

SECTION 03 54 16

HYDRAULIC CEMENT UNDERLAYMENT

Platform L3™ Self-Leveling Underlayment

Powered by Synthechem™ Technology
Platform Performance Flooring Systems

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. Self-leveling hydraulic cement underlayment for smoothing, leveling, and flattening of interior, qualified substrates prior to installation of floor coverings.
2. Primer.
3. Moisture vapor mitigation system, where required.

B. Related Requirements:

1. Section 03 54 16 – Hydraulic Cement Underlayment.
2. Section 09 05 61.13 – Moisture Vapor Emission Control.
3. Division 09 Flooring Sections for floor finishes installed over underlayment specified in this Section.

1.2 REFERENCES

A. ASTM International (ASTM):

1. ASTM C109 (Modified) – Standard Test Method for Compressive Strength of Hydraulic Cement Mortars.
2. ASTM C348 – Standard Test Method for Flexural Strength of Hydraulic Cement Mortars.
3. ASTM C191 – Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle.
4. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
5. ASTM F1869 – Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
6. ASTM F2170 – Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In-Situ Probes.
7. ASTM F3010 – Standard Practice for Two-Component Resin-Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings.
8. ASTM E96 – Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials.
9. ASTM F710 – Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.

1.3 SUBMITTALS

A. Action Submittals:

1. Product Data: Manufacturer's technical data sheets (TDS) for each product specified, including storage, handling, and installation requirements.

B. Informational Submittals:

1. Safety Data Sheets (SDS) for each product specified.

2. Manufacturer's written installation instructions.
3. Job-Specific Warranty: Sample copy of specified warranty.
4. Installer's qualification data.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer shall have a minimum of five (5) years' experience performing work similar in material, design, and scope to that required for this Project, with a proven record of successful in-service performance and adequate production capability, facilities, and personnel to complete the required Work.
- B. Installer Qualifications:
 1. Installer shall have sufficient experience performing work similar in material and scope to that required for this Project.
 2. Installer shall be a certified International Standards and Training Alliance (INSTALL) applicator, or approved equal. See www.installfloors.org for additional information.
 3. Installation shall comply with all manufacturer technical documents and applicable safety and site-condition recommendations, and with rules and regulations of the project jurisdiction. Consult SDS for further handling recommendations.
- C. Pre-Installation Meeting: Convene a pre-installation meeting not less than two (2) weeks prior to installation. Attendees shall include the General Contractor, Installer, and a Platform Performance Flooring Systems representative.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original, unopened packaging.
- B. Store in a dry location between 50 and 90°F (10 and 32.2°C), out of direct sunlight. Protect and store all materials off the ground.
- C. Acclimate material to a minimum of 50°F prior to mixing.
- D. Use material within 12 months of the manufacture date.

1.6 FIELD CONDITIONS

- A. Maintain ambient air and substrate temperatures between 50 and 90°F (10 and 32.2°C) during installation and for 8 hours thereafter. Maintain temperature above 32°F (0°C) for 72 hours after installation.
- B. Protect from direct sunlight and strong air movement during application and for the first 6 hours of curing. After the 6-hour mark, promote proper air exchange for best results.

1.7 WARRANTY

- A. Manufacturer's Warranty: Provide manufacturer's written warranty against defects of materials for a period of one (1) year, commencing on the date of substantial completion of the Project.
- B. Extended Warranty: Ten (10)-year and twenty-five (25)-year system warranties are available. Contact Platform Performance Flooring Systems at info@platformperformance.com for eligibility requirements.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Manufacturer: Platform Performance Flooring Systems, 2926 Chester Avenue, Cleveland, OH 44114; 877-514-5336; www.platformperformance.com.
- B. Basis-of-Design Product: Platform L3™ Self-Leveling Underlayment. Platform L3 is considered by the manufacturer to conform to the requirements of this Section.
- C. Substitutions: Submit requests no less than 30 days prior to bid, together with independent laboratory test reports demonstrating compliance with all performance requirements of this Section.

2.2 HYDRAULIC CEMENT SELF-LEVELING UNDERLAYMENT MATERIALS

A. Performance Requirements:

Property	Requirement / Test Method
Compressive Strength, 24 hours	> 1,200 psi (ASTM C109, Modified)
Compressive Strength, 7 days	> 2,500 psi (ASTM C109, Modified)
Compressive Strength, 28 days	> 5,000 psi (ASTM C109, Modified)
Flexural Strength, 28 days	> 1,000 psi (ASTM C348)
Final Set Time	50–80 minutes (ASTM C191, Vicat Needle)
Density	120–130 lbs./cu. ft.
VOC Content	< 0.5 mg/m ³ per certified CDPH VOC emissions testing
Surface Burning – Flame Spread	0 (ASTM E84)
Surface Burning – Smoke Developed	0 (ASTM E84)

B. Physical Properties:

Property	Value
Packaging	50 lb (22.7 kg) bag
Yield	0.52 cu. ft. per 50 lb bag
Coverage	Approx. 25 sq. ft. at 1/4" depth per 50 lb bag
Mix Ratio (Water)	4.5–5 quarts per 50 lb bag
Working Time	15–20 minutes
Time to Light Foot Traffic	2–3 hours
Application Thickness	1/8" minimum to 2" maximum per lift
Shelf Life	12 months from manufacture date, unopened

2.3 PRIMER

- A. Platform P360 Primer: Premium alkali-resistant, high-solids, dilutable, rapid-drying, single-component, interior acrylic copolymer.
 - 1. VOC Content: < 0.5 mg/m³ per certified CDPH VOC emissions testing.

2.4 MOISTURE VAPOR MITIGATION SYSTEM (WHERE REQUIRED)

- A. Platform EMS: Two-part, 100 percent solids epoxy moisture vapor mitigation system for control of vapor emissions in concrete; effective barrier to moisture up to 100 percent relative humidity (ASTM F2170) and/or 25 lbs. MVER (ASTM F1869). Low viscosity allows fast, easy installation over concrete.
- B. Platform EMS utilizes advanced epoxy resin systems (Benzyl Alcohol and Nonylphenol free), is VOC compliant, and is resistant to high-pH concrete subject to high moisture content (RH). Complies with ASTM F3010 when tested per ASTM E96 at 12 mils thickness.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine substrates for soundness, cleanliness, and suitability prior to installation. Do not proceed until unsatisfactory conditions have been corrected.
- B. Verify substrates are solid, sound, clean, primed, dry, and free of ongoing moisture intrusion.
- C. Compatibility: Platform L3 is compatible with concrete, concrete plank, existing patching and leveling materials, sound gypsum, steel pan, corrugated steel deck, cement or epoxy terrazzo, well-bonded existing flooring such as VCT and ceramic tile, qualified adhesive residue (non-soluble, non-PSA), and minimum 5-day-old green concrete with an underslab vapor barrier.
- D. Do not use:
 - 1. Where hydrostatic pressure (water) is present, or moisture emissions exceed the level permitted for the finished floor covering, unless mitigated using the Platform EMS moisture vapor mitigation system.
 - 2. When the surface or ambient temperature falls below 50°F within 8 hours before or after installation.
 - 3. For regular trade traffic less than 16 hours after application.
 - 4. As a trafficable surface without coating with a suitable film-forming material.
 - 5. Over presswood, particle board, Masonite, chipboard, single stripwood floors, luan, or similar dimensionally unstable materials susceptible to movement or swelling.
 - 6. For exterior or exposed applications.
 - 7. Where wood deflection exceeds the L/360 rigidity standard.

3.2 PREPARATION

- A. General: Remove all contaminants, including oil, grease, laitance, curing compounds, sealers, adhesive residues, and other bond-breaking substances.
- B. Repair cracks, spalls, and voids using a compatible Platform Performance Flooring Systems patching material prior to installation. Honor all moving joints through the underlayment system.
- C. Substrate-Specific Preparation:
 - 1. Concrete Substrates: Verify substrate is sound, clean, and free of dirt, dust, grease, curing compounds, or other material that might prevent adhesion. Application over textured surfaces achieves the best bond; steel-troweled concrete typically exhibits non-porous behavior. Consult Platform P360 TDS for priming methods. Acid etching is not acceptable.
 - 2. Gypsum Substrates: Verify surface is sound and free from dusting, chalking, and surface weakness. Repair weak, soft, or dusty gypsum prior to application of Platform L3 using a recommended Platform gypsum repair solution (e.g., Platform SLV or Platform CSX).
 - 3. Wood Substrates: Wood floors must satisfy local building codes, utilize exterior-grade plywood or suitable OSB resistant to water, and be free of deflection. Due to the high material strength of Platform L3, ensure wood deflection does not exceed L/360. Wood must be free of contaminants (oils, wax, dirt, etc.) that could function as a bond breaker prior to application of primer.

4. Adhesive Residue: Scrape non-soluble adhesives to a well-bonded residue. Mechanically remove water-soluble and pressure-sensitive adhesives from the substrate (contact manufacturer's technical services for details). Verify adhesive type prior to mechanical removal to prevent introducing asbestos-containing materials into the environment; comply with all local, state, and federal requirements for removal and disposal of asbestos-containing adhesive or flooring materials.
 5. Existing Tile: Existing ceramic tile, quarry tile, and similar finishes must be well bonded, clean, and free of waxes or other material that might prevent adhesion. Glazed or extremely smooth tile may require mechanical abrasion to achieve a proper bond.
- D. Moisture Testing: Test concrete substrates in accordance with ASTM F1869 (calcium chloride) or ASTM F2170 (in-situ relative humidity). Where substrate moisture exceeds finish-flooring limits, install Platform EMS 100 percent solids epoxy moisture mitigation system per manufacturer's TDS prior to installation of Platform L3.
- E. Priming: Apply Platform P360 primer to all substrates per manufacturer's TDS prior to underlayment installation. Select dilution and application method based on substrate porosity, as follows:

Porosity	Dilution	Coverage
Porous Surface	2:1 (Water : Primer)	600–1,000 sq. ft.; apply by soft-tip broom
Non-Porous Surface	No Dilution	500–650 sq. ft.; apply by roller

1. Allow primer to dry fully before proceeding. Reapply primer if dried more than 48 hours prior to underlayment placement.
2. Protect primed surface from airborne and trafficking debris prior to installation.

3.3 MIXING

- A. Add 4.5 to 5 quarts of cool, clean, potable water to a clean mixing barrel.
- B. Gradually add powder to water. Mix with a proper mixing paddle and heavy duty ½" drill at a minimum of 650 rpm for 2 minutes until smooth and homogeneous. Do not add water beyond the specified maximum.
- C. Place material immediately after mixing.
- D. The use of a self-leveling continuous mixing pump can be alternatively used in lieu of a barrel mixer by qualified applicators. Contact Platform Performance Flooring Systems Technical Services for more information at (877) 514-5336.

3.4 APPLICATION

- A. Verify ambient and substrate temperatures are between 50 and 90°F (10 and 32.2°C) before beginning application.
- B. Pour or pump material onto the primed substrate in continuous strips. Spread with a gauge rake or smoothing trowel to the required thickness. A spike roller may be used to ensure uniform coverage and release entrapped air introduced during mixing.
- C. Minimum application thickness: 1/8". Maximum single lift (neat): 3".
- D. Finished surface flatness: Place material as needed to meet the specified floor covering's substrate requirements.

3.5 CURING

- A. Restrict light foot traffic for a minimum of 2 to 3 hours after placement.
- B. Restrict construction foot traffic for a minimum of 16 hours after placement.

- C. Restrict heavy loaded pallet jack traffic for a minimum of 72 hours after placement. Restrict heavy machinery traffic for 7 days after placement.
- D. Allow adequate drying time before installing finish flooring, per Platform L3's current TDS, based on application depth and site conditions. Always follow flooring manufacturer's recommendations for readiness prior to installation.
- E. Maintain ambient temperature between 50 and 90°F (10 and 32.2°C) throughout the curing period. Avoid rapid drying caused by direct sunlight, heat, or forced airflow.
- F. Platform L3 dries to a hard, porous, and dense surface. Priming may be necessary prior to application of cementitious adhesive or patch per the applicable manufacturer's specifications. Perform water droplet tests as needed to determine surface porosity.

3.6 FIELD QUALITY CONTROL

- A. Verify substrate flatness and smoothness comply with the requirements of the specified floor covering prior to installation of finish flooring.
- B. Notify manufacturer's technical representative of any substrate or site condition inconsistent with this Section prior to proceeding.

3.7 PROTECTION

- A. Protect the installed underlayment from construction traffic and trades until curing requirements of Article 3.5 have been met.
- B. Maintain temperature greater than 32°F (0°C) for 72 hours after placement.
- C. Can be left open to normal construction traffic for up to 12 months after placement.

END OF SECTION 03 54 16