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Seal-Krete High Performance Epoxy-Shell 1000 Sparse Flake System

GUIDE SPECIFICATION

SECTION 09725

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Provisions of general, supplementary conditions and Division 1 as defined by Construction Specifications institute (CSI) apply to all work in this Section.
- B. Furnish labor, materials, equipment, and supervision to install chemical resistant coatings as specified and shown in drawings.

1.02 Related Sections

- A. Section 0330000 Cast-In Place Concrete
- B. Section 0900000 Finishes

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM):

Color: Clear... and...Pre-Blended Standard Colors

- 1. ASTM C 307
Tensile Strength 1500 psi
- 2. ASTM D 2240
Hardness, 24 hours @ Shore D 78
- 3. ASTM C 580
Flexural Strength 6500 psi
- 4. ASTM D 412
Elongation 25%

| | |
|----------------------------------|---|
| 5. Adhesion (ACI 503R) | 750 psi |
| 6. Flammability: | Self-Extinguishing over concrete |
| 7. ASTM C 884 Thermal Cycling | No Cracking (24 hours @ -21°C to 25 °C) |

1.04 SUBMITTALS

- A. Comply with Bidding Requirements Section 00600 Bonds and Certificates, and 00650 Certificates of Insurance.
- B. Manufacturer's Technical Data Guides, and application instructions.
- C. Submit laboratory tests or data that validate product compliance with compliance criteria specified.

1.05 QUALITY ASSURANCE

- A. Manufacturer qualifications: Company regularly engaged in manufacturing and marketing of products specified in this section.
- B. Contractor qualifications: Qualified to perform work specified by reason of experience or training provided by product manufacturer.
- C. Notify manufacturer's authorized representative at least 2 weeks before start of work. Schedule a minimum of 3 job site inspections by Manufacturer's authorized representative, first to be scheduled before application of product. Application of floor coating without prior notice will not constitute acceptance by manufacturer of two-year warranty inspection procedure.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in original factory packaging bearing identification of product, manufacturer, batch number, and expiration date as applicable. Provide Material Safety Data Sheets for each product.
- B. Store product in location protected from freezing, damage, construction activity, precipitation and direct sunlight in strict accordance with manufacturer's recommendations. Provide adequate ventilation.
- C. When properly stored, shelf life is one (1) year.
- D. Handle all products with appropriate precautions and care as stated on Material Safety Data Sheet.
- E. Do not breathe mixed product vapors or dust. Use adequate ventilation to keep airborne isocyanate levels below the exposure limits. Individuals with lung or breathing problems or prior allergic reactions must not be exposed to vapors or dusts
- F. Irritating to eyes, skin and mucus membranes.

1.07 PROJECT CONDITIONS

- A. Do not use products under conditions of precipitation or freezing conditions. Use appropriate measures for protection and supplementary heating or cooling to ensure proper drying and curing conditions in accordance with manufacturer's recommendations if application during inclement weather occurs.
- B. Protect all adjacent work from contamination due to mixing, handling, and application of sealants.
- C. New concrete must cure for a minimum of 28 days. All concrete must be structurally sound, dry, and free of grease, oils, coatings, dust, curing compounds and/or other contaminants. **Surface laitance must be removed.**
- D. Substrate temperature during application should be between 50° and 90° F

Rising moisture vapor emission rate must not exceed 31 lbs per 1000 sqft per gallon over 24 hr. period as measured by Calcium Chloride Test Method ASTM F-1869

1.08 MOCKUP

- A. Provide mockup to include surface cleaning and preparation techniques, aesthetics, color, and slip resistance characteristics when applicable.
- B. Apply mockup with specified floor coating and with other components noted.
- C. Locate where directed by Architect.
- D. Mockup may remain as part of Work if acceptable to Architect.

1.09 WARRANTY

- A. Provide manufacturer's limited material warranty, with completion of warranty forms, on a per-job basis.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. For purpose of defining quality of materials in this Section SEAL-KRETE, DIV. COVENIENCE PRODUCTS, ST. LOUIS, MO. conforms to requirements of this specification.
- B. Substitutions
 - 1. Alternates to acceptable manufacturer will be considered only on basis of written requests. Include substantiation of product compliance as listed in section 2.02 below.

2.02 PERFORMANCE CRITERIA

A. Seal-Krete Epoxy-Shell 1000

Epoxy Material Properties at 75°F

| | |
|------------------------|---------|
| Mix Ratio (by volume) | 2:1 |
| Gel Time (minutes) | 35-45 |
| Working/Broadcast Time | 1 hour |
| Mixed VOC Content | <10g/L* |

| | |
|--------------|-------------|
| Recoat Time: | |
| Minimum | 4 – 6 hours |
| Maximum | 24 hours |

| | | | |
|-----|------------------------------|---------------------|--------------------------------|
| 1. | Vertical/Horizontal: | Epoxy-Shell 1000 | |
| 2. | Solids by weight: | | 100 percent |
| 3. | Solids by volume: | | 100 percent |
| 4. | Water Absorption (24 hours): | ASTM D570 | <0.05% |
| 5. | Flammability: | ASTM D635 | Self-Extinguishing |
| 6. | Compressive Strength: | ASTM D695 | 24hrs 7500psi 7days 9800psi |
| 7. | Adhesion Strength | ASTM D4541 | 750 psi |
| 8. | Tensile Strength | ASTM D2240 | 4500-5200 |
| | Tensile Elongation: | ASTM D638 | 20% – 30% |
| 9. | Monolithic Surfacing | ASTM C722 | Pass |
| 10. | Impact Resistance | ASTM D2794 | Pass |
| 11. | Abrasion Resistance | ASTM D4060 | 36 mg |
| 12. | Konig Hardness | ASTM D4366 | 120 |
| 13. | Adhesion Strength | ASTM D4541 | > 600 psi |

***EPA Method 24 – Floor Category**

2.03 MATERIAL

A. Use SEAL-KRETE PRODUCTS in all other instances and applications as recommended by manufacturer pertaining to this work to provide Owner with single source system and warranty.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Inspect all areas involved in work to establish extent of work, access and need for protection of surrounding construction, equipment, windows and shrubbery.
- B. Protect all surroundings from etching and floor coating to include, but not be limited to, windows, walkways, drives, and landscaping.

3.02 SITE VERIFICATIONS OF CONDITIONS

- A. Conduct pre-application inspection of site verification with authorized SEAL-KRETE Representative.
- B. Ensure floors are structurally sound and fully cured 28 days minimum.
- C. Test floors for vapor drive in accordance with ASTM D4263.
- D. Evaluate atmospheric, floor, and material temperatures. Do not apply materials if temperatures are below 50 or above 90 degrees F. Evaluate relative humidity. Do not apply materials if relative humidity is below 35 or above 80 percent. Do not apply if water or ice is present.
- E. Repair concrete and install joint sealants and fillers as directed by Engineer. Make all repairs in accordance with manufacturer's written instructions.

MECHANICAL SURFACE PROFILING IS PREFERRED FLOOR PREPARATION METHOD.

3.03 PREPARATION

A. The preferred method of surface preparation is abrasive blasting or scarification using diamond heads, achieving a final 50-120 grit finish (Ref: Profile SP-2 ICRI Technical Guideline No. 03732. If chemical etch is preferred, use Seal-Krete® Clean-N-Etch Full strength. Read and follow all guidelines on product label.

If patching is required, use SEAL-KRETE Fast Cure High Strength Concrete Repair.

- B. Clean floors of fat, grease, and oil not removed by mechanical means with Seal-Krete Clean-N-Etch in accordance with Manufacturer's instructions and ASTM D4258.
- C. Rising moisture vapor emission rate must not exceed 3 lbs per 1000 s.f. over a 24 hour period as measured by calcium chloride test method ASTM F-1869.
- D. Conduct inspection of surface preparation with authorized Seal-Krete Representative

3.04 APPLICATION

Seal-Krete Epoxy-Shell 1000 to be installed only by qualified contractors.

Mixing Instructions

- 1) Primer Coat Epoxy-Shell 1000 Tinted (Mix Ratio 2:1) Coverage Rate 150 sq. ft./gal

Combine two parts by volume of Seal-Krete Pigmented Epoxy-Shell Part A with one part by volume of Part B and mix using a low speed drill motor and a mixing attachment for 3 minutes. To insure proper cure, ratio recommendations must be followed precisely.

NOTE: Mix only that amount of material that can be applied based on pot life (30 – 45 minutes). Do not aerate during the mixing process.

Wearing spiked shoes, immediately pour mixed product on the floor in ribbons.

Spread using a 1/8" squeegee and then back roll with a lint-free, short nap roller. Let cure for 6-12 hours.

2) Layer 1 Epoxy-Shell 1000 Tinted (Mix Ratio 2:1) Coverage Rate 150 sq. ft. per gallon

Mix Epoxy-Shell 1000 as instructed in Step 1 above.

Apply at a spread rate of 150 sq. ft. per gallon with a 1/8" notched squeegee and back roll with a lint-free, short nap roller.

NOTE: When broadcasting flakes, maintain a wet edge.

Sparse Flake Broadcast

Immediately after back rolling, broadcast flakes upwards towards the ceiling and let free-fall. Proper distribution is critical to the success of the application.

Do not broadcast aggregate downward at a sharp angle using force. Broadcast aggregate until the desired uniformity has been achieved.

Allow to cure overnight, then remove excess aggregate with a flat scrapper blade or stiff bristle broom. A leaf blower can also be used to blow the aggregate into the corner of the room for collection. Excess flakes can be collected for use on future projects. Place excess flakes in a clean container with a secure lid. Store in a cool, dry place for future use.

3) Grout Coat Epoxy-Shell 1000 Clear (Mix Ratio 2:1) Coverage Rate 150 sq. ft. per gallon

Mix Epoxy-Shell 1000 as instructed in Step 1 above.

Once mixed, immediately apply Grout Coat using a 1/8" notched rubber squeegee for smooth surface, or a flat squeegee for textured surfaces, and back roll using a short nap, lint-free roller. Allow to dry 6-12 hours and apply Poly-Shell Seal Coat.

4) **Poly-Shell 7000 Clear Seal Coat (Mix Ratio 1:1) Coverage Rate 200 sq. ft./gal.**

Combine one part by volume of Seal-Krete Poly-Shell 7000 Part A with one part by volume of Poly-Shell 7000 Part B and mix using a low speed drill motor and a "Jiffy" type mixer for 3 minutes. To insure proper cure, ratio recommendations must be followed precisely.

NOTE: Mix only that amount of material that can be applied based on pot life. Do not aerate during the mixing process.

Apply Poly-Shell Seal-Coat with a 1/8" notched squeegee and back roll with a lint-free roller at 200 sq.ft. per gallon.

Allow to cure a minimum of 24 hours prior to subjecting to traffic.

Important: Poly-Shell materials will appear to be cure and dry to touch prior to full chemical cross linking. For best results, allow system to cure 2 – 3 days prior to exposing to water or other chemicals.

Allow to cure a minimum of 12 hours prior to subjecting to light foot traffic; return to service, 24 hours.

Refer to Application Guide or visit hp.seal-krete.com for detailed application instructions.

3.05 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service. Final inspection: Warranty request. Manufacturer's representative will inspect finished surface preparation, application, and finished coating and may require further preparation or application to achieve appropriate result.

3.06 CLEANUP AND DISPOSAL

- A. Clean tools immediately with xylene. Dispose of container and contents in accordance with local laws and regulations. Observe all fire and health precautions when handling or storing solvents.
- B. Clean spills or drips while still wet with xylene. Dried Seal-Krete Epoxy-Shell will require mechanical abrasion for removal.
- C. Remove all debris related to application of floor coatings from job site in accordance with all applicable regulations for hazardous waste disposal.

3.07 CAUTIONS

Do not aerate during mixing. Do not mix or apply unless surface, air and material temperatures are 50°F and rising. Do not apply if surface temperature is within 5° F of the dew point in the work area. Do not store Seal-Krete Epoxy-Shell at temperatures below 40°F. Cure new concrete 28 days before application. Do not apply to slabs on grade unless a heavy, uninterrupted vapor barrier has been installed under the slab. Do not apply Seal-Krete Epoxy-Shell if the floor is subject to moisture vapor drive or Hydrostatic pressure.

Seal-Krete Epoxy-Shell 1000 will yellow upon prolonged exposure to sunlight or high intensity artificial lights.

3.08 MAINTENANCE

SEAL-KRETE Industrial Flooring Systems are monolithic, making them easier to clean as dirt and other contaminants remain on the surface. For maintenance and care recommendations, refer to application guide or visit hp.seal-krete.com.

END OF SECTION

