

## SECTION 035416

### HYDRAULIC CEMENT UNDERLAYMENT

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. TEC® Fiber-Reinforced Self-Leveling Cement Based Underlayment
- B. CHAPCO® EXTREME FIBER SLU Fiber-Reinforced Self-Leveling Underlayment
- C. TEC Multipurpose Primer
- D. CHAPCO® MP Multipurpose 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. Warranty: Product shall be free from manufacturing defects and will not break down or deteriorate under normal use for 10 years.

## 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 43 degrees F substrate temperature.
- 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 15#/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](http://www.tecspecialty.com) or <http://www.chapco-adhesives.com>
  - 1. TEC® Fiber-Reinforced Underlayment
  - 2. CHAPCO® EXTREME FIBER SLU Fiber-Reinforced Self-Leveling Underlayment

**\*\* 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: 6,000 psi @ 28 days (Air curing samples) when tested in conformance with ASTM C 109.
  - 2. Flexural Strength: 1,200 psi @ 28 days when tested in conformance with ASTM C 580.
  - 3. Shrinkage: 0.025 - 0.045% @ 28 days when tested in conformance with ASTM C 531 (modified).
  - 4. Ideal Slump range 10.5" - 11.5" (2" diameter pipe, 4" high).
  - 5. Bond Strength: 350 - 400 psi when tested in conformance with ASTM D 3931.
  - 6. Walkable hardness: 2 - 4 hours.
  - 7. Finish flooring installation: Permeable coverings 6 hours, Non-permeable coverings 12 - 24 hours.
  - 8. Working Time: 15 - 20 minutes at 70 degrees F (21 degrees C).
  - 9. "0" VOC
  - 10. Minimum 10% recycled content.

- B. Primer: TEC Multipurpose Primer or Chapco MP Multipurpose
  - 1. Primer shall have “0” VOC.
- C. Aggregate shall be well graded, washed pea gravel, 1/8 inch or larger. Use for underlayment installed in thicknesses over 1½ inch thick.
- D. Water shall be clean and potable.
- E. Moisture mitigation: TEC® LiquiDam™, CHAPCO’S DEFENDER two-part 100% solids epoxy; CHAPCO® DEFENDER EZ™ or TEC® LiquiDam EZ™ 1-part, polymeric emulsion
  - 1. 100% solids epoxy or polymeric emulsion
  - 2. “0” 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.

## 2.3 MIXING

- A. Mix materials in accordance with manufacturer's instructions.
- B. Standard Mix: Mix in accordance with manufacturer’s instructions.
  - 1. Slowly add a 50 lb. bag into water while mixing.
  - 2. Use 5.0 – 5.25 quarts (4.7-5.0 L) of water per 50 lb. bag
  - 3. Use cool water not over 70 degrees F.
  - 4. Mix using a 1/2-inch heavy-duty drill with blending paddle at a minimum of 650 rpm. Mix thoroughly for approximately 2 - 3 minutes. Scrape containers sides and remix to ensure a lump-free consistency.
- C. Aggregate Mix: For areas to be installed over 1½ inch thick.
  - 1. Mix as specified for standard mix.
  - 2. Add from 1/3 to 1 part by volume of 1/8 inch or larger aggregate and mix thoroughly to evenly coat all aggregate.
  - 3. Do not use sand.
- D. Pumped Mix:
  - 1. Mix as specified for standard mix. Do not over water.
  - 2. Check the consistency of the product with a Slump test.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Test moisture content of substrates:
  - 1. Per ASTM F2170, do not install if 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. Wood sub-flooring must be securely fastened with screws or ring shank nails and adhesive. Installation of exterior grade plywood or OSB (APA rated Sturdi –I-Floor OSB, Exposure 1 or better) require 3/4" (19mm) minimum thickness on bridged joists up to 24" on center with a maximum deflection of L/360 of the span. Allow a gap of 1/8" to 1/4" (3-6mm) between sheets. Long edges of sub-floor must be tongue and groove or supported by bridging between the floor joists. Plug all floor openings, gaps and cracks then install termination dams to prevent any seepage. Prime the floor. Allow primer to dry to a clear film. Next staple 3/4" (6mm) galvanized diamond metal or plastic lath to the floor overlapping at seams. Maximum installation thickness is 1½"; minimum thickness is limited by joint spacing.
    - a) 3/8" (9mm) for joists 16" OC or less
    - b) 1/2" (12mm) for joists 16" to 20"
    - c) 5/8" (15mm) for joists 20" to 24"
  4. 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. Mix Primer 1:3 with water and apply evenly with a paintbrush, short nap roller or soft bristled push broom.
  2. Apply an even continuous coat.
  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 approximately 400 to 450 sq. ft. per gallon depending on surface texture.
- C. Prime extremely absorbent subfloors twice.
- D. Prime 2-part, 100% Epoxy moisture mitigation vapor barrier or cutback adhesive residues over concrete as follows (no need to primer 1-part, polymeric emulsion moisture mitigation vapor barrier):
1. Prime with Primer (undiluted).
  2. Apply evenly with a paintbrush, short nap roller or soft bristled push broom.
  3. Apply an even continuous coat.
  4. Allow to dry to a clear film (typically 1 - 3 hours).
  5. Do not apply underlayment until the primer is dry.
  6. Primer coverage is approximately 140 square feet per gallon.

### 3.4 APPLICATION OF UNDERLAYMENT

A. Placing:

1. Mix underlayment as specified.
2. Immediately Pour or pump the underlayment onto the primed flooring substrate.
3. Spread in place with a long handled, gauged spreader or smoother covering all high spots on the floor.
4. Underlayment can be walked on in 2 - 4 hours at 70 degrees F.

B. Preparation for Finish Flooring Installation:

1. Underlayment can accept permeable coverings after 6 hours and non-permeable coverings after 12 - 24 hours at 70 degrees F and 50 percent relative humidity.
2. Due to the wide range of adhesives that are used to install floor coverings, some adhesives may dry more quickly over underlayment than over other substrates.

### 3.5 PROTECTION

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

**END OF SECTION**

## **SECTION 033543**

### **POLISHED CONCRETE FINISHING**

#### **PART 1 GENERAL**

##### **1.1 SECTION INCLUDES**

- A. Cementitious polished non-structural topping/overlay for traffic bearing surface with applied surface treatments as scheduled using a multiple-step process and accessories to achieve a specified level of gloss.

##### **1.2 RELATED SECTIONS**

- A. Section 03 30 00 – Cast-In-Place Concrete Installation.
- B. Section 07 26 00 – Surface Applied Vapor Reduction Systems
- C. Section 07 92 00 – Joint Sealants.

##### **1.3 REFERENCES**

- A. ASTM C78 – Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
- B. ASTM C109 – Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-inch or 50.8 mm Cube Specimens)
- C. ASTM C191 – Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle
- D. ASTM C348 – Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars
- E. ASTM C469 – Standard Test Method for Static Modulus of Elasticity and Poisson's Ratio of Concrete in Compression

- F. ASTM C580 – Standard Test Method for Flexural Strength and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing's, and Polymer Concretes
- G. ASTM C1028 – Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method
- H. ASTM C1583 – Standard Test Method of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method)
- I. ASTM D4259 – Standard Practice for Abrading Concrete
- J. ASTM D7234 – Standard Test Method for Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Pull-Off Adhesion Testers
- K. ASTM E430 – Standard Test Methods for Measurement of Gloss of High-Gloss Surfaces by Abridged Goniophotometry
- L. ASTM F710 – Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
- M. ASTM F1869 – Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
- N. ASTM F2170 – Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
- O. ASTM F2420 – Standard Test Method for Determining Relative Humidity on the Surface of Concrete Floor Slabs Using Relative Humidity Probe Measurement and Insulated Hood
- P. ASTM F3010 – Standard Practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings
- Q. ASTM E1907 – Standard Practices for Determining Moisture-Related Acceptability of Concrete Floors to Receive Moisture-Sensitive Finishes
- R. ASTM E96 – Standard Test Methods for Water Vapor Transmission of Materials
- S. ACI (American Concrete Institute)

- T. ACI 201.1R Guide for Conducting a Visual Inspection of Concrete in Service
- U. ACI 224.1R07 Causes, Evaluation, and Repair of Cracks in Concrete Structures
- V. ANSI/NFSI B101.0 – American National Standard Institute/National Floor Safety Institute B101.0 Walkway Surface Auditing Procedure for the Measurement of Walkway Slip Resistance
- W. ICRI No. 310.2 - 1997 (International Concrete Repair Institute) - Selecting and Specifying Concrete Surface Preparation for Coatings, Sealers, and Polymer Overlays
- X. TCNA (Tile Council of North America) - Handbook for Ceramic Tile Installation

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. *Maintenance Data*: Provide instructions for maintenance of installed work, including methods and frequency recommended for maintaining optimum condition for the intended usage. These instructions should contain precautions against cleaning products and methods that may be detrimental to the finish and performance.
- C. *Product Data*: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Manufacturer's printed installation instructions for each product.

#### 1.5 QUALITY ASSURANCE

- A. *Manufacturer Qualifications*: Firm specializing in manufacture of cementitious underlayments and toppings, with minimum 10 years' experience.
- 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 an on-site mock-up of each type of installation, which includes a specified process, surface, finish, color, and joint design/treatments for review and approval of quality of workmanship. These on-site mock-ups should be installed using the same installer personnel who will be performing the work. Approved mock-ups may become part of the completed work, if undisturbed at time of substantial completion.



- D. *Static Coefficient of Friction*: A reading of not less than 0.5 for level floor surfaces shall be achieved and documented, as determined by a certified NFSI walkway auditor using the NSF 101-A quality control test
- E. *Pre-Installation Meeting*: At least three weeks prior to commencing underlayments and toppings work conduct a meeting at the project site to discuss contract requirements and job conditions; require the attendance of installers, representative of installation materials manufacturer, and installers of related materials; notify Architect in advance of meeting. Agenda shall include a review of the site conditions, constructions documents, schedule, installation and protections procedures, and submittals.

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Prevent damage or contamination to materials by water, freezing, foreign matter or other causes.
- B. Store all materials subject to damage by freezing or overheating in a dry, climate-controlled environment at a minimum of 55°F (13°C) and a maximum of 85°F (30°C).
- C. Maintain records of manufacturer's product batch numbers.
- D. Deliver and store materials on site at least 24 hours before work begins.

## **1.7 PROJECT CONDITIONS**

- A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
- B. *Lighting*: Provide permanent lighting or, if permanent lighting is not in place, simulate lighting conditions during moisture reduction barrier installation. The simulation lighting is to be overhead lighting that would equal to the subsequent permanent lighting. The general contractor and/or construction manager will verify the lighting conditions by testing.
- C. *Temperature*: Maintain surface and ambient air temperatures at not less than 50 degrees F, exercise caution when temperatures exceed 80 degrees F
- D. Proceed with underlayments and toppings work after surface defects have been repaired and projections through substrate have been completed.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

A. Acceptable Manufacturer:

H.B. Fuller Construction Products Inc.

1105 South Frontenac Street, Aurora, IL 60504-6451

Toll Free: 800 832 -9023, Fax: 630-952-1235

Web: [www.tecspecialty.com](http://www.tecspecialty.com) or [www.chapco-adhesive.com](http://www.chapco-adhesive.com)

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

D. Obtain products from a single manufacturer.

### 2.2 CEMENTITIOUS NON-STRUCTURAL TOPPING/OVERLAY

A. Product: **TEC<sup>®</sup> Level Set<sup>®</sup> Wear Topping**, polished or unpolished, as manufactured by H.B. Fuller Construction Products.

1. Application: From 1/4 inch to 2 inches (6.35 to 50.8 mm) without extension with aggregate, and up to 5 inches (127 mm) extended.
2. Working Time at 70 degrees F (21 degrees C): 25-35 minutes.
3. Set Time per ASTM C191 at 70 degrees F (21 degrees C): Initial set 80 minutes, final set 140 minutes.
4. Compressive Strength ASTM C109: 28 days - > 6,000 psi (42.1 MPa).
5. Flexural Strength ASTM C348: 7 days – 720 psi (5.0 MPa), 28 days - 1,200 psi (8.3 MPa).
6. Accepts foot traffic in 2-3 hours and rubber wheel traffic within 48 hours
7. Accepts stains, sealers and coatings within 24 hours.
8. Integral colorant can be added at the time of mixing.
9. Colors: Bright White, White, or Gray

## 2.3 FLOOR PATCHES

- A. Product: **TEC® Floor Patch Pro or CHAPCO® Patch** as manufactured by H.B. Fuller Construction Products.
1. Application: fast setting, easy-to-mix, cement based patch and skim coating compound for use under ceramic tile, hardwood flooring, resilient flooring, VCT and carpet. Featheredge to 2" (5 cm) in thickness.
  2. Percentage Water: Water ratios differ for skim coat vs. thicker applications.
  3. Working Time at 70 degrees F (21 degrees C): 8 to 15 minutes.
  4. Compressive Strength ASTM C109: 28 days - >4,000 psi (24.1 MPa).
  5. Accepts tile and stone applications as well as moisture sensitive floor coverings in as little as 30 minutes, or when completely dry.
  6. Can be applied to concrete with a relative humidity (RH) up to 90% or MVER up to 10lbs/1000 ft<sup>2</sup> /24 hrs.
  7. Compatible with sealed gypsum based flooring.
- B. Product: **TEC® Feather Edge Skim Coat or CHAPCO® SmoothFinish™** as manufactured by H.B. Fuller Construction Products.
1. Application: Featheredge up to ½" (12 mm) in one application without cracking.
  2. Set Time ASTM C191 at 70 degrees F (21 degrees C): Initial set 15 minutes, final set 25 minutes.
  3. Compressive Strength ASTM C109: 24 hours 2,100 psi (14.5 MPa), 28 days 3600 psi (24.6 MPa).
  4. Rapidly sets to accept most floor coverings in as little as 15-60 minutes, with exceptional performance.

## 2.4 EPOXY PRIMER

- A. Product: **TEC® Level Set® Epoxy Primer** as manufactured by H.B. Fuller Construction Products.
1. TEC® Level Set® Epoxy Primer is required for use as a primer for Level Set® Wear Topping that is to be polished. Contact TEC® Technical Services for further information.
  2. Solids Content: 100% solids
  3. Color: Part A – Amber Yellow, Part B – Black
  4. Application: Apply a smooth wet 8 to 10 mil even coating over the substrate using a flat squeegee followed by a 3/8" (9 mm) nap roller (Level Set® Epoxy Primer can also be applied with a nylon paintbrush for hard to reach areas). Apply at a coverage rate of 150-200 ft<sup>2</sup>/gal (3.6-4.9 m<sup>2</sup>/L) depending on the surface profile. For more information, please refer to the Product Data Sheet.
  5. Mix Ratio per volume: 1 part A: 1 part B.
  6. Open Time: 60 minutes
  7. Tensile Strength per ASTM D638 Type 1, 7d: 2500 – 5000 psi (17-34 MPa)
  8. Water Absorption per ASTM D570, 7d: 0.4%

## 2.5 MOISTURE MITIGATION: To be used as a moisture mitigator in high concrete moisture applications, such as slab on grade.

- A. Product: **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.
1. Direct application onto green concrete up to 100% RH per ASTM F2170 (or MVER of 25 lbs. per 1,000 ft<sup>2</sup> per 24 hours per ASTM F1869)
  2. Application: must be mixed and applied according to the Product Data Sheet on [tecspecialty.com](http://tecspecialty.com)
  3. Moisture Vapor Transmission per ASTM E 96: Less than 0.10 perms
  4. Effect of pH 14 solution per ASTM D1308: No effect
  5. Tensile Bond Adhesion per D7234: >200 - 100% concrete failure
  6. LiquiDam™ or CHAPCO'S DEFENDER surface must be primed with undiluted TEC® Multipurpose Primer prior to installation of cementitious underlayment.
  7. LiquiDam EZ™ or CHAPCO® DEFENDER EZ™ doesn't require a primer before the application of TEC® or Chapco surface preparation products.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine surfaces, to receive topping, and conditions under which toppings will be installed to be structurally sound.
- B. Do not proceed with work until surfaces and conditions comply with requirements required by manufacturer's printed instructions.

### 3.2 PREPARATION

- A. Concrete Substrates:
1. Movement joints are mandatory – Architect must specify type, show location, and detailed drawings of joint placement
  2. Clean area and remove all unsound concrete, grease, oil, paint and any other foreign materials that will inhibit adhesion.
  3. Substrates shall be stable, solid and structurally sound. Weak or contaminated surfaces must be mechanically removed. See Product Data Sheet for Surface Evaluation and Preparation Guidelines
  4. After cleaning and profiling, test for MVER (moisture vapor emission rate – reference ASTM F 1869) and concrete substrates's relative humidity (RH) – reference ASTM F 2170. If the MVER is greater than 5lbs / 1000 sq. ft. / 24 hours and /or the RH greater than 75% or the MVER and/or RH exceed the sealer manufacture recommendations, use moisture mitigation barrier as specified.

5. Repair deep areas, holes and nonmoving cracks with Skim Coat or Patch prior to application and allow curing for a minimum of 3 hours.
6. Mechanically prepared surfaces must support a minimum adhesion strength of 150 psi (1 MPa) when tested per ASTM D7234 (tensile bond test).
7. Substrate temperature shall be a minimum of 50°F (10°C) during application and air maintained between 50-90°F (10-32°C)
8. All substrates require Epoxy Primer with a sand broadcast
9. Isolate, using foam tape or caulking, all perimeters and sharp corners such as column bases, pedestals, supports, and etc...
10. Install a bond breaker where vertical surfaces meet the new underlayment or topping, such as a self-adhering ¼" minimum foam tape or similar product

### 3.3 INSTALLATION

#### A. Priming:

1. Prepare the substrate to ICRI Concrete Surface Profile to a minimum of CSP 3. Confirm area has a depth enough to accept a minimum of 3/8" from the highest point of the floor to receive the Wear Topping. Completely clean the substrate to remove debris from the surface using a vacuum.
2. Substrate must be completely dry prior to the application of the Epoxy Primer.
3. Mix primer in accordance with the manufacturers' published instructions on [tecspecialty.com](http://tecspecialty.com).
4. This Primer must be applied over the entire substrate leaving no bare spots, puddles, or excess primer. **Do not apply over standing water.**
5. Apply a smooth wet 8 to 10 mil even coating over the substrate using a flat squeegee followed by a 3/8" (9 mm) nap roller (Epoxy Primer can also be applied with a nylon paintbrush for hard to reach areas). Apply at a coverage rate of 150-200 ft<sup>2</sup>/gal (3.6-4.9 m<sup>2</sup>/L) depending on the surface profile. For more information, please refer to the Product Data Sheet.
6. While the epoxy is still fresh (within 30 minutes), dry sand broadcast may be added, to refusal (#20-#35 sand). Typically 2/3 to 1 lb/ft<sup>2</sup> (3.3-4.9 kg/m<sup>2</sup>) is required. Ensure that sand is broadcast evenly, leaving no areas of un-sanded epoxy. Walking is permitted on the surface with spiked shoes.
7. Allow 3-6 hours cure time.
8. After 4-6 hours or just before Self-leveling underlayment or Wear Topping installation, remove all loose sand by sweeping and vacuuming the surface, in both directions.
9. Check for any bald spots and reapply in those areas.

#### B. Topping Installation and Joint Filling:

1. Temperature shall be a minimum of 50°F (10°C) and shall not exceed 80°F (27°C), within 24 hours of application.
2. Close all windows, doors, and HVAC vents to minimize air flow.
3. Divide the areas to permit continuous placement without cold joints.
4. Barrel mix or pump with a batch mixer, to a minimum thickness of 3/8" from the highest point, of the pre-blended material into place and disperse with a 3/8" minimum gauge rake followed by smoothing the surface with a surface smoother.
5. To prevent ridges between batches, use a smoother tool and work a narrow dimension.
6. For placements greater in depth than 2" but less than 5" contact Technical Service, as noted on the Product Data Sheet, available on [tecspecialty.com](http://tecspecialty.com).

7. Honor all control and expansion joints through out the system, from the concrete slab up through the topping. Allow for movement at abutments, columns, and wall corners.
8. Saw cut all existing control, expansion, and designed joints within 3 – 6 hours after topping material installation has been completed to a minimum depth of the original joint or 2", whichever is the lesser.
9. All designed saw cut joints are to be cut through to the epoxy primer and shall be no greater than 8' to 10' in all directions.
10. Apply a stain prevention film or other masking agent along the surface on both sides of the joint prior to filling the joint with a flexible joint sealant.
11. Install the joint sealant in a continuous motion in to the joint. Fill from the bottom of the joint, being careful not to entrap air.
12. Slightly overfill the joint.
13. Remove any excess sealant with a razor scraper or similar tool after the sealant has set up enough to cut through with a razor scraping tool in a continuous motion.

C. Polishing Process: Any substitutions from the specified products and/or process without manufacturer approval will void the system warranty.

1. Wet grinding and polishing is prohibited.
2. Allow the Wear Topping to cure a minimum of 24 – 72 hours prior to proceeding with the polishing process. Time frame is a function of jobsite conditions, as well as thickness of application.
3. After a minimum of 24 hours fill all joints with an approved polyurea and shave off excess prior to the first grinding of the Wear Topping, caution should be taken as joint fillers could stain the overlay. Joint filler shall be installed in accordance with the manufacturer's recommendation.
4. Dry grind to remove the cream and polish to achieve the desired gloss reading. Floor must be broomed and vacuumed between each step to remove all dust. Gloss attainment shall be in
5. accordance with test method ASTM E430. Readings shall be taken no less than 10' on center in field areas and within 1' of floor area perimeters. In no case shall a reading be below 2% of the specified minimum sheen.
  - a. Low Gloss Finish: 30 – 40 per ASTM E430
  - b. Medium Gloss Finish: 41 – 55 per ASTM E430
  - c. High Gloss Finish: 56 or higher per ASTM E430
6. For instructions on achieving gloss levels refer to the appropriate machine and diamond manufacturers.
7. Grinding of the topping should be done with metal hard bonded diamonds.
8. Densify the surface prior to preceeding with the resin bonded diamonds.
9. Dry polish floor with resins to desired gloss level.
10. Apply final sealer once desired gloss finish has been achieved.
11. Burnish floor using higher grit pads.

D. Edge Work:

1. Where desired, polished edge work shall be done with a hand held or walk behind polishing tool. The edge work process shall match the corresponding steps outlined above to achieve the desired gloss level. Each polishing step shall be done immediately after the matching main polishing step has been completed.

E. Acceptance

1. Remove all installation materials from the project.
2. Clean surfaces and materials
3. Post job walk-through to ensure the project has been completed per the SPEC'd process
4. If requested or required take pictures of final product for documentation and submittal.

F. Protection and Maintenance

1. Protect the new floor from spills or stains from coming in contact with the floor for the duration of construction. If construction equipment must be used, cover all the components that may have fluids drips. Protect the surface by installing an approved breathable protective floor covering.
2. Avoid moisture for 72 hours after final installation.
3. Do not permit standing water or wet mopping during the 72 hour period.
4. Allow the coating to fully cure prior to any protective plastic sheeting, rubber matting, rugs, or furniture placement that can prevent proper drying and trap moisture which will result in a cloudy discolored effect on the floor.
5. DO NOT USE cleaners that are acidic or that have citrus or Butyl components.
6. IMPORTANT: adherence to a recommended cleaning schedule will help the floor maintain its polished gloss longer and will greatly reduce the absorption of spilled liquids.
7. Specified maintenance recommendations shall be provided by the installer performing the work.

**END OF SECTION**



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## SECTION 035416

### HYDRAULIC CEMENT UNDERLAYMENT

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. TEC® PerfectFinish™ Skim Coat, Fast-Setting Cement-Based Underlayment or CHAPCO® SmoothFinish™ Skim Coat and Leveler
- B. TEC Multipurpose Primer or CHAPCO® MP Multipurpose Primer (Gypsum substrates only)

##### 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 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. Underlayment shall be able to be installed from a true featheredge to 1/2" thick over large areas. For areas greater than 1/2 in thickness, apply in two-coats allowing the first coat to set before applying the second. Do not exceed a total thickness of 1".
- D. Underlayment shall not require that cement-based substrates be primed.
- E. Underlayment shall be formulated with a calcium-aluminate cement, developing a compressive strength of 3600 psi when tested in accordance with ASTM C 109 Modified.
- F. Underlayment shall be covered by most flooring materials as soon as the surface hardens (15 - 60 minutes).
- G. Underlayment shall not require the addition of latex or any additive other than potable water, unless used as an embossing leveler.
- H. Gypsum substrate (minimum tensile bond strength of 72 psi (0.5 MPa)) requires priming with TEC® Multipurpose Primer or CHAPCO® MP Multipurpose Primer before underlayment installation.
- I. Please contact a TEC representative for instructions for installation recommendations over all other substrates, 800-832-9023.
- J. 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 1 year from date of manufacture in unopened containers.

## 1.7 PROJECT CONDITIONS

- A. For interior application only.
- B. Substrate temperature should be a minimum of 43°F (6°C) during application and air temperature maintained above 50° (10°C).
- C. Not for use in conditions of hydrostatic pressure or excessive moisture (>95% Relative Humidity) per ASTM F2170. Applications above 95% RH up to and including 100% RH (25 pounds per 1000 sq. ft. per 24 hours per ASTM F 1869) require the application of TEC® LiquiDam™, CHAPCO'S DEFENDER two-part 100% solids epoxy or CHAPCO® DEFENDER EZ™, TEC® LiquiDam EZ™ 1-part, polymeric emulsion as manufactured by H.B. Fuller Construction Products prior to installation of skim coat.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Brand/Manufacturer: TEC®/ 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](http://www.tecspecialty.com) or [chapco-adhesive.com](http://chapco-adhesive.com)
  - 1. TEC® PerfectFinish™ Skim Coat Patch
  - 2. CHAPCO® SmoothFinish™ Skim Coat and Leveler

**\*\* 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. TEC® PerfectFinish™ Skim Coat Patch or CHAPCO® SmoothFinish™ Skim Coat and Leveler: Technical Data:
  - 1. Compressive Strength: 3,600 psi @ 28 days (Air curing samples) when tested in conformance with ASTM C 109 Modified.
  - 2. Finish flooring installation: 15 - 60 minutes.
  - 3. Water shall be cool, clean and potable.
- B. Primer: TEC Multipurpose Primer or CHAPCO® MP Primer
  - 1. Solvent-free, low VOC

### 2.3 MIXING

- A. Mix materials in accordance with manufacturer's instructions.
- B. Standard Mix Instructions:
  - 1. Mix only as much as can be used in 15 - 20 minutes. USE IMMEDIATELY after mixing.
  - 2. Slowly add the entire bag of skim coat into 2½ quarts of clean, cool water not over 70 degrees F.
  - 3. Mix at a low speed (not exceeding 300 rpm).
  - 4. Use a mixing ratio of 2 parts powder to 1 part water for smaller amounts.
  - 5. Mix thoroughly to a smooth, lump-free consistency.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Test moisture content of substrates:
  - 1. Per ASTM F 2170, do not install if relative humidity is >95% up to and including 100%, without first applying moisture mitigation vapor barrier.
  - 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 underlayment using moisture mitigation vapor barrier.
- 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 oil, grease, dust, loose or peeling paint, sealers, floor finishes, curing compounds or any contaminant that would prevent a good bond.
  - 2. Minimum tensile bond strength of 72 psi (0.5 MPa) is required.
  - 3. Substrate temperature shall be a minimum of 43 F during application.
  - 4. Air temperature shall be maintained above 50 F.

### 3.3 APPLICATION OF UNDERLAYMENT

- A. Immediately after mixing skim coat, with a flat steel trowel, work underlayment into the void to be filled.
- B. Finish to a level surface to achieve desired smoothness.

### 3.4 PROTECTION

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

**END OF SECTION**

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## SECTION 035416

### HYDRAULIC CEMENT UNDERLAYMENT

#### PART 1 GENERAL

Provide system of moisture mitigation, surface preparation products, and adhesives from a sole manufacturer necessary to achieve proper installation of specified flooring material that will provide owner with a single source, limited system warranty for a period of no less than 25 years. Add CHAPCO® and TEC® Flooring Products to this specification for appropriate adhesive application in accordance with 25 Year Moisture Control Limited System Warranty as shown below in section 1.6.

##### 1.1 SECTION INCLUDES

###### 1.11 Moisture Mitigation Membrane

- A. TEC® The LiquiDAM® two-part, 100% Epoxy or TEC® LiquiDam EZ™ 1-part polymeric emulsion
- B. CHAPCO® DEFENDER™ two-part, 100% solids epoxy or CHAPCO DEFENDER EZ™ 1-part polymeric emulsion

###### 1.12 Trowelable Patches, Skim Coats and Primers

- A. TEC® VersaPatch®, Patch or CHAPCO® PATCH Latex Modified Floor Patch
- B. TEC® Multipurpose Primer or CHAPCO® MP Primer
- C. TEC® Patch Additive, Acrylic Latex Additive or CHAPCO® ADDITIVE Acrylic Latex Patch Additive
- D. TEC® PerfectFinish™ Skim Coat, Underlayment or CHAPCO® SmoothFinish™
- E. TEC® Fast-Set Deep Patch Underlayment or CHAPCO® QDP PLUS Quick-Set Deep Patch
- F. TEC® Floor Patch Pro or CHAPCO® PATCH
- G. TEC® Feather Edge Skim Coat

###### 1.13 Self Leveling Underlayments

- A. TEC® Level Set® 300 Self-Leveling Underlayment or CHAPCO® PREMIUM SLU
- B. TEC® Fiber-Reinforced Self-Leveling Cement Based Underlayment or CHAPCO® EXTREME FIBER
- C. TEC® Level Set® LW-60 Ultra-Lightweight Self-Leveling Underlayment

###### 1.14 Self Leveling Wear Surface

- A. TEC® Ultra Wear Surface / Self-Leveling Cement Based Underlayment or CHAPCO® ULTIMATE WL — WearLayer / Self-Leveling Underlayment
- B. TEC® Level Set® Wear Topping

##### 1.2 RELATED SECTIONS

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

##### 1.3 REFERENCES

- A. ASTM F 2170 -- Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
- B. ASTM F 1869 -- Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride

##### 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:** Firm specializing in manufacture of cementitious underlayments and toppings, with minimum 5 years' experience
- 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.

#### 1.6 WARRANTY

##### A. **TEC®**

1. H.B. Fuller Construction Products Inc. ("HBF-CP") warrants, to the owner ("Owner") of the premises in which the product ("Product") listed below is applied, that the Product, when installed as a complete system<sup>1</sup> ("System"), will, for 25 YEARS: • reduce the moisture vapor emissions of LiquiDam™ or LiquiDam EZ™ treated concrete substrate from a maximum of 25 pounds per 1000 sq. ft./24 hours as determined by the Calcium Chloride Test Method ASTM F1869 (or 100% RH using the Relative Humidity Method ASTM F2170-09) to no more than 3 pounds per 1000 sq. ft./24 hours • if moisture vapor emissions comply with above, and the TEC® products listed in the table below are used as a complete System, the System a) will not fail due to a manufacturing defect, b) will prevent flooring damage and bond failure caused by vapor emissions from the concrete substrate. provided that the Product was properly applied as a System within its applicable shelf life and in accordance with HBF-CP's written guidelines, Product Data Sheets and Specifications found at [tecspecialty.com](http://tecspecialty.com) in effect on the date of its application and consistent with all applicable building codes and industry standards and guidelines, including the TCNA Handbook when applicable, and procedures for professional application to the extent they are consistent with HBF-CP's written guidelines and specifications

TEC® 25 Year Moisture Control Systems				
TEC® Moisture Vapor Barrier Product	with	TEC® Surface Preparation Products	and	TEC® Flooring Adhesive Products
<b>TEC® 213</b> LiquiDam™ Moisture Vapor Barrier		<b>TEC® 053</b> Level Set® LW-60 High Quality, Ultra-Lightweight Self-Leveling Underlayment		<b>TEC® 006</b> Perimeter Flooring Adhesive
		<b>TEC® 054 / 057 / 058</b> Level Set® Wear Topping		<b>TEC® 10</b> Carpet Padding Adhesive
		<b>TEC® 059</b> Floor Patch Pro		<b>TEC® 602</b> Releasable Pressure Sensitive Adhesive Spray
		<b>TEC® 305</b> Fast-Set Deep Patch		<b>TEC® 702</b> Double-Stick Carpet Adhesive
		<b>TEC® 318</b> Smooth Start™ Standard Self-Leveling Underlayment		<b>TEC® 704</b> Premium Fast Grab Carpet Adhesive
		<b>TEC® 330</b> Feather Edge Skim Coat		<b>TEC® 705</b> Wall Carpet Adhesive
		<b>TEC® 320</b> PerfectFinish™ Skim Coat		<b>TEC® 713</b> Clear Thin Spread Adhesive
		<b>TEC® 323</b> EZ Level® Premium Self-Leveling Underlayment		<b>TEC® 714 / 714W</b> Premium Cove Base Adhesive
<b>TEC® 214</b> LiquiDam EZ™ Moisture Vapor Barrier		<b>TEC® 327</b> VersaPatch® Latex Modified Floor Patch		<b>TEC® 717</b> The Perfect Putdown® Carpet and Flooring Adhesive
		<b>TEC® 300</b> Level Set® 300 Self-Leveling Underlayment		<b>TEC® 722</b> The Pro® Carpet and Flooring Adhesive
		<b>TEC® 560</b> Multipurpose Primer		<b>TEC® 730</b> Linoleum Flooring Adhesive
		<b>TEC® 563 / 564</b> Ultra Wear Surface		<b>TEC® 744</b> Solid Vinyl Plank and Tile Adhesive
		<b>TEC® 565</b> Fiber-Reinforced Underlayment		<b>TEC® 749</b> Releasable Pressure Sensitive Adhesive
		<b>TEC® 861</b> Patch Additive		<b>TEC® 752</b> Premium Transitional Vinyl Adhesive
				<b>TEC® 776</b> RollFast™ Vinyl Flooring Adhesive
				<b>TEC® 778</b> TrowelFast™ Vinyl Flooring Adhesive
				<b>TEC® 790</b> WoodStrong® Premium Urethane Wood Flooring Adhesive
				<b>TEC® 791</b> WoodPerfect™ Advanced Performance Wood Flooring Adhesive
				<b>TEC® 975</b> Wet-Set and Outdoor Carpet Adhesive

System = Use of TEC® Moisture Vapor Barrier product + TEC® Surface Preparation product/s + TEC® Flooring Adhesive product shown above. Products must be properly installed as LiquiDam™ or LiquiDam EZ™ system using approved methods, approved flooring, approved substrates and other materials as enumerated in TEC® Product Data Sheets.

## B. CHAPCO®

1. **LIMITED WARRANTY.** H.B. Fuller Construction Products Inc. ("HBF-CP") warrants, to the owner ("Owner") of the premises in which the product ("Product") listed below is applied, that the Product, when installed as a complete system<sup>1</sup> ("System"), will, for **25 years**: • reduce the moisture vapor emissions of CHAPCO'S DEFENDER™ or CHAPCO® DEFENDER EZ™ treated concrete substrate from a maximum of 25 pounds per 1000 sq. ft./24 hours as determined by the Calcium Chloride Test Method ASTM F1869 (or 100% RH using the Relative Humidity Method ASTM F2170-09) to no more than 3 pounds per 1000 sq. ft./24 hours • if moisture vapor emissions comply with above, and the CHAPCO® products listed in the table below are used as a complete System, the System a) will not fail due to a manufacturing defect, b) will prevent flooring damage and bond failure caused by vapor emissions from the concrete substrate. provided that the Product was properly applied as a System within its applicable shelf life and in accordance with HBF-CP's written guidelines, Product Data Sheets and Specifications found at chapco-adhesive.com in effect on the date of its application and consistent with all applicable building codes and industry standards and guidelines, including the TCNA Handbook when applicable, and procedures for professional application to the extent they are consistent with HBF-CP's written guidelines and specifications.

## CHAPCO PRODUCT SYSTEMS

Moisture Vapor Barrier	Surface Preparation Products	Flooring Adhesive Products
CHAPCO'S DEFENDER™	CHAPCO® MP — Multi-Purpose Primer	Safe-Set® 2 Pressure Sensitive Releasable Carpet Adhesive
	CHAPCO® ADDITIVE — Acrylic Latex Patch Additive	Safe-Set® 3 Premium Carpet Adhesive
	CHAPCO® SMOOTHFINISH™ — Skim Coat and Leveler	Safe-Set® 7 Premium Clear Thin Spread Adhesive
	CHAPCO® QDP PLUS — Fast-Set Deep-Fill Patch	Safe-Set® DB 900 Double-Bond Carpet Adhesive
	CHAPCO® PATCH — Latex Modified Floor Patch	Safe-Set® 975 Wet-Set Carpet Adhesive
CHAPCO® DEFENDER EZ™	CHAPCO® PREMIUM SLU — Self-Leveling Underlayment	Safe-Set® 607 Premium Spray Adhesive
	CHAPCO® ULTIMATE WL — Wear Layer / Self-Leveling Underlayment	CHAPCO'S CHAMPION™ 255 Urethane Wood Adhesive
	CHAPCO® EXTREME FIBER — Self-Leveling Underlayment	CHAPCO® WoodPerfect™ Advanced Performance Wood Flooring Adhesive
		Top Gun Premium Multi-Purpose Latex Adhesive
		Safe-Set® 475 Hi-Tack Carpet Adhesive
		Safe-Set® 602 Pressure Sensitive Releasable Spray Adhesive
		CHAPCO® 776 RollFast™ Vinyl Flooring Adhesive
		CHAPCO® 778 TrowelFast™ Vinyl Flooring Adhesive
		Safe-Set® 231 Vinyl Plank & Luxury Vinyl Flooring Adhesive
		Safe-Set® 299 Premium Vinyl Tile Adhesive
		CHAPCO® 752 Premium Transitional Vinyl Adhesive
		Safe-Set® 4 Cove Base Adhesive
		Safe-Set® 400 White Cove Base Adhesive

(1) System – Use of CHAPCO Moisture Vapor Barrier product + CHAPCO Surface Preparation product/s + CHAPCO Flooring Adhesive product shown above. Products must be properly installed as a system using approved methods, approved flooring, approved substrates and other materials as enumerated in CHAPCO Product Data Sheets.

### 1.7 DELIVERY, STORAGE, AND HANDLING

- Comply with requirements of section 01650 and section 01660.
- Store products in manufacturer's unopened packaging until ready for installation.
- Store products in a cool dry place out of direct sunlight.
- Maximum shelf life is 6 months from date of manufacture in unopened containers.

### 1.8 PROJECT CONDITIONS

- For interior application only.
- Do not install below 50 degrees F substrate temperature.
- Not for use in conditions of hydrostatic pressure or excessive moisture (as listed on each surface preparation product's Product Data Sheet) per ASTM F2170 and/or ASTM 1869. Readings above underlayment's maximum moisture limit, up to and including 100% RH (or 25 pounds per 1000 sq. ft. per 24 hours) require application of TEC® The LiquiDAM™ (EZ) or CHAPCO® DEFENDER™ (EZ) moisture mitigation membrane. Readings above flooring manufacturers recommended levels also require use of moisture mitigation membrane.



## 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](http://www.tecspecialty.com) <http://www.chapco-adhesives.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.

### 2.2 MATERIALS – TECHNICAL DATA

- A. **Concrete Moisture Mitigation vapor barrier: 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:

1. Maximum allowable moisture emission rate of concrete shall be 25 lbs. per 1,000 ft<sup>2</sup> per 24 hours when measured in accordance with ASTM F 1869, or an RH value of 100% or less when measured in accordance with ASTM F 2170.
2. Permeability per ASTM E96 shall be <0.10
3. Two-part 100% solids epoxy shall meet ASTM F3010 product requirements for moisture mitigation systems under resilient floor coverings
4. **When using 100% solids epoxy,** TEC® Multipurpose Primer or CHAPCO® MP Primer is required for most floor coverings before an application of a self-leveling underlayment, trowel applied skim coat or a cement patch, suitable for the intended use.

**NOTE: TEC® WoodStrong™ Premium Urethane Wood Flooring Adhesive, TEC® WoodPerfect™ Wood Flooring Adhesive, TEC® Releasable Pressure Sensitive Adhesive or TEC® Clear Thin Spread Adhesive may be applied directly to LiquiDam EZ™ Moisture Vapor Barrier if concrete surface is sufficiently smooth and level to accept flooring. If the substrate is not smooth and level, please treat with appropriate TEC® surface preparation products, for the proposed floor coverings, as noted above.**

**NOTE: CHAPCO'S CHAMPION™ 255 Urethane Wood Flooring Adhesive, CHAPCO® 791 Wood Adhesive, Safe-Set® 2 Pressure Sensitive Releasable Adhesive, Safe-Set® 7 Clear Thin Spread Adhesive, Safe-Set® 602 Pressure Sensitive Releasable and Safe-Set® 607 Premium Spray Adhesive (VCT applications only) may be applied directly to CHAPCO® DEFENDER EZ™ Moisture Vapor Barrier if concrete surface is sufficiently smooth and level. If the substrate is not smooth and level, please treat with appropriate CHAPCO® surface preparation products, for the proposed floor coverings, as noted above.**

- B. **CHAPCO® PATCH Latex Modified Floor Patch:**

1. Compressive Strength shall be no less than 4,000 psi @ 28 days (Air curing samples) when tested in conformance with ASTM C 109 Modified.
2. Patching depth shall be feather edge to ½ inch
3. Sets quickly - install flooring **in 30-45 minutes**
4. VOC shall be zero g/L

- C. **Primer: TEC® Multipurpose Primer or CHAPCO® MP Primer.** For difficult to bond to substrates. Refer to data sheet for substrate requirements.

1. Primer shall be solvent free; VOC < 10 g/L

- D. **Additive: TEC® Patch Additive or CHAPCO® ADDITIVE Acrylic Latex Patch Additive** (VCT, embossed resilient floor coverings, or adhesive residue). VOC < 15 g/L



**E. TEC® PerfectFinish™ Skim Coat Patch or CHAPCO® SmoothFinish™:**

1. Compressive Strength shall be no less than 3,600 psi @ 28 days (Air curing samples) when tested in conformance with ASTM C 109 Modified.
2. Patching depth shall be from feather edge to ½"
3. Fast setting - install flooring in as soon as **15-60 minutes**

**F. TEC® Feather Edge Skim Coat**

1. Compressive Strength shall be no less than 3,600 psi @ 28 days (Air curing samples) when tested in conformance with ASTM C 109 Modified.
2. Patching depth shall be from feather edge to ½"
3. Fast setting - install flooring in as soon as **15-20 minutes**

**G. TEC® Fast-Set Deep Patch Underlayment or CHAPCO® QDP PLUS Quick-Set Deep Patch:**

1. Compressive Strength shall be no less than 4,200 psi @ 28 days (Air curing samples) when tested in conformance with ASTM C 109 Modified.
2. Flexural Strength shall be no less than 1,100 psi @ 28 days when tested in conformance with ASTM C 580.
3. **Walkable hardness in 60 minutes**, apply most floor coverings in 1 to 1-1/2 hours.
4. Application depth shall be from **feather edge to 1 ½ inches** per application without the use of aggregate
5. VOC shall be 0 g/L

**H. TEC® Level Set® 300 Self-Leveling Underlayment or CHAPCO® PREMIUM SLU**

1. Compressive Strength shall be no less than 5,000 psi @ 28 days (Air curing samples) when tested in conformance with ASTM C 109 Modified.
2. Flexural Strength shall be no less than 1,100 psi @ 28 days when tested in conformance with ASTM C 580.
3. **Walkable hardness in 2-4 hours.**
4. Featheredge up to 1-1/2" (up to 2" for Level Set® 300) depth in a single pour, or up to 5" (12 cm) with proper aggregate
5. VOC shall be 0 g/L

**I. TEC® Level Set® LW-60 Ultra-Lightweight Self-Leveling Underlayment**

1. Compressive Strength shall be no less than 4,000 psi @ 28 days (Air curing samples) when tested in conformance with ASTM C 109.
2. Flexural Strength shall be no less than 1,100 psi @ 28 days when tested in conformance with ASTM C 580.
3. Shrinkage: < -0.07% @ 28 days when tested in conformance with ASTM C 157.
4. Applications from 1/4"-2" (6-50 mm) neat and can be featheredged to adjoining elevations
5. **50% lighter than conventional cement and gypsum-based systems**
6. **Walkable hardness in 3-4 hours.**

**J. TEC® Fiber-Reinforced Underlayment or CHAPCO® EXTREME FIBER SLU Fiber-Reinforced Self-Leveling Underlayment**

1. Compressive Strength shall be no less than 6,000 psi @ 28 days (Air curing samples) when tested in conformance with ASTM C 109.
2. Flexural Strength shall be no less than 1,200 psi @ 28 days when tested in conformance with ASTM C 580.

3. Shrinkage: 0.025 - 0.045% @ 28 days when tested in conformance with ASTM C 531 (modified).
4. Ideal Slump range 10.5" - 11.5" (2" diameter pipe, 4" high).
5. **VOC content shall be 0 g/L**
6. Recycled material shall be 10%.

**K. TEC® Ultra Wear Surface/ Underlayment or CHAPCO® ULTIMATE WL — WearLayer / Self-Leveling Underlayment:**

1. Compressive Strength shall be no less than 6,000 psi @ 28 days (Air curing samples) when tested in conformance with ASTM C 109.
2. Flexural Strength shall be no less than 1,200 psi @ 28 days when tested in conformance with ASTM C 580.
3. Shrinkage shall be between 0.025 - 0.050% @ 28 days when tested in conformance with ASTM C 531 (modified).
4. **VOC content shall be 0 g/L.**
5. Recycled material shall be 10%. (gray color only).

**NOTE: Requires a topical sealer when used as a wear surface (acrylic, polyurethane or epoxy).**

**NOTE TO SPECIFIER: Add CHAPCO® and TEC® Flooring Products to this specification for appropriate adhesive application in accordance with 25 Year Moisture Control Limited System Warranty as above below in section 1.6.**

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Test moisture content of concrete substrate:
  1. Per ASTM F 2170, do not install any self-leveling underlayments, skim coat or patch if concrete relative humidity is >95% (15 pounds per 1000 sq. ft. per 24 hours per ASTM F 1869) up to and including 100% (25 pounds per 1000 sq. ft. per 24 hours per ASTM F 1869) without first applying moisture mitigation vapor barrier, as specified above, to the substrate.
  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 underlayment using moisture mitigation vapor barrier moisture mitigation membrane.
    - a. 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 oil, grease, dust, loose or peeling paint, sealers, floor finishes, curing compounds or any contaminant that would prevent a good bond.
  2. Minimum tensile bond strength of 72 psi (0.5 MPa) is required.
  3. Substrate temperature shall be a minimum of 43 degrees F during application.
  4. Air temperature shall be maintained above 50 degrees F.
  5. For installation over cutback adhesive, remove adhesive by scraping until all that remains is a thin transparent layer of adhesive residue (minimum tensile bond strength of 72 psi (0.5 MPa) is required).
  6. For installation over gypsum substrates (minimum tensile bond strength of 72 psi (0.5 MPa) is required), prime with Primer; 1-part primer to 3 parts water.

7. For installation over moisture mitigation vapor barrier, prime with Primer used full strength (undiluted).
8. Existing building expansion or control joints must be honored through the patching material.

### 3.3 MIXING

- A. Mix specific material specified in accordance with manufacturer's instructions.

**END OF SECTION**

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## 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](http://www.tecspecialty.com) or [chapco-adhesive.com](http://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**

## SECTION 033543

### POLISHED CONCRETE FINISHING

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. TEC® Ultra Wear Surface / Self-Leveling Cement Based Underlayment
- B. CHAPCO® ULTIMATE WL WearLayer / Self-Leveling Underlayment
- C. TEC Multipurpose Primer
- D. CHAPCO® MP Multipurpose 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. Warranty: Product shall be free from manufacturing defects and will not break down or deteriorate under normal use for 10 years.





## 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 43 degrees F substrate temperature.
- C. Not for use in conditions of hydrostatic pressure or excessive moisture (>95% Relative Humidity) per ASTM F2170. Readings above 95% RH up to and including 100% RH; or greater than 15 lbs. per 1000 sq. ft. per 24 hours up to 25 lbs. per 1000 sq. ft. per 24 hours, requires 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. If TEC Ultra Wear Surface is to be covered with an epoxy coating or other type of flooring, refer to manufacturers requirements for vapor emission and relative humidity levels.

# PART 2 PRODUCTS

## 2.1 MANUFACTURERS

- A. Acceptable Brand/Manufacturer: TEC®/ 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](http://www.tecspecialty.com) [www.chapco-adhesives.com](http://www.chapco-adhesives.com)
  - 1. TEC Ultra Wear Surface/Underlayment or CHAPCO® ULTIMATE WL WearLayer / Self-Leveling Underlayment
    - a. Gray
    - b. White

**\*\* 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: 6,000 psi @ 28 days (Air curing samples) when tested in conformance with ASTM C 109.
  - 2. Flexural Strength: 1,200 psi @ 28 days when tested in conformance with ASTM C 580.
  - 3. Shrinkage: 0.025 - 0.045% @ 28 days when tested in conformance with ASTM C 531 (modified).
  - 4. Ideal Slump range 10.5" - 11.5" (2" diameter pipe, 4" high).
  - 5. Bond Strength: 350 - 400 psi when tested in conformance with ASTM D 3931.
  - 6. Walkable hardness: 2 - 4 hours.
  - 7. Finish flooring installation: Permeable coverings 6 hours, Non-permeable coverings 12 - 24 hours.
  - 8. Working Time: 15 - 20 minutes at 70 degrees F (21 degrees C).
  - 9. "0" VOC.
  - 10. Minimum 10% recycled content (gray).
- B. Primer: TEC® Multipurpose Primer or CHAPCO® MP Multipurpose Primer
  - 1. Primer shall have "0" VOC.

- C. Aggregate shall be well graded, washed pea gravel, 1/8 inch or larger. Use for underlayment installed in thicknesses over 1½ inch thick.
- D. Water shall be clean and potable.
- E. Requires a topical sealer when used as a wear surface (acrylic, polyurethane or epoxy).
- F. Moisture mitigation: TEC® LiquiDam™, CHAPCO'S DEFENDER two-part 100% solids epoxy, CHAPCO® DEFENDER EZ™; or TEC® LiquiDam EZ™ 1-part, polymeric emulsion per manufacturers requirements.
  - 1. 100% solids epoxy or polymeric emulsion
  - 2. "0" VOC
  - 3. Vapor readings up to 100% RH per ASTM 2170 and 25 lbs. per 1000 sq. ft. per 24 hours per ASTM F 1869.

## 2.3 MIXING

- A. Mix materials in accordance with manufacturer's instructions.
- B. Standard Mix: Mix in accordance with manufacturer's instructions.
  - 1. Slowly add a 50 lb. bag into water while mixing.
  - 2. Use 5.0 - 5.25 quarts (4.7 - 5.0 L) of water per 50 lb. bag.
  - 3. Use cool water not over 70 degrees F.
  - 4. Mix using a 1/2-inch heavy-duty drill with blending paddle at a minimum of 650 rpm. Mix thoroughly for approximately 2 - 3 minutes. Scrape containers sides and remix to ensure a lump-free consistency.
- C. Aggregate Mix: For areas to be installed over 1½ inch thick.
  - 1. Mix as specified for standard mix.
  - 2. Add from 1/3 to 1 part by volume of 1/8 inch or larger aggregate and mix thoroughly to evenly coat all aggregate.
  - 3. Do not use sand.
- D. Pumped Mix:
  - 1. Mix as specified for standard mix. Do not over water.
  - 2. Check the consistency of the product with a Slump test.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Test moisture content of substrates:
  - 1. Per ASTM F2170, do not install if relative humidity is > 95% and <= 98% without first applying the moisture mitigation membrane per instructions.
  - 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. Wood sub-flooring must be securely fastened with screws or ring shank nails and adhesive. Installation of exterior grade plywood or OSB (APA rated Sturdi –I-Floor OSB, Exposure 1 or better) require 3/4" (19mm) minimum thickness on bridged joists up to 24" on center with a maximum deflection of L/360 of the span. Allow a gap of 1/8" to 1/4" (3 - 6mm) between sheets. Long edges of sub-floor must be tongue and groove or supported by bridging between the floor joists. Plug all floor openings, gaps and cracks then install termination dams to prevent any seepage. Prime the floor. Allow primer to dry to a clear film. Next staple ¼" (6mm) galvanized diamond metal or plastic lath to the floor overlapping at seams. Maximum installation thickness is 1½"; minimum thickness is limited by joint spacing.
    - a) 3/8" (9mm) for joists 16" OC or less
    - b) 1/2" (12mm) for joists 16" to 20"
    - c) 5/8" (15mm) for joists 20" to 24"
  4. 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. Existing building expansion or control joints must be honored through Ultra Wear Surface.
  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. Mix Primer 1:3 with water and apply evenly with a paintbrush, short nap roller or soft bristled push broom.
  2. Apply an even continuous coat.
  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 approximately 400 to 450 sq. ft. per gallon depending on surface texture.
- C. Prime extremely absorbent subfloors twice.
- D. Prime 100% epoxy, two-part moisture mitigation vapor barrier and cutback adhesive residues over concrete as follows (no need to prime 1-part, polymeric emulsion):
  1. Prime with Primer (undiluted)
  2. Apply evenly with a paintbrush, short nap roller or soft bristled push broom.
  3. Apply an even continuous coat.
  4. Allow to dry to a clear film (typically 1 - 3 hours).
  5. Do not apply underlayment until the primer is dry.
  6. Primer coverage is approximately 140 square feet per gallon.

### 3.4 APPLICATION OF UNDERLAYMENT

- A. Placing:
  1. Mix underlayment as specified.
  2. Immediately pour or pump the underlayment onto the primed flooring substrate.

3. Spread in place with a long handled, gauged spreader or smoother covering all high spots on the floor.
4. Underlayment can be walked on in 2 - 4 hours at 70 degrees F.

B. Preparation for Finish Flooring Installation:

1. Underlayment can accept permeable coverings after 6 hours and non-permeable coverings after 12 - 24 hours at 70 degrees F and 50 percent relative humidity.
2. Due to the wide range of adhesives that are used to install floor coverings, some adhesives may dry more quickly over underlayment than over other substrates.
3. When used as a wear surface, coating can be applied after 16 hours.

### 3.5 PROTECTION

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

**END OF SECTION**

## SECTION 035416

### HYDRAULIC CEMENT UNDERLAYMENT

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. TEC® Fiber-Reinforced Self-Leveling Cement Based Underlayment
- B. CHAPCO® EXTREME FIBER SLU Fiber-Reinforced Self-Leveling Underlayment
- C. TEC Multipurpose Primer
- D. CHAPCO® MP Multipurpose 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. Warranty: Product shall be free from manufacturing defects and will not break down or deteriorate under normal use for 10 years.

## 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 43 degrees F substrate temperature.
- 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 15#/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](http://www.tecspecialty.com) or <http://www.chapco-adhesives.com>
  - 1. TEC® Fiber-Reinforced Underlayment
  - 2. CHAPCO® EXTREME FIBER SLU Fiber-Reinforced Self-Leveling Underlayment

**\*\* 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: 6,000 psi @ 28 days (Air curing samples) when tested in conformance with ASTM C 109.
  - 2. Flexural Strength: 1,200 psi @ 28 days when tested in conformance with ASTM C 580.
  - 3. Shrinkage: 0.025 - 0.045% @ 28 days when tested in conformance with ASTM C 531 (modified).
  - 4. Ideal Slump range 10.5" - 11.5" (2" diameter pipe, 4" high).
  - 5. Bond Strength: 350 - 400 psi when tested in conformance with ASTM D 3931.
  - 6. Walkable hardness: 2 - 4 hours.
  - 7. Finish flooring installation: Permeable coverings 6 hours, Non-permeable coverings 12 - 24 hours.
  - 8. Working Time: 15 - 20 minutes at 70 degrees F (21 degrees C).
  - 9. "0" VOC
  - 10. Minimum 10% recycled content.

- B. Primer: TEC Multipurpose Primer or Chapco MP Multipurpose
  - 1. Primer shall have "0" VOC.
- C. Aggregate shall be well graded, washed pea gravel, 1/8 inch or larger. Use for underlayment installed in thicknesses over 1½ inch thick.
- D. Water shall be clean and potable.
- E. Moisture mitigation: TEC® LiquiDam™, CHAPCO'S DEFENDER two-part 100% solids epoxy; CHAPCO® DEFENDER EZ™ or TEC® LiquiDam EZ™ 1-part, polymeric emulsion
  - 1. 100% solids epoxy or polymeric emulsion
  - 2. "0" 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.

## 2.3 MIXING

- A. Mix materials in accordance with manufacturer's instructions.
- B. Standard Mix: Mix in accordance with manufacturer's instructions.
  - 1. Slowly add a 50 lb. bag into water while mixing.
  - 2. Use 5.0 – 5.25 quarts (4.7-5.0 L) of water per 50 lb. bag
  - 3. Use cool water not over 70 degrees F.
  - 4. Mix using a 1/2-inch heavy-duty drill with blending paddle at a minimum of 650 rpm. Mix thoroughly for approximately 2 - 3 minutes. Scrape containers sides and remix to ensure a lump-free consistency.
- C. Aggregate Mix: For areas to be installed over 1½ inch thick.
  - 1. Mix as specified for standard mix.
  - 2. Add from 1/3 to 1 part by volume of 1/8 inch or larger aggregate and mix thoroughly to evenly coat all aggregate.
  - 3. Do not use sand.
- D. Pumped Mix:
  - 1. Mix as specified for standard mix. Do not over water.
  - 2. Check the consistency of the product with a Slump test.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Test moisture content of substrates:
  - 1. Per ASTM F2170, do not install if 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. Wood sub-flooring must be securely fastened with screws or ring shank nails and adhesive. Installation of exterior grade plywood or OSB (APA rated Sturdi –I-Floor OSB, Exposure 1 or better) require 3/4" (19mm) minimum thickness on bridged joists up to 24" on center with a maximum deflection of L/360 of the span. Allow a gap of 1/8" to 1/4" (3-6mm) between sheets. Long edges of sub-floor must be tongue and groove or supported by bridging between the floor joists. Plug all floor openings, gaps and cracks then install termination dams to prevent any seepage. Prime the floor. Allow primer to dry to a clear film. Next staple 3/4" (6mm) galvanized diamond metal or plastic lath to the floor overlapping at seams. Maximum installation thickness is 1½"; minimum thickness is limited by joint spacing.
    - a) 3/8" (9mm) for joists 16" OC or less
    - b) 1/2" (12mm) for joists 16" to 20"
    - c) 5/8" (15mm) for joists 20" to 24"
  4. 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. Mix Primer 1:3 with water and apply evenly with a paintbrush, short nap roller or soft bristled push broom.
  2. Apply an even continuous coat.
  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 approximately 400 to 450 sq. ft. per gallon depending on surface texture.
- C. Prime extremely absorbent subfloors twice.
- D. Prime 2-part, 100% Epoxy moisture mitigation vapor barrier or cutback adhesive residues over concrete as follows (no need to primer 1-part, polymeric emulsion moisture mitigation vapor barrier):
1. Prime with Primer (undiluted).
  2. Apply evenly with a paintbrush, short nap roller or soft bristled push broom.
  3. Apply an even continuous coat.
  4. Allow to dry to a clear film (typically 1 - 3 hours).
  5. Do not apply underlayment until the primer is dry.
  6. Primer coverage is approximately 140 square feet per gallon.



### 3.4 APPLICATION OF UNDERLAYMENT

A. Placing:

1. Mix underlayment as specified.
2. Immediately Pour or pump the underlayment onto the primed flooring substrate.
3. Spread in place with a long handled, gauged spreader or smoother covering all high spots on the floor.
4. Underlayment can be walked on in 2 - 4 hours at 70 degrees F.

B. Preparation for Finish Flooring Installation:

1. Underlayment can accept permeable coverings after 6 hours and non-permeable coverings after 12 - 24 hours at 70 degrees F and 50 percent relative humidity.
2. Due to the wide range of adhesives that are used to install floor coverings, some adhesives may dry more quickly over underlayment than over other substrates.

### 3.5 PROTECTION

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

**END OF SECTION**

## 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](http://www.tecspecialty.com) or [chapco-adhesive.com](http://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**