



SECTION 03540 (03 54 00)

CAST UNDERLAYMENT

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**** NOTE TO SPECIFIER ** SpexCrete™ Commercial Underlayments**

This section is based on the products of SpexCrete™, which is located at:

29299 Clemens Rd. Unit 1-L
Westlake, OH 44145
Phone: 440-462-1500
Email: info@spexcrete.com
Web: <https://spexcrete.com>

[\[Click Here\]](#) for additional information.

SpexCrete™ Commercial Underlayments delivers lightweight flooring solutions to the commercial flooring industry. Our inhouse formulations and systems get you the lightweight floor you need.

At SpexCrete™, we take great pride in offering exceptional customer service, quality products and logistical benefits to the hard-working manufacturers, contractors and installers across the country. If you need great underlayments delivered to your warehouse or job site, please give us a call at 440-462-1500 or email us at info@spexcrete.com!

PART 1 GENERAL

1.1 SECTION INCLUDES

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

- A. Ultra-lightweight underlayment.
- B. Self-leveling underlayment.
- C. Bonding agent.
- D. Lightweight additives.

1.2 RELATED SECTIONS

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

- A. Section 03300 - Concrete.
- B. Section 06110 - Wood Framing.
- C. Section 09300 - Tiling.
- D. Section 09600 - Flooring.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data:
 - 1. Manufacturer's data sheets on each product to be used.
 - 2. Preparation instructions and recommendations.
 - 3. Storage and handling requirements and recommendations.
 - 4. Typical installation methods.

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

- C. Verification Samples: Two representative units of each type, size, pattern, and color.
- D. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
- B. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
- C. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

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

- D. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
 - 1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
 - 2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
 - 3. Retain mock-up during construction as a standard for comparison with completed work.
 - 4. Do not alter or remove mock-up until work is completed or removal is authorized.

1.5 PRE-INSTALLATION CONFERENCE

- A. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
- B. Protect from damage due to weather, excessive temperature, and construction operations.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.8 WARRANTY

- A. Manufacturer's standard limited warranty unless indicated otherwise.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: SpexCrete, which is located at: 29299 Clemens Rd. Unit 1-L, Westlake, OH 44145; Phone: 440-462-1500; Email: info@spexcrete.com; Web: <https://spexcrete.com>

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

- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

**** NOTE TO SPECIFIER ** Applications: Indoor Deep Fill Flooring for High Rise Commercial and Residential Structures, Lightweight Void Fill, Ideal for Fixing out of Level Floors, Great for Mass Timber Construction, Building Renovation, Luxury Apartments and Condos. Delete article if not required.**

2.2 ULTRA LIGHTWEIGHT UNDERLAYMENT

- A. Basis of Design: 350 Super Set ULU as manufactured by SpexCrete. A just add water, Ultra Lightweight Underlayment (ULU) designed for deep fill flooring applications. Used as a lightweight deep fill leveler and replacement for foam board, bead mixes or extended levelers or multiple lifts. This is an ultra-lightweight underlayment that can easily be pumped, placed around obstructions and finished. Provides a weight savings of 69 percent as compared to traditional underlayments. Adds only 2.80 - 3.25 lbs per sq ft per 1 inch. Not a wear surface and must be topped.
1. Simple to Finish: Can be Sloped.
 2. Designed for Interior Use.
 3. Application Temperature Range: 50 to 90 degrees F (10 to 32 degrees C).
 4. Fresh Density: 35 to 42 lbs per cu ft (608.7 to 672.8 kg per cu m).
 5. Final Density: 28 to 35 lbs per cu ft (544.6 to 624.7 kg per cu m).
 6. Weight; lbs per sq ft at 1 inch (25 mm) thick: 3 lbs (1.36 kg).
 7. Spread: 19 to 21 inches (483 to 533 mm).
 8. Compressive Data:
 - a. After 1 Day: Greater than 200 psi (1.379 MPa).
 9. Working Time: 30 to 40 minutes.
 10. Initial Set: 70 to 110 minutes.
 11. Minimum Thickness: 0.5 inches (12.7 mm).
 12. Maximum Thickness: 6 inch (152 mm).
 13. Time to Topcoat: 18 to 24 hours,
 14. Coverage for one 40 lbs (18.1 kg) bag:
 - a. Thickness of 1 inch (25 mm): 18 sq ft (1.672 sq m).
 - b. Thickness of 2 inch (51 mm): 9 sq ft (0.836 sq m).
 - c. Thickness of 3 inch (76 mm): 6 sq ft (0.557 sq m).
 15. Shelf Life: 6 to 12 months.

**** NOTE TO SPECIFIER ** Applications: Historical Renovation, Multifamily / High-Rise Residential, Mixed Use Multi-Story Buildings, Retail, Luxury Apartments, Commercial Offices, Institutional, Schools and Universities. Delete article if not required.**

2.3 SELF LEVELING UNDERLAYMENT

- A. Basis of Design: 5000 SLU as manufactured by SpexCrete. A self-leveling underlayment (SLU) floor leveling system requiring minimal surface preparation, has high compressive strength, with little to no shrink. A hydraulic cement based self-leveling underlayment; smooth, durable, and easy to pump. Can be installed over most substrates, including existing gypsum.

1. Fast Setting, Light Traffic in 4 hours.
2. Normal traffic in 24 hours.
3. Utilizes approved local bulk sand or can come pre-sanded.
4. Interior use only. Not a wear surface. Floor covering is required.
5. Application Temperature Range: 40 to 90 degrees F (4 to 32 degrees C).

**** NOTE TO SPECIFIER ** Please note the Final Density value is approximate.**

6. Final Density: 110 lbs per cu ft (17.28 kg per cu m).
7. Mixing Ratio:
 - a. One bag of 5000 SLU 50 lbs (22.68 kg).
 - b. Approved Sand: 50 lbs (22.68 kg).
 - c. Water: 9.5 to 11 quarts (9 to 10.41 L).
8. Compressive Data:
 - a. After 1 Day: Greater than 2,000 psi (13.789 MPa)
 - b. After 7 Days: Greater than 3,500 psi (24.131 Mpa)
 - c. After 28 Days: Greater than 4,500 psi (31.026 Mpa)
9. Minimum Thickness: 1/8 inch (3 mm).
10. Maximum Thickness: 1-1/2 inch (38 mm).
11. Color: Gray
12. Working Time: 20 minutes.
13. Coverage for one 50 lbs (22.6 kg) bag: 28 sq ft (2.60 sq m) at 1/4 inch (6 mm) thick.

- B. Basis of Design: 5000 W SLU Wear Surface, Self-Leveling Underlayment as manufactured by SpexCrete: A shrinkage-compensated, high-strength, self-leveling, self-curing, water resistant underlayment engineered as a floor resurfacer. A just-add-water product that allows floors to be re-levelled quickly. May be pumped or poured. Requires little to no troweling.

1. Final Density: 125 to 128 pcf (2002.3 to 2050.4 kg per cu m).
2. Pounds / sq ft at 1 inch (25 mm): 11 pounds (5 kg).
3. Flexural Strength: 1,000 psi (6.895 MPa).
4. Compressive Data:
 - a. 1 Day: 3,500 psi (24.132 MPa).
 - b. 7 Day: 4,500 psi (31.026 MPa).
 - c. 28 Day: 6,500 psi (44.816 MPa).
5. Flowing Time: 15 minutes.
6. Working Time: 20 to 30 minutes.
7. Light Foot Traffic: 4 to 8 hours.
8. Minimum Thickness: 1/4 inch (6 mm).
9. Maximum Thickness: 1 inch (25 mm).
10. Color: Gray.
11. Deflection: L/360 of the span.
12. Ambient and or Substrate Installation Temperature: 40 to 90 degrees F (4.4 to 32.2 degrees C) within 24 hours of pour.
13. Mix Ratio: 50 lbs dry mix to 5 to 5-1/2 quarts (4.7 to 5.2 L) of clean potable water.
14. Coverage for one 50 lbs (22.6 kg) bag: 13 sq ft (1.20 sq m) at 1/2 inch (13 mm) thick.

- C. Basis of Design: 70 SLU, Self-Leveling Underlayment as manufactured by SpexCrete: When precise weight per square foot and strength requirements need to be met. A lightweight deep fill, single pass, one component system. Pumpable. Finishes smooth. Average weight per square foot of 6 pounds at 1 inch (25 mm) thick.

1. Final Density: 69 to 75 pcf (1105.2 to 1201.3 kg per cu m).
2. Pounds / sq ft at 1 inch (25 mm): 6 pounds (2.72 kg).
3. Compressive Data:

- a. 28 Day: 4,000 psi (27.579 MPa) or greater.
 4. Flowing Time: 15 minutes.
 5. Working Time: 20 to 30 minutes.
 6. Light Foot Traffic: 4 to 8 hours.
 7. Minimum Thickness: 1/4 inch (6 mm).
 8. Maximum Thickness: 1-1/2 inch (38 mm).
 9. Ambient and or Substrate Installation Temperature: 40 to 90 degrees F (4.4 to 32.2 degrees C) within 24 hours of pour.
 10. Color: Gray.
 11. Coverage for one 30 lbs (13.6 kg) bag: 12 sq ft (1.11 sq m) at 1/2 inch (13 mm) thick.
- D. Basis of Design: 6000 SLU, Self-Leveling Underlayment as manufactured by SpexCrete: Presanded, premium self leveling underlayment for renovation work with high compressive strengths and engineered for ease and speed of application and return to service.
1. Final Density: ~125 pcf (2002.3 kg per cu m).
 2. Pounds / sq ft at 1 inch (25 mm): 10.4 pounds (4.71 kg).
 3. Compressive Data:
 - a. 1 Day: 3,500 psi (24.131MPa) or greater.
 - b. 7 Day: 5,000 psi (34.473 MPa) or greater.
 - c. 28 Day: 6,500 psi (44.815 MPa) or greater.
 4. Working Time: 15 minutes.
 5. Tile: 12 hours.
 6. Minimum Thickness: 1/8 inch (3 mm).
 7. Maximum Thickness: 1 inch (25 mm).
 8. Ambient and or Substrate Installation Temperature: 40 to 80 degrees F (4.4 to 26.6 degrees C) within 24 hours of pour.
 9. Coverage for one 50 lbs (22.6 kg) bag: 22 sq ft (2.04 sq m) at 1/4 inch (6 mm) thick.

2.4 BONDING AGENT

- A. Basis of Design: WB Bonding Agent as manufactured by SpexCrete. Architectural grade, VOC compliant, water based emulsion for bonding cement based products to interior, structurally sound new or old concrete, masonry, wood, marble, and gypsum board. Apply over damp or dry substrate.
1. Provides better adhesion to old or new concrete for patching, grouting, or coating.
 2. Thick, non-run formula is ready to use, no site dilution.
 3. Allows overlays when dry to the touch (1 hour) or delayed for up to 7 days.
 4. Nontoxic, nonflammable, and non-staining.
 5. Unaffected by alkalinity of Portland Cement.
 6. Retains strength and flexibility indefinitely.
 7. Improves tensile and shear strengths.
 8. Unaffected by Severe Heat and Cold: Minus 35 to 300 degrees F (Minus 37.2 to 148.9 degrees C).
 9. Density: 8.7 lbs per gallon (1.04 kg per L).
 10. pH: 4.5 to 6.0
 11. Color: Milky White. Dries clear.
 12. Coverage for 5 gallons (18.9 L): 750 to 1,500 sq ft (69.7 to 139.4 sq m)

**** NOTE TO SPECIFIER **** These lightweight additives are components that installers or manufacturers can add to other products instead of using sand. They can be separately used to blend with other bagged binder systems on job sites to create lightweight levelers. They do not have to be used exclusively with other SpexCrete™ products. Delete article if not required.

2.5 CONCRETE LIGHTWEIGHT ADDITIVES

- A. Basis of Design: G5 Lightweight Additive as manufactured by SpexCrete. Modified mineral based non-toxic microbead sand replacement. Decreases density of self-leveling

underlayments. Excellent compressive strength and workability when added to calcium aluminate, cementitious and gypsum based products. Blends with self-leveling underlayments providing a homogeneous mix. Can be pumped, placed, and finished.

1. Softening Temperature: 1,580 to 1,920 degrees F (860 to 1049 degrees C).
 2. Melting Point: 1,920 to 2,280 degrees F (1049 to 1249 degrees C).
 3. Color: Off white.
 4. pH: 6.5 to 8.
 5. Surface Moisture: Less than 0.2 mass percent.
 6. Particle Shape: Sphere / egg.
 7. Mohs Scale: 5.5 to 7.0.
 8. Average Particle Size: 0.006 to 0.007 inches (150 to 175 microns).
 9. Loose Bulk Density: 18.5 lbs per cu ft (296.3 kg per cu m).
 10. Specific Gravity: 0.0195 lbs per cu inch (0.54 grams per cu cm).
 11. Thermal Conductivity: 0.042 to 0.004 Btu per h ft F (0.072 to 0.007 W per m K).
 12. Mechanical Crush Strength: 315 psi (2.172 MPa).
 13. Isostatic Particle Strength: 1,000 psi (6.895 MPa).
- B. Basis of Design: 6724 LWA (Lightweight Additive) as manufactured by SpexCrete. A FR-modified expanded polystyrene bead additive. It mixes with Portland cement / pozzolanic binders to provide air voids and reduce system densities. Its ultra-low bulk density is 80x lighter than sand. It has little to no dust, no silicosis.
1. Particle Composition: Expanded Polystyrene.
 2. Bulk Density (Loose): 0.9 to 1.2 pcf (14.42 to 19.22 kg per cu m).
 3. Specific Gravity: 0.033.
 4. Size: 0.04 to 0.090 inches (1 to 2.3 mm).

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly constructed and prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
- B. Conduct a representative test pour prior to installation to confirm desired results are achieved.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

3.5 CLEANING AND PROTECTION

- A. Clean products in accordance with the manufacturers recommendations.

- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION