



SECTION 035416

HYDRAULIC CEMENT UNDERLAYMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. TEC® Level Set® 200 Self-Leveling Cement Based Underlayment or CHAPCO® PREMIUM SLU
- B. TEC Multipurpose Primer or CHAPCO® MP Primer

1.2 RELATED SECTIONS

- A. Section 03300 - Cast Underlayment Concrete
- B. Section 09000 - Finishes

1.3 REFERENCES

- A. ASTM C 109 Modified - Compressive Strength of Hydraulic Cement Mortars
- B. ASTM C 580 Flexural Strength
- C. ASTM C 531 (modified) Shrinkage
- D. ASTM D 3931 Bond Strength (concrete)
- E. ASTM F 1869 Standard Test for measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
- F. ASTM F 2170 Relative Humidity in Concrete

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Manufacturer's MSDS and Product Data Sheets on each product to be used, including:
 - 1. Surface preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing Products specified in this section.
- B. *Installer Qualifications:* Firm specializing in installation of cementitious underlayments and toppings, with minimum 5 years documented experience with projects of similar scope, design, and materials. Installation of the HB Fuller Construction products must be completed by a factory-trained applicator, **INSTALL Substrate Prep Certified Installer**, or equal, using mixing equipment and tools approved by the manufacturer.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
- D. Prepare area designated by Architect.
- E. Mock-up area shall be 6 feet by 6 feet (1.83 m by 1.83 m).
- F. Do not proceed with remaining work until workmanship, is approved by Architect.
- G. Incorporate mock-up into final construction upon approval.
- H. Product Warranty: Product shall be free from manufacturing defects and will not break down or deteriorate under normal use for 1 year.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of section 01650 and section 01660.
- B. Store products in manufacturer's unopened packaging until ready for installation.

- C. Store products in a cool dry place out of direct sunlight.
- D. Maximum shelf life is 6 months from date of manufacture in unopened containers.

1.7 PROJECT CONDITIONS

- A. For interior application only.
- B. Do not install below 50 degrees F substrate temperature and air temperature maintained above 50°F.
- C. Not for use in conditions of hydrostatic pressure or excessive moisture readings above 15 pounds per 1000 sq. ft. per 24 hours per ASTM F 1869 (>95% Relative Humidity per ASTM F2170). Readings above 95% RH and 15lb/1000/24 hrs. up to and including readings of 25#/1000/24hrs and 100% RH require use of TEC® LiquiDam™, CHAPCO'S DEFENDER two-part 100% solids epoxy, CHAPCO® DEFENDER EZ™, or TEC® LiquiDam EZ™ 1-part, polymeric emulsion as manufactured by H.B. Fuller Construction Products. Readings above flooring manufacturers recommended levels also requires the use of moisture mitigation vapor barrier.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Brand/Manufacturer: TEC® or CHAPCO/H.B. Fuller Construction Products Inc.; 1105 S. Frontenac Street, Aurora, IL 60504. Tel: 800-832-9023. Fax: 800-952-2368. Web: www.tecspecialty.com or chapco-adhesive.com

1. TEC® Level Set® 200 Self-Leveling Cement Based Underlayment or CHAPCO® PREMIUM SLU
2. TEC® Multipurpose Primer or CHAPCO® MP Primer

**** 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.

2.2 MATERIALS

- A. Technical Data:
 1. Compressive Strength shall be no less than 5,000 psi @ 28 days (Air curing samples) when tested in conformance with ASTM C 109.
 2. Flexural Strength shall be no less than 1,000 psi @ 28 days when tested in conformance with ASTM C 580.
 3. Shrinkage: <0.07% @ 28 days when tested in conformance with ASTM C 531 (modified).
 4. Walkable hardness: 3 - 4 hours.
 5. Single applications from 1/8" to 1 1/2" neat
 6. Finish flooring installation: Moisture sensitive flooring: 16-24 hours, Tile: 4 hours.
 7. VOC Content shall be 0 g/L
- B. Primer: TEC Multipurpose Primer or Chapco MP Multipurpose
 1. Primer shall have 0 g/L VOC.
- C. Moisture mitigation: TEC® LiquiDam™, CHAPCO'S DEFENDER two-part 100% solids epoxy; or TEC® LiquiDam EZ™, CHAPCO® DEFENDER EZ™ 1-part, polymeric emulsion
 1. 100% solids epoxy or polymeric emulsion
 2. Product shall have 0 g/L VOC.
 3. Use for applications reading up to and including 25 lbs. per 1000 sq. ft. per 24 hours vapor emission per ASTM F 1869, or 100% relative humidity per ASTM F2170.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Test moisture content of substrates:
 - 1. Per ASTM F2170, do not install self-leveling underlayment if concrete relative humidity is > 95% and <= 100% without first applying moisture mitigation vapor barrier as specified per instructions and limitations.
 - 2. For moisture sensitive floor finishes refer to the finish floor manufacturers specifications for moisture limitations. Remediation of excessive moisture conditions must be done prior to installation of Self Leveling Underlayment. To reduce moisture vapor emissions to an acceptable level, use moisture mitigation vapor barrier as specified.
- B. Notify the Architect and General Contractor in writing of any unsatisfactory conditions.

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.
 - 1. All surfaces shall be structurally sound and free from any contaminants that may inhibit bond, including oil, grease, dust, loose or peeling paint, sealers, floor finishes, curing compounds or other contaminants.
 - 2. Concrete subfloors and other subfloors such as ceramic and quarry tile as well as Cement terrazzo should be clean and free of all waxes and sealers. Mechanically clean if necessary using shot blasting or other methods.
 - 3. For installation over cutback adhesive, remove adhesive by scraping until all that remains is a thin transparent layer of adhesive residue.
- C. Joint Preparation: Repair and reinforce all cracks in the subfloor to minimize telegraphing through the underlayment.
 - 1. Do not cover existing building expansion or control joints.
 - 2. Create 1/8" to 1/4" wide gaps where self-leveling abuts walls, columns, and fixtures by installing a self-sticking foam weather-stripping tape or damp sand.
- D. Seal all floor openings.

3.3 APPLICATION OF PRIMER

- A. Install products in accordance with manufacturer's instructions.
- B. Prime standard subfloors with primer.
 - 1. For best results, room and product should be kept at 50° to 70°F for 24 hours before, during and 48 hours after application.
 - 2. Mix primer with clean, potable water in the ratios listed in the coverage chart on product data sheet
 - 3. Use a brush or short nap roller for non-porous surfaces or a soft push broom for porous surfaces to apply an even, continuous film. Do not allow product to puddle.
 - 4. Apply an even continuous coat.
 - 5. Primer typically dries in 30 minutes to 3 hours under ideal ambient conditions. Cure times are based on 70°F (21°C) and 50% RH. Colder temperatures and higher humidity will extend cure times.
 - 6. To ensure product is fully dried, apply water droplet to surface and rub with fingertip. When water remains clear, product is fully dried. If water turns milky white, product is not dry. Repeat every 30 minutes until water remains clear. Avoid excessive foot traffic and surface contamination.
- C. Prime 2-part, 100% Epoxy moisture mitigation vapor barrier or cutback adhesive residues over concrete as follows (no need to prime 1-part, polymeric emulsion moisture mitigation vapor barrier):
 - 1. Prime with Primer.
 - 2. Use a brush or short nap roller for non-porous surfaces or a soft push broom for porous surfaces to apply an even, continuous film. Do not allow product to puddle.
 - 3. Allow to dry to a clear film (typically 1 - 3 hours).

4. Do not apply underlayment until the primer is dry.
5. Primer coverage is dependent on substrate conditions. See Product Data Sheet for Coverage rates based on different substrates.

3.4 MIXING of SELF LEVELING UNDERLAYMENT

- A. Mix materials in accordance with manufacturer's instructions.

3.5 PROTECTION

- A. Protect installed products until completion of project.
- B. Do not permit traffic over unprotected floor underlayment surfaces.

END OF SECTION