

## SECTION 03 54 00

### FORMATTED PROPRIETARY SPECIFICATION FOR LATICRETE® SUPERCAP® SC500 SELF-LEVELING CAST UNDERLAYMENT TOPPING

#### PART I – GENERAL

##### 1.01 SUMMARY

- A. This is the recommended guide specification for LATICRETE SUPERCAP Underlayments; pumpable and/or pourable, low-alkali, premium self-leveling underlayments used to finish concrete slabs and/or level uneven floor surfaces. Apply them over concrete, wood and other types of sound flooring before installing wood, resilient, cork, sports, ceramic, stone, carpet or other flooring systems. Floor covering adhesives that are suitable for concrete can be used on LATICRETE SUPERCAP Underlayments.
- B. If necessary, LATICRETE SUPERCAP Moisture Vapor Control Coating can be applied prior to installation of the cement underlayment topping, to help the system achieve Moisture Mitigation requirements needed for finish flooring.

##### 1.02 SECTION INCLUDES

- A. LATICRETE SUPERCAP SC500, SC500-LW and SC500-PLUS Self-Leveling Cement Underlayments
- B. LATICRETE SUPERCAP Primer Plus
- C. LATICRETE SUPERCAP Moisture Vapor Control Coating

##### 1.03 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 100 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.

##### 1.04 SUBMITTALS

- 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](http://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. Submit proof of warranty.
- C. Submit Health Product Declarations (HPD) for each tile installation material.
- D. 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.

#### **1.05 QUALITY ASSURANCE**

- A. Installation of LATICRETE SUPERCAP Underlayments must be by a qualified applicator using specialized mixing equipment and tools approved by the manufacturer. Contact LATICRETE SUPERCAP at +1.866.704.2247 for the name of your local sales representative who can provide names of qualified applicators.
- B. LATICRETE SUPERCAP SC500 and SC500-PLUS is to be applied at ¼" to 1 ½" average depth (6 – 38mm). LATICRETE SUPERCAP SC500-LW can be installed up to 4" depth. Consult Technical Services at +1.866.704.2247 for average depths over 1 ½".
- C. Finished floor goods may be installed as soon as 1 day after application, subject to thickness, drying conditions and type of flooring materials. 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.
- D. LATICRETE SUPERCAP Underlayments are cement-based product and, as with any cementitious material, slight variations in color can occur as a function of job-site conditions. Some water-marks similar to veins in stone are a natural result of a pour/spread/smooth installation process.
- E. Testing Agency Qualifications: If required, secure an independent agency qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.
- F. Mockups: Place mockups of LATICRETE SUPERCAP Underlayments (approx. 100 sq. ft.) to demonstrate typical joints, surface finish, bonding, texture, tolerances, and standard of workmanship.
- G. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.

## 1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in their unopened packages and protect from moisture. Protect liquids from freezing and from excessive heat. Store off the floor on dry pallets or equivalent. LATICRETE SUPERCAP SC500, SC500-LW and SC500-PLUS materials are packaged in bulk sacks and should be used within 6 months of the date of manufacture. LATICRETE SUPERCAP SC500 is additionally packaged in 50 LB plastic bags and should be used within 1 year of the date of manufacture.
- B. Use all means necessary to protect the materials of the section before, during and after installation and to protect the installed work and materials of all other trades.

## 1.07 SITE CONDITIONS

- A. LATICRETE SUPERCAP Underlayments are cementitious materials. Observe the basic rules of concrete work. Substrate temperature should be a minimum of 40° F (4° C) during the application and the ambient temperature maintained at 50°–90° F (10°–32° C).
- B. Install quickly if floor is warm and follow hot weather precautions available from LATICRETE SUPERCAP Technical Service Department or [www.laticretesupercap.com](http://www.laticretesupercap.com). Never mix with cement or additives other than LATICRETE SUPERCAP approved products.
- C. During application and curing, LATICRETE SUPERCAP Underlayments should not be exposed to rapid air movement, especially if area is heated or cooled. Air flow from HVAC systems in areas of application should be directed away from the floor during application of LATICRETE SUPERCAP Underlayments and at least 24 hours after work is completed.
- D. No other trades and no foot traffic of any kind are to be allowed in the work area from commencement of substrate preparation until minimum 24 hours after completion of finishing.

## 1.08 PRE-INSTALLATION CONSIDERATIONS

- A. Applicator must review TDS-230S - LATICRETE SUPERCAP Substrate Preparation and Primer Guide, available at [www.laticretesupercap.com](http://www.laticretesupercap.com).
- B. LATICRETE SUPERCAP Underlayments may be used for both new and renovation projects. When specifying or planning a new concrete slab, the following items should be considered.
  - 1. Slab Finishing Method: Two course monolithic bonded underlayment topping applied per manufacturer's recommendations over base concrete slab with bull float trowel finish to minimum FF 15. Just prior to installation survey base slab following a 4' grid depending on tolerances, install level pegs to required heights, install LATICRETE® SUPERCAP® topping slab over entire concrete base slab to meet levelness and flatness requirements without final finishing in conformance to ACI 318. Install on open floor plates 28 days after base slab placement or prior to starting interior framing work or prior to finish paint and other finish work. For installation over concrete earlier than 28 days after placement, LATICRETE SUPERCAP Underlayments may be installed when the substrate concrete has reached 70% of its 28-day design compressive strength. For further information, contact LATICRETE SUPERCAP Technical Services.
  - 2. Use of curing compounds on new concrete slabs is not recommended. If a curing compound is used on new concrete, the curing compound (including "self-

dissipating” curing compounds) must be removed by shot blasting, scarifying or other mechanical means to a minimum CSP of 3 per ICRI Guideline No. 03732 then vacuumed clean.

- C. Review finished floor goods recommendations for substrate moisture limitations. Flooring adhesive and floor goods manufacturers may separately specify maximum allowable moisture vapor emission rates or concrete relative humidity. If the concrete slab measures above these limits than a moisture vapor control system is required. If a moisture mitigation system is required, LATICRETE SUPERCAP Moisture Vapor Control must be installed on the concrete slab prior to installation of LATICRETE SUPERCAP Underlayment.

## 1.09 WARRANTY

- A. 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 10 years. The underlayment manufacturer shall provide a written ten (10) year warranty, which covers materials and labor - reference LATICRETE Warranty Data Sheet LSC-DS030.10S for complete details and requirements.
- B. For installations under Premium LATICRETE Tile & Stone Installation Systems, as manufactured by LATICRETE INTERNATIONAL, Inc., the underlayment manufacturer shall provide a written twenty-five (25) year warranty, which covers materials and labor - reference LATICRETE Warranty Data Sheet LSC-DS230.25S for complete details and requirements.

## PART 2 – PRODUCTS

### 2.01 MATERIALS MANUFACTURER

- A. LATICRETE SUPERCAP, LLC, 1 Laticrete Park North, Bethany, CT 06524-3423 USA  
Toll Free (866) 704-2247 Fax (203) 393-1948 [www.laticretesupercap.com](http://www.laticretesupercap.com)

### 2.02 MATERIALS – BASIS OF DESIGN

- A. Calcium Aluminate Based Self-Leveling Cement Underlayment: **LATICRETE SUPERCAP SC500.**
- B. Calcium Aluminate Based Self-Leveling Cement Underlayment – Light Weight: **LATICRETE SUPERCAP SC500-LW.**
- C. Calcium Aluminate Based Self-Leveling Cement Underlayment – High Strength: **LATICRETE SUPERCAP SC500-PLUS.**
- D. Underlayment Primer: **LATICRETE SUPERCAP Primer Plus.**
- E. Moisture Vapor Control (Moisture Mitigation): **LATICRETE SUPERCAP Moisture Vapor Control.**
- F. Water: Clean, Potable, and Cool.

### 2.02 MIX DESIGNS

- A. LATICRETE SUPERCAP SC500 is supplied in bulk supersacks and 50 lb bags.
- B. LATICRETE SUPERCAP SC500-LW and SC500-PLUS are supplied in bulk supersacks only.

- C. Super Sacks – Pre-condition LATICRETE SUPERCAP underlayment materials to approved application temperature, typically between 50–90°F (10–32°C). Materials for LATICRETE SUPERCAP SC500, LATICRETE SUPERCAP SC500-LW and LATICRETE SUPERCAP SC500-PLUS are to be blended by qualified LATICRETE SUPERCAP Applicators with the mobile blending unit that mixes LATICRETE SUPERCAP underlayment materials onsite at street level to manufacturer specifications.
  - a. Mix bulk sacked, engineered materials and water, utilizing computerized remote-controlled, self-contained mobile blending units, precisely weighing and mixing materials into a uniformly consistent, highly fluid mixture.
  - b. Utilize established recipes (mix designs) programmed into computer controlled batch mixing procedure to achieve the specified fluid consistency for mobile blending unit delivery to placement areas.
- D. 50 lb bags – Pre-condition LATICRETE SUPERCAP SC500 to approved application temperature, between 50–90°F (10–32°C). Add the entire bag to 3.7 quarts (3.5 ℓ) of clean, cool water and mix with a high speed drill (650 RPM). CAUTION: DO NOT OVER WATER OR OVER MIX. OVER WATERING WILL CAUSE BLEEDING OR SAND SEGREGATION. Mix thoroughly for approximately 1 ½ – 2 minutes to obtain a uniform, lump-free consistency; scrape container's sides and remix to incorporate remaining powder. If a multiple bag mix is performed, additional mix time may be required to obtain a lump-free, uniform mix.

### **PART 3 – EXECUTION**

#### **3.01 GENERAL**

- A. Refer to LATICRETE SUPERCAP SC500, LATICRETE SUPERCAP SC500-LW, LATICRETE SUPERCAP SC500-PLUS, LATICRETE SUPERCAP Primer Plus, and optional LATICRETE SUPERCAP MVC product data sheets at [www.laticretesupercap.com](http://www.laticretesupercap.com) for current product installation instructions.
- B. Concrete Slab Finishing in accordance with ACI 117 (Straight Edge Method).
- C. Provide ventilation to promote curing and reduce humidity.
- D. Do NOT install underlayment over moving cracks in substrate.

#### **3.02 INSPECTION**

- A. Verify that installed work of other trades is complete to the point where work of this Section may properly commence.
- B. Verify conformance to Field Conditions specified by this Section and to manufacturer instructions.
- C. Examine the areas and conditions where the Underlayment is to be installed and notify the architect of conditions detrimental to the proper and timely completion of the work. Verify that substrate surfaces are protected from weather, wind, water and clean, dry, unfrozen, do not contain petroleum byproducts, or other compounds detrimental to underlayment material bond to substrate. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.
- D. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.

### 3.03 PREPARATION

#### A. Substrate finishing or remedial method for cast underlayment:

SUBSTRATE PREPARATION – Refer to TDS-230S - LATICRETE SUPERCAP Substrate Preparation and Primer Guide, available at [www.laticretesupercap.com](http://www.laticretesupercap.com)

1. Concrete:
  - a. New Slab: Bull Float to minimum FF15. No finishing or hard trowelling is needed prior to LATICRETE SUPERCAP underlayment application.
  - b. Existing Slab: Evaluate and determine whether substrate needs to be mechanically prepared to ICRI CSP-3 by shot-blasting, scarification, or other treatments performed as instructed by manufacturer.
  - c. Weak or Contaminated Surfaces: Mechanically clean to ICRI CSP-3 by shot blasting, scarifying or sanding. If the substrate surface is suspected of having bond breakers core testing of the slab is recommended to confirm depth and type of contamination.
  - d. Do not acid etch or use chemicals to clean the substrates.
2. Wood:
  - a. Verify the wood substrate is stable and structurally sound enough to support all total anticipated live, dead and impact loads.
  - b. Wood substrates must be clean and free of any contaminants. Substrates can be sanded if necessary, then swept, vacuumed and properly primed.
  - c. If required for leakage control, install 6 mil thick polyethylene sheeting, overlapping by 6" (15 cm) and taping seams. Affix using staple or equivalent mechanical fastener.
  - d. Fasten galvanized diamond metal lath over entire substrate using corrosion resistant fasteners every 6" (15 cm) overlapping lath seams by 1" (2.5 cm).
3. Existing Finishes:
  - a. Verify the substrate and construction below existing finishes does not exceed industry deflection standards under all live, dead and impact loads for the type of finish flooring being installed.
  - b. Acceptable existing floor finishes include Vinyl Tile, Cement Terrazzo, Ceramic Tile & Stone, and Cement Mortar Beds. Refer to previous section for installation over existing wood.
  - c. Existing vinyl, vinyl asbestos tile, linoleum or ceramic tile must be firmly bonded to a rigid substrate. Note that cushioned vinyl will not properly support tile. Sheet vinyl or linoleum must be fully adhered.
  - d. Surface Prep:
    1. Clean surface to remove grease, wax, oil or other contamination;

2. Scrub with Tri-sodium Phosphate (TSP) solution or electric dishwasher detergent and hot water;
  3. After scrubbing surface with cleaning solution, rinse with clean water and allow to dry.
  4. Follow current priming instructions in TDS 230S, available on [www.laticretesupercap.com](http://www.laticretesupercap.com).
4. Cleaning:
- a. Remove dirt, wax, sealers, curing compounds, efflorescence, and other unsuitable surface conditions not part of concrete matrix that may inhibit the underlayment bond to the surface.
  - b. Broom clean and vacuum surfaces to pick up remaining dust and debris.
  - c. Where removal of existing bond breaking substances is impractical, conform to manufacturer's instructions for application of bonding agent before installation of cementitious underlayment.
    - 1) Do not install cementitious underlayment directly over mastics and other bond breaking substances.
5. All cracks in the subfloor shall be repaired to minimize telegraphing through the Underlayment. See Section 3.02 B.
6. Substrate temperature should be a minimum of 40 degrees F (4 degrees C) during the application and the ambient temperature maintained at 50 degrees – 90 degrees F (10 degrees – 32 degrees C).
7. Concrete slabs must be tested and measure less than 95% relative humidity (RH) per ASTM F2170 prior to installation of LATICRETE SUPERCAP self-leveling underlayment. If 95% RH or greater is measured contact LATICRETE SUPERCAP technical support. Do not install LATICRETE SUPERCAP products when there is standing water or visible moisture on the slab. It is important to note that concrete slabs may be dry enough to successfully install LATICRETE SUPERCAP products; however, concrete slab may not be dry enough to meet moisture conditions required for finish flooring.
- Concrete slabs should be tested for appropriate moisture conditions in accordance with the finish flooring manufactures specifications prior to installing LATICRETE SUPERCAP. LATICRETE SUPERCAP primer and self-leveling underlayments are not moisture mitigation systems. When a moisture mitigation system is needed use LATICRETE SUPERCAP Moisture Vapor Control. Refer to Moisture Mitigation System section and DS- 061.0 for more information.
8. Surface bond strength of the substrate should be no less than 100 PSI (0.7 MPa) per ASTM C1583 or ICRI Guideline No. 03739 for the application of all LATICRETE SUPERCAP SC500. Weak or contaminated surfaces must be mechanically cleaned by shot blasting, scarifying or sanding. Never use chemicals to clean the substrate. If installing LATICRETE SUPERCAP Moisture Vapor Control, per ASTM F3010, concrete slab to receive LATICRETE SUPERCAP Moisture Vapor Control must have a tensile pull-off strength of 200 PSI (1.4 MPa) or greater when tested in accordance with ASTM C1583.
9. LATICRETE SUPERCAP Moisture Vapor Control (as required): Apply to concrete substrates using squeegee and paint roller achieving a minimum

thickness of 12 mils. If required to meet ASTM F3010, then LATICRETE SUPERCAP Moisture Vapor Control MUST be a minimum 16mil thickness. LATICRETE SUPERCAP Moisture Vapor Control is only approved for concrete substrates.

10. Containment: Close and seal floor openings and install dams at edges of floor area to receive treatment as necessary to contain self-leveling underlayment while in plastic state.
11. Concrete Floor Flatness and Floor Levelness Benchmarks: Use a digital level device to determine elevations on a 4x4 foot grid, depending on tolerances, to establish and set self-adhering LEVEL PEGS at heights to indicate installation depths and top surface of underlayment application or other approved method.
12. Joint Preparation:
  - a. Expansion and Isolation Joints: Honor through underlayment by marking with screws or similar and saw cutting after self leveling application..
  - b. Static (Non-Moving) Saw Cuts and Control Joints: Fill with joint sealer under provisions of Section 03 30 00.
  - c. Other Static (Non-Moving) Joints: Patch and repair using cementitious patching product.
  - d. Dynamic (Active) Cracks: Bring to Architects attention for direction.
13. Priming:
  - a. Maintain adequate ventilation during and following primer application to promote faster drying.
    - 1) Insufficient drying time, low temperatures, and high humidity may result insufficient drying, poor film formation, and pinholes in surface.
    - 2) Do not apply at surface temperatures below 40 degrees F (4 degrees C).
  - b. LATICRETE SUPERCAP Primer Plus: Dilute primer concentrate with water according to the ratios given in LATICRETE SUPERCAP Primer Plus Data Sheet.
    - 1) Apply to substrates using stiff broom, roller or spray as instructed by manufacturer.
    - 2) Roll, spray, or broom to uniform film thickness over prepared substrate. Avoid puddling and allow surface film to become dry to touch, typically 3 - 5 hours after application. For best results, and while primer is still fresh, it should be lightly brushed to ensure a complete, uniform film has been applied.

### **3.04 INSTALLATION OF UNDERLAYMENT**

- A. Install underlayment in accordance with manufacturer's instructions, and after installation of moisture vapor mitigation (if needed) and underlayment primer.



- B. Mixing: Measure components and mechanically mix, as recommended by the manufacturer.
- C. Substrate temperature must be a minimum 40°F (4°C) during application and air temperature maintained between 50–90°F (10–32°C). Protect areas from direct sunlight and exposure to weather.
- D. Pump or pour LATICRETE SUPERCAP SC500 and LATICRETE SUPERCAP SC500-PLUS onto substrate at an average thickness ranging between 1/4" to 1 1/2" (6–38 mm) for all surfaces. LATICRETE SUPERCAP SC500-LW may be placed onto substrate up to 4" in thickness. Wood substrates require a minimum thickness of 3/4" (19 mm).
- E. Immediately following placement lightly smooth the surface and pour lines. When not using level pegs the use of a gauge rake will assist in controlling material depth.
- F. Adequate ventilation should be provided to ensure uniform drying.
- G. Do not expose LATICRETE SUPERCAP SC500, LATICRETE SUPERCAP SC500-LW or LATICRETE SUPERCAP SC500-PLUS to rolling dynamic loads, such as forklifts or scissor lifts, for at least 72 hours after installation.
- H. Proper application is the responsibility of the user.
- I. Place underlayment before partition installation if construction schedule allows.
- J. If a fine, feathered edge is desired, steel trowel the edge after initial set, but before it is completely hard.

### **3.05 CURING**

- A. Once underlayment starts to set, prohibit foot traffic until final set has been reached.
- B. Air cure in accordance with manufacturer's instructions.
- C. Provide continuous ventilation and adequate heat until walkable; provide mechanical ventilation if necessary.
- D. Remove and replace underlayment areas that evidence lack of bond with substrate, including areas that emit a "hollow" sound when tapped.
- E. Do not install floor coverings over underlayment until all conditions required by the floor covering manufacturer have been met. Floor covering manufacturer's requirements may vary greatly.

### **3.06 PROTECTION**

- A. Protect against direct sunlight, heat, and wind; prevent rapid drying to avoid shrinkage and cracking during the curing process.
- B. Protect underlayment from traffic as follows:
  - a. Do not permit foot traffic over underlayment surfaces for 2 to 4 hours, 24 hours for trade traffic.
  - b. Do not permit trade vehicle traffic for 48-hours.
  - c. Standing water is to be removed by squeegee or other acceptable method daily.

**3.07 FIELD QUALITY CONTROL**

- A. Field flow tests should be performed on site periodically to ensure mix is homogeneous and free from separation.
- B. Field visits by LATICRETE SUPERCAP personnel are for the purpose of making technical recommendations only and not for supervising or providing quality control on the jobsite.

END OF SECTION