

SECTION 03 54 16
RECOMMENDED SPECIFICATION FOR CMP SPECIALTY PRODUCTS LIQUITEK
GYPSUM 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 LIQUITEK Gypsum based interior, self-leveling underlayment.

1.03 SECTION INCLUDES

- A. CMP SPECIALTY PRODUCTS LIQUITEK Gypsum based self-leveling underlayment designed for use over distressed Gypsum subfloors, light weight concrete, mud beds, structurally sound wood, VCT and non-water soluble adhesive residue.
 - 1. CMP SPECIALTY PRODUCTS LIQUITEK Gypsum based self-leveling underlayment
 - 2. CMP SPECIALTY PRODUCTS AS-100 primer
 - 3. CMP SPECIALTY PRODUCTS LOCKDOWN vapor mitigation product
 - 4. CMP SPECIALTY PRODUCTS DASH PATCH
- 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 LIQUITEK from as manufactured by CMP SPECIALTY PRODUCTS, 1445 Ford Road, Bensalem, PA 19020.
- B. Installation of CMP SPECIALTY PRODUCTS LIQUITEK 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 LIQUITEK shall be able to be installed from 1/16 inch to 1 inch thickness neat and up to 2 inches properly extended with aggregate over well-defined areas.
- D. CMP SPECIALTY PRODUCTS LIQUITEK shall be formulated with gypsum cement to develop a compressive strength of 6000 psi when tested in accordance with ASTM C109/modified for air-cured conditions.
- E. CMP SPECIALTY PRODUCTS LIQUITEK shall be able to be covered by most standard coverings in 16 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 LIQUITEK when ambient temperature is below 50 degrees F (10 degrees C) or above 85 degrees F (30 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 1/16 inch to 1 inch. Applications up to 2 inches in thickness properly extended with aggregate.

1. CMP SPECIALTY PRODUCTS "LIQUITEK"
 - a. Flow Working Time: 30 minutes
 - b. Final Set: Approximately 90 minutes, ASTM C191
 - c. Compressive Strength:
 - i. 3000 psi at 4 hours, ASTM C109M
 - ii. 3500 psi at 1 day, ASTM C109M
 - iii. 6000 psi at 28 days, ASTM C109M
 - d. Flexural Strength: 1200 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. Skim Coat and Preparation for approved wooden subfloors.
 1. CMP SPECIALTY PRODUCTS "DASH PATCH"
- E. Aggregate: For extension on CMP SPECIALTY PRODUCTS LIQUITEK in 1 inch to 2 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 LIQUITEK. Provide a suitable dispensing container for measuring a maximum 6.5 quarts of clean cold water for each bag of CMP SPECIALTY PRODUCTS LIQUITEK. Provide a heavy duty 1/2 inch drill (min. 650 rpm) with CMP SPECIALTY PRODUCTS mixing wand to mix CMP SPECIALTY PRODUCTS LIQUITEK 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 LIQUITEK.
 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 3 Pounds or 85 Percent RH.
- 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. Replace any weak or water damaged wood. Secure loose boards with deck screws and fill open seams with CMP SPECIALTY PRODUCTS DASH PATCH.
 3. Prepare by sanding down to bare wood.
- C. Lightweight Concrete: Prepare substrate in accordance with CMP SPECIALTY PRODUCTS' instructions.
1. Must be fully cured, completely dry and sound.
 2. Remove weak or latent surfaces down to solid sound concrete by mechanical means such as shot-blasting, grinding or scarifying.
 3. Vacuum the surface to remove dust and laitance.
- D. Adhesive residue: Prepare substrate in accordance with CMP SPECIALTY PRODUCTS' instructions.
1. Thin, translucent adhesive residue must be non-water soluble, free of tack and well bonded to the substrate.
 2. 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".
 3. Remove all patching materials below the adhesive and avoid applications where heat or excessive moisture will soften or degrade the adhesive.
- E. Mud Beds: Prepare substrate in accordance with CMP SPECIALTY PRODUCTS' instructions.
1. Well bonded tile and Thinset can remain in place.
 2. Remove any weak or sandy areas of the bed down to sound solid material and thoroughly vacuum.
- F. Gypsum substrates: Prepare substrate in accordance with CMP SPECIALTY PRODUCTS' instructions.
1. Distressed Gypsum underlayment must be completely dry, sound free of cracks and well bonded.
 2. Remove any loose patching materials then sand and vacuum the substrate thoroughly.

- G. VCT: Prepare substrate in accordance with CMP SPECIALTY PRODUCTS' instructions.
1. Existing VCT must be clean, sound, well bonded and not exhibiting any signs of degradation due to excessive moisture.
 2. Remove any loose or damaged tile. Strip floor to remove all wax, sealer or grease and do multiple rinse cycles to ensure removal of all stripper and contaminates. Allow the floor to dry completely.

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 CMP SPECIALTY PRODUCTS AS-100.
1. Apply one coat of CMP SPECIALTY PRODUCTS AS-100 diluted 1 part water to 1 part CMP SPECIALTY PRODUCTS AS-100. Spray liberally or pour out and backroll into surface with a 3/8" nap roller leaving no puddles or bare spots. Allow to dry a minimum of 1 hour.
 2. The resulting concrete surface must have a thin, shiny, transparent film to proceed.
 3. Apply CMP SPECIALTY PRODUCTS LIQUITEK once CMP SPECIALTY PRODUCTS AS-100 is dry (Minimum 1 hour) 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: Requires CMP SPECIALTY PRODUCTS AS-100.
1. Apply one thin coat of CMP SPECIALTY PRODUCTS AS-100 (Undiluted) using a 3/8 inch nap roller. Allow to dry a minimum of 1 hour.
 2. Place a minimum of 1/8 inch CMP SPECIALTY PRODUCTS LIQUITEK once CMP SPECIALTY PRODUCTS AS-100 is dry (Minimum 1 hour) 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. Spray liberally or pour out and backroll into surface with a 3/8" nap roller leaving no puddles or bare spots. Allow to dry a minimum of 1 hour.
 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). Spray liberally or pour out and backroll into surface with a 3/8" nap roller leaving no puddles or bare spots. Allow to dry a minimum of 1 hour.
 3. The resulting concrete surface must have a thin, shiny, transparent film to proceed.
 4. Apply CMP SPECIALTY PRODUCTS LIQUITEK once CMP SPECIALTY PRODUCTS AS-100 is dry (Minimum 1 hour) 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: Requires CMP SPECIALTY PRODUCTS AS-100.
1. Apply one thin coat of CMP SPECIALTY PRODUCTS AS-100 (Undiluted) using a 3/8 inch nap roller. Allow to dry a minimum of 2 hours.

2. Apply CMP SPECIALTY PRODUCTS LIQUITEK 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. Spray liberally or pour out and backroll into surface with a 3/8" nap roller leaving no puddles or bare spots. Allow to dry a minimum of 1 hour.
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). Spray liberally or pour out and backroll into surface with a 3/8" nap roller leaving no puddles or bare spots. Allow to dry a minimum of 1 hour.
3. The resulting concrete surface must have a thin, shiny, transparent film to proceed.
4. Apply CMP SPECIALTY PRODUCTS LIQUITEK once CMP SPECIALTY PRODUCTS AS-100 is dry (Minimum 1 hour) 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 CMP SPECIALTY PRODUCTS AS-100.

1. Apply one coat of CMP SPECIALTY PRODUCTS AS-100 diluted 1 part water to 1 part CMP SPECIALTY PRODUCTS AS-100. Spray liberally or pour out and backroll into surface with a 3/8" nap roller leaving no puddles or bare spots. Allow to dry a minimum of 1 hour.
2. Apply CMP SPECIALTY PRODUCTS LIQUITEK once CMP SPECIALTY PRODUCTS AS-100 is dry (Minimum 1 hour) and up to 24 hours. If primer has dried longer than 24 hours, a second coat of CMP SPECIALTY PRODUCTS AS-100 may be required.

I. VCT: Requires CMP SPECIALTY PRODUCTS AS-100.

1. Apply one thin coat of CMP SPECIALTY PRODUCTS AS-100 (Undiluted) using a 3/8 inch nap roller. Allow to dry a minimum of 1 hour.
2. Place a minimum of 1/8 inch CMP SPECIALTY PRODUCTS LIQUITEK once CMP SPECIALTY PRODUCTS AS-100 is dry (Minimum 1 hour) 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.

3.03 MIXING

- A. Use CMP SPECIALTY PRODUCTS mixing drum, to mix 2-bag batches of CMP SPECIALTY PRODUCTS LIQUITEK. Add a maximum 6.5 quarts of clean cold water for each bag of CMP SPECIALTY PRODUCTS LIQUITEK to the mixing drum or barrel. Then, add bags of CMP SPECIALTY PRODUCTS LIQUITEK while mixing at full speed with a CMP SPECIALTY PRODUCTS mixing wand attached to a heavy duty 1/2 inch drill (min. 650 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 1 inches (2.5 cm) in thickness, up to 1 part by volume of well graded, washed 1/4 X 3/8-inch pea gravel must be added to 4 parts CMP SPECIALTY PRODUCTS LIQUITEK. 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 25 percent 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 4 to 6 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 or cam rake with a CMP SPECIALTY PRODUCTS gauge rake/nano-rake and utilize a CMP SPECIALTY PRODUCTS spike roller if desired. Smooth with a CMP SPECIALTY PRODUCTS smoother in a continuous operation until an entire panel or section of floor area are completed. Do not overwork mix except for raking, spike rolling or smoothing.

3.05 CURING AND PROTECTION

- A. Cure and protect CMP SPECIALTY PRODUCTS LIQUITEK underlayment applications and finishes as specified CMP SPECIALTY PRODUCTS. CMP SPECIALTY PRODUCTS LIQUITEK 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.

END OF SECTION 03 54 16