRO BAN dries, apply a bead of LATICRETE LATASIL™ where the 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 ceramic tile, stone or brick. Pack any gaps around pipes, lights or other penetrations with a LATICRETE latex-fortified thin-set. Apply a liberal coat* of HYDRO BAN around penetration opening. Cover the first coat with a second liberal coat* of LATICRETE® HYDRO BAN®. Bring HYDRO BAN up to level of tile or stone. When 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 HYDRO BAN with a paint brush or heavy napped roller over substrate including pre-treated areas and allow to dry to the touch. Install another liberal coat* of HYDRO BAN over the first coat. Let the top coat of HYDRO BAN dry to the touch approximately 1 – 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. HYDRO BAN will dry to an olive green color when fully cured. Use additional HYDRO BAN to seal any defects.

Movement Joints - Apply a liberal coat* of 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 HYDRO BAN liquid to bleed through. Immediately apply a second coat of HYDRO BAN.

* 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 HYDRO BAN.

Protection - Provide protection for newly installed membrane, even if covered with a thin-bed ceramic 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.

MIXING

Mix according to printed product instructions included with each LATICRETE® product package.

FLOOR TILE INSTALLATION

Bonded Thick Bed Method: Apply LATICRETE® 254 Platinum with flat trowel as a slurry bond coat approximately 1/16" (1.5mm) thick in compliance with current revision of ANSI A108. Place LATICRETE® 3701 Fortified Mortar Bed, over slurry bond coat while still wet and tacky. Fully compact the bed by tamping and finish mortar bed to desired elevation(s). Allow mortar bed to cure for minimum 7 days @ 70° F (21°C), prior to installation of membranes and moisture sensitive concrete tiles. Clean excess mortar/adhesive from finished surfaces. For tile installation, over cured (pre-floated) latex-portland cement thick bed mortar, follow **Thin Bed Method**.

Thin Bed Method: Install LATICRETE® 254R Platinum Rapid, in compliance with current revisions of ANSI A108.02, A108.1B and ANSI A108.5. Use the appropriate trowel notch size to ensure proper bedding of the tiles. Work the thinset into good contact with the substrate and comb with notched side of trowel. Spread only as much thinset as can be covered while the mortar surface is still wet and tacky. Back-butter tiles to ensure 100% coverage. Firmly embed each tile into the thinset to ensure full bedding and flatness. For installations onto metal stairs, use only LATAPOXY® 300 Adhesive. Allow installation to set until firm; typically 24 hours @ 70° F (21°C). Clean excess mortar from tile surfaces and open grout joints immediately, while it is still wet and tacky.

Medium Bed Method: Install LATICRETE® 4-XLT Rapid, in compliance with current revisions of ANSI A108.02 (3.11), A108.1B and ANSI A108.5. Use appropriately-sized notch trowel to ensure proper bedding of the tiles. Firmly apply LATICRETE® 4-XLT Rapid into good contact with the substrate using the flat side of the trowel. Next, immediately apply 4-XLT Rapid to the substrate with notched side of trowel. Spread only as much 4-XLT Rapid, as can be covered, while it remains wet and tacky. Back-butter tiles to ensure 100% coverage. Allow installation to set until firm; typically 24 hours @ 70° F (21°C). Clean excess mortar from tile surfaces and open grout joints immediately, while it is still wet and tacky.

GROUT INSTALLATION

Polymer Fortified Cement Grout (ANSI A118.7): Allow tile installation to cure a minimum of 24 hours @ 70° F (21°C). Verify grout joints are free of dirt, debris or tile spacers. Sponge or wipe dust/dirt off veneer face and remove any water standing in joints. Apply grout release as recommended. 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, ANSI A108.02 and ANSI A108.10. Dampen dry surfaces with clean water. Spread using a sharp edged, hard rubber float and work grout into joints, packing 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). 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 veneer face 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. Do not use acid cleaners on latex Portland cement grout less than 10 days old.

PROTECTION

- 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 have 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.
- Keep floors installed with epoxy adhesive closed to traffic for 24 hrs. at 70°F (21°C), and to heavy traffic for 48 hours @ 70°F (21°C) unless instructed differently by manufacturer.
- Use kneeling boards, or equivalent, to walk/work on newly tiled floors.
- Replace or restore work of other trades damaged or soiled by work under this section.
- Protect exterior installations from exposure to rain for a minimum of 7 days at 70° F (21° C).

COLD WEATHER NOTE

The curing of installation materials is retarded by low temperatures and finished work should be protected for an extended period of time. Typically, for every 18° F below 70° F (10°C below 21°C), latex and Portland cement based materials take twice as long to cure.

HOT WEATHER NOTE

The evaporation of moisture in Portland cement grouts is accelerated by hot, dry conditions. Apply grout to dampened surfaces & protect freshly spread grout & finished work when installing in temperatures over 95 degrees F (35 degrees C).

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LATICRETE International, Inc.
One LATICRETE Park North
Bethany, CT 06524-3423 USA
1.800.243.4788
+1.203.393.0010
www.laticrete.com