

**SECTION 03 54 16**  
**RECOMMENDED SPECIFICATION FOR CMP SPECIALTY PRODUCTS LP-1**  
**GYP SUM BASED SELF-LEVELING UNDERLAYMENT**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Specifications throughout all Divisions of the Project Manual are directly applicable to this Section, and this Section is directly applicable to them.

**1.02 SUMMARY**

- A. This is the recommended specification for CMP SPECIALTY PRODUCTS LP-1 Gypsum based interior, self-leveling underlayment.

**1.03 SECTION INCLUDES**

- A. CMP SPECIALTY PRODUCTS LP-1 Gypsum based self-leveling underlayment designed for use over distressed Gypsum subfloors, light weight concrete, mud beds, structurally sound wood and adhesive residue.
  - 1. CMP SPECIALTY PRODUCTS LP-1 Gypsum based self-leveling underlayment
  - 2. CMP SPECIALTY PRODUCTS AS-100 primer
  - 3. CMP SPECIALTY PRODUCTS LOCKDOWN vapor mitigation product
- B. Related Sections include the following:
  - 1. Section 03 30 00, Cast-In-Place Concrete
  - 2. Section 07 26 19, Topical Moisture Vapor Mitigation
  - 3. Division 09 Flooring Sections

**1.04 REFERENCE STANDARDS**

- A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.
- B. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.
- C. All materials, installation and workmanship shall comply with all applicable requirements and standards.
- D. ASTM C109M, Compressive Strength Air-Cure Only
- E. ASTM C348, Flexural Strength of Hydraulic Cement Mortars
- F. ASTM C190, Method of Test for Tensile Strength of Hydraulic Cement Mortars
- G. ASTM F2170, Relative Humidity in Concrete Floor Slabs Using in situ Probes
- H. ASTM F1869, Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride

- I. ASTM 710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
- J. Resilient Floor Covering Institute booklet "Recommended Work Practices for the Removal of Resilient Floor Coverings"

#### **1.05 QUALITY ASSURANCE**

- A. Provide CMP SPECIALTY PRODUCTS LP-1 from as manufactured by CMP SPECIALTY PRODUCTS, 1445 Ford Road, Bensalem, PA 19020.
- B. Installation of CMP SPECIALTY PRODUCTS LP-1 must be by a trained applicator regularly engaged and properly equipped for application of concrete floor underlayments. Please contact your local CMP SPECIALTY PRODUCTS distributor for a list of Installers.
- C. CMP SPECIALTY PRODUCTS LP-1 shall be able to be installed from 1/4 inch to 3 inches thickness neat and up to 5 inches properly extended with aggregate over well-defined areas.
- D. CMP SPECIALTY PRODUCTS LP-1 shall be formulated with gypsum cement to develop a compressive strength of 5000 psi when tested in accordance with ASTM C109/modified for air-cured conditions.
- E. CMP SPECIALTY PRODUCTS LP-1 shall be able to be covered by most standard coverings in 48 hours.

#### **1.06 SUBMITTALS**

- A. Product Data: Product data in the form of CMP SPECIALTY PRODUCTS technical data, specifications, and installation instructions.

#### **1.07 DELIVERY, STORAGE AND HANDLING**

- A. Deliver CMP SPECIALTY PRODUCTS materials in manufacturer's original undamaged packages or acceptable bulk containers.
- B. Store packaged CMP SPECIALTY PRODUCTS materials to protect them from elements or physical damage.
- C. Do not use CMP SPECIALTY PRODUCTS which shows indications of moisture damage, caking, or other signs of deterioration.

#### **1.08 PROJECT CONDITIONS**

- A. Do not place CMP SPECIALTY PRODUCTS LP-1 when ambient temperature is below 50 degrees F (10 degrees C) or above 95 degrees F (35 degrees C).

### **PART 2 – PRODUCTS**

#### **2.01 GENERAL**

- A. All CMP SPECIALTY PRODUCTS materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

#### **2.02 MATERIALS**

- A. Self-Leveling Underlayment: Free-flowing, self-leveling, pumpable, gypsum based compound for applications from 1/4 inch to 3 inches. Applications up to 5 inches in thickness properly extended with aggregate.

- 1. CMP SPECIALTY PRODUCTS "LP-1"

- a. Flow Working Time: 20 minutes
  - b. Final Set: Approximately 60 minutes, ASTM C191
  - c. Compressive Strength:
    - i. 1000 psi at 4 hours, ASTM C109M
    - ii. 2500 psi at 1 day, ASTM C109M
    - iii. 5000 psi at 28 days, ASTM C109M
  - d. Flexural Strength: 1500 psi at 28 days, ASTM 348
  - e. Tensile Strength: 570 psi at 28 days, ASTM C190
  - f. VOC: 0g/L, calculated SCAQMD 1168
- B. Underlayment Primer: Premium primer designed for use with CMP's line of underlayments and toppings.
- 1. CMP SPECIALTY PRODUCTS "AS-100"
- C. Vapor Mitigation and Remediation Product: 100% solids, two component, resin based, membrane forming, moisture mitigation system.
- 1. CMP SPECIALTY PRODUCTS "LOCKDOWN"
- D. Aggregate: For extension on CMP SPECIALTY PRODUCTS LP-1 in 2 inch to 5 inch thick applications.

### **2.03 MIXING EQUIPMENT**

- A. Provide suitable batch type mechanical mixer for mixing topping material at the Project Site. Equip batch mixer with a suitable charging hopper, water storage tank, and a water-measuring device. Use only mixers which are capable of mixing aggregates, cement, and water into a uniform mix within specified time, and of discharging mix without segregation.
- B. Provide suitable mixing-pump such as m-tec, Duo 2000 which includes dual mixing action and wet material probe for consistent mix water monitoring.
- C. Provide a suitable barrel, such as a CMP SPECIALTY PRODUCTS mixing drum, to mix 2-bag batches of CMP SPECIALTY PRODUCTS LP-1. Provide a suitable dispensing container for measuring a maximum 5.5 quarts of clean cold water for each bag of CMP SPECIALTY PRODUCTS LP-1. Provide a heavy duty 1/2 inch drill (min. 850 rpm) with CMP SPECIALTY PRODUCTS mixing wand to mix CMP SPECIALTY PRODUCTS LP-1 to a lump free consistency without entraining excess air.

## **PART 3 - EXECUTION**

### **3.01 PREPARATION**

- A. Concrete subfloors: Prepare substrate in accordance with CMP SPECIALTY PRODUCTS' instructions.
  - 1. Refer to ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring before proceeding.
  - 2. Concrete subfloors must be sound, clean and free of all dirt, oil, grease, laitance, curing compounds and any substance that may act as a bond breaker. If necessary, mechanically clean and remove contaminants by chipping, shot-blasting, grinding or scarifying. Removal with solvents, strippers and acid etching are not acceptable.

3. All cracks in the subfloor must be repaired or treated to minimize crack telegraphing through the underlayment/topping. Moving cracks, working cracks, expansion joints and isolation joints must be honored through the applied CMP SPECIALTY PRODUCTS LP-1.
  4. Substrates shall be inspected and tested for moisture in accordance with ASTM F1869 and/or ASTM 2170. Substrates must be corrected for moisture or any other conditions that could affect the underlayment/topping performance or finished floor covering. Utilize CMP SPECIALTY PRODUCTS LOCKDOWN topical moisture vapor mitigation system where moisture and vapor emissions exceed the floor covering manufacturer's required limits.
- B. Wooden subfloors: Prepare substrate in accordance with CMP SPECIALTY PRODUCTS' instructions.
1. Must be a minimum of 3/4 inch, untreated, APA Rated, Type-1, exterior grade plywood, OSB or equal. The subfloor must be free of deflection (L/360 maximum) considering both live and dead loads. Subfloor must be clean, sound and free of all foreign matter that will inhibit bond.
  2. Prepare by sanding down to bare wood. Secure loose boards with deck screws and fill open seams with CMP SPECIALTY PRODUCTS PREPSTAR. Replace any weak or water damaged wood.
- C. Lightweight Concrete: Must be fully cured, completely dry and sound. Remove weak or latent surfaces down to solid sound concrete by mechanical means such as shot-blasting, grinding or scarifying. Vacuum the surface to remove dust and laitance.
- D. Adhesive residue: Thin, translucent adhesive residue must be non-water soluble, free of tack and well bonded to the substrate. The adhesive Cutback must be prepared using the wet scrape method as outlined in the Resilient Floor Covering Institute booklet "Recommended Work Practices for the Removal of Resilient Floor Coverings". Remove all patching materials below the adhesive and avoid applications where heat or excessive moisture will soften or degrade the adhesive.
- E. Mud Beds: Well bonded tile and Thinset can remain in place. Remove any weak or sandy areas of the bed down to sound solid material and thoroughly vacuum.
- F. Gypsum substrates: Distressed Gypsum underlayment must be completely dry, sound free of cracks and well bonded. Remove any loose patching materials then sand and vacuum the substrate thoroughly.

### **3.02 INSTALLATION**

- A. Installation shall meet or exceed all applicable federal, state and local requirements, referenced standards and conform to codes and ordinances of authorities having jurisdiction.
- B. All installation shall be in accordance with CMP SPECIALTY PRODUCTS published recommendations. Note: For Radiant Heat applications turn system off for a minimum of 24 hours before and 48 hours after placement.
- C. Concrete subfloors: Requires two coats of CMP SPECIALTY PRODUCTS AS-100.
1. Apply one coat of CMP SPECIALTY PRODUCTS AS-100 diluted 3 parts water to 1 part CMP SPECIALTY PRODUCTS AS-100 using a split tip broom. Spray liberally or pour out and work into surface leaving no puddles or bare spots. Allow to dry a minimum of 2 hours.
  2. Apply a second coat of CMP SPECIALTY PRODUCTS AS-100 diluted 50/50 (1 part water to 1 part CMP SPECIALTY PRODUCTS AS-100) using a split tip broom. Spray liberally or pour out and work into surface leaving no puddles or bare spots. Allow to dry a minimum of 2 hours.
  3. Apply CMP SPECIALTY PRODUCTS LP-1 once CMP SPECIALTY PRODUCTS AS-100 is dry (Minimum 2 hours) and up to 24 hours. If primer has dried longer than 24 hours another coat of CMP SPECIALTY PRODUCTS AS-100 may be required.

- D. Wooden subfloors: Apply one thin coat of CMP SPECIALTY PRODUCTS AS-100 (Undiluted) using a 3/8 inch nap roller. Place a minimum of 1/2 inch CMP SPECIALTY PRODUCTS LP-1 once CMP SPECIALTY PRODUCTS AS-100 is dry (Minimum 2 hours) and up to 24 hours. If CMP SPECIALTY PRODUCTS AS-100 has dried longer than 24 hours a second coat of CMP SPECIALTY PRODUCTS AS-100 may be required.
- E. Lightweight Concrete: Requires two coats of CMP SPECIALTY PRODUCTS AS-100.
1. Apply one coat of CMP SPECIALTY PRODUCTS AS-100 diluted 3 parts water to 1 part CMP SPECIALTY PRODUCTS AS-100 using a split tip broom. Spray liberally or pour out and work into surface leaving no puddles or bare spots. Allow to dry a minimum of 2 hours.
  2. Apply a second coat of CMP SPECIALTY PRODUCTS AS-100 diluted 50/50 (1 part water to 1 part CMP SPECIALTY PRODUCTS AS-100) using a split tip broom. Spray liberally or pour out and work into surface leaving no puddles or bare spots. Allow to dry a minimum of 2 hours.
  3. Apply CMP SPECIALTY PRODUCTS LP-1 once CMP SPECIALTY PRODUCTS AS-100 is dry (Minimum 2 hours) and up to 24 hours. If primer has dried longer than 24 hours another coat of CMP SPECIALTY PRODUCTS AS-100 may be required.
- F. Adhesive residue: Apply one thin coat of CMP SPECIALTY PRODUCTS AS-100 (Undiluted) using a 3/8 inch nap roller. Apply CMP SPECIALTY PRODUCTS LP-1 once CMP SPECIALTY PRODUCTS AS-100 is dry (Minimum 2 hours) and up to 24 hours. If CMP SPECIALTY PRODUCTS AS-100 has dried longer than 24 hours a second coat of CMP SPECIALTY PRODUCTS AS-100 may be required.
- G. Mud Beds: Requires two coats of CMP SPECIALTY PRODUCTS AS-100.
1. Apply one coat of CMP SPECIALTY PRODUCTS AS-100 diluted 3 parts water to 1 part CMP SPECIALTY PRODUCTS AS-100 using a split tip broom. Spray liberally or pour out and work into surface leaving no puddles or bare spots. Allow to dry a minimum of 2 hours.
  2. Apply a second coat of CMP SPECIALTY PRODUCTS AS-100 diluted 50/50 (1 part water to 1 part CMP SPECIALTY PRODUCTS AS-100) using a split tip broom. Spray liberally or pour out and work into surface leaving no puddles or bare spots. Allow to dry a minimum of 2 hours.
  3. Apply CMP SPECIALTY PRODUCTS LP-1 once CMP SPECIALTY PRODUCTS AS-100 is dry (Minimum 2 hours) and up to 24 hours. If primer has dried longer than 24 hours another coat of CMP SPECIALTY PRODUCTS AS-100 may be required.
- H. Gypsum substrates: Requires two coats of CMP SPECIALTY PRODUCTS AS-100.
1. Apply one coat of CMP SPECIALTY PRODUCTS AS-100 diluted 3 parts water to 1 part CMP SPECIALTY PRODUCTS AS-100 using a split tip broom. Spray liberally or pour out and work into surface leaving no puddles or bare spots. Allow to dry a minimum of 2 hours.
  2. Apply a second coat of CMP SPECIALTY PRODUCTS AS-100 diluted 50/50 (1 part water to 1 part CMP SPECIALTY PRODUCTS AS-100) using a split tip broom. Spray liberally or pour out and work into surface leaving no puddles or bare spots. Allow to dry a minimum of 2 hours.
  3. Apply CMP SPECIALTY PRODUCTS LP-1 once CMP SPECIALTY PRODUCTS AS-100 is dry (Minimum 2 hours) and up to 24 hours. If primer has dried longer than 24 hours another coat of CMP SPECIALTY PRODUCTS AS-100 may be required.

### **3.03 MIXING**

- A. Use CMP SPECIALTY PRODUCTS mixing drum, to mix 2-bag batches of CMP SPECIALTY PRODUCTS LP-1. Add a maximum 5.5 quarts of clean cold water for each bag of CMP SPECIALTY PRODUCTS LP-1 to the mixing drum or barrel. Then, add bags of CMP SPECIALTY PRODUCTS LP-1 while mixing at full speed with a CMP SPECIALTY PRODUCTS mixing wand attached to a heavy duty 1/2 inch drill (min. 850 rpm). Mix for 2 minutes or until lump free. Add no additional water and keep the mixing wand immersed in the material to avoid entraining excess air.
- B. Aggregate mix: For installation areas over 3 inches (7.5 cm) in thickness, up to 1 part by volume of well graded, washed pea gravel must be added. Aggregates should be hard, high density and non-absorbent. Before attempting to use any aggregate, conduct testing to determine suitability. All aggregate should be clean and dry. Do not use sand or exceed 1 part aggregate by volume. Combine aggregate once material is lump free and mix until aggregate is completely coated. Aggregate addition will diminish workability and may make it necessary to install a finish layer. Allow the first installation to dry 12 to 16 hours before topping.
- C. For pump installations, please contact CMP SPECIALTY PRODUCTS for instructions, recommended pumping procedures and approved equipment.

### **3.04 PLACING**

- A. Place underlayment in accordance with CMP SPECIALTY PRODUCTS' instructions, using equipment and procedures to facilitate continuous placement, avoid segregation of mix and prevent excessive air content. Pour or pump, gauge rake with a CMP SPECIALTY PRODUCTS gauge rake and smooth with a CMP SPECIALTY PRODUCTS smoother in a continuous operation until an entire panel or section of floor area are completed. Do not work mix except for raking or smoothing.

### **3.05 CURING AND PROTECTION**

- A. Cure and protect CMP SPECIALTY PRODUCTS LP-1 underlayment/topping applications and finishes as specified CMP SPECIALTY PRODUCTS. CMP SPECIALTY PRODUCTS LP-1 is self-curing. Do not use cure & seals or any other curing methods.
- B. During application and for the first 24 hours, prevent excessive air movement but maintain adequate ventilation and protect material from direct sunlight to prevent uneven curing patterns, false set and cracking.

### **3.06 PERFORMANCES**

- A. Failure of CMP SPECIALTY PRODUCTS LP-1 to bond to substrate, or disintegration or other failure of topping to perform as a floor underlayment or topping compound will be considered failure of materials and/or workmanship. Repair or replace CMP SPECIALTY PRODUCTS LP-1 in areas of such failures, as directed by CMP SPECIALTY PRODUCTS.

**END OF SECTION 03 54 16**