



## SYSTEM GUIDE SPECIFICATION FOR SUPER-KRETE ARCHITECTURAL DECO SURFACING SYSTEM S-9000

### SECTION 07 18 00 TRAFFIC COATINGS; 09 94 00 DECORATIVE FINISHING AND 09 97 26 CEMENTITIOUS COATINGS

This product guide specification is written according to the Construction Specifications Institute (CSI) with numbers and titles from the Master Format 2004 Edition. The purpose of this guide specification is to assist the concrete specifier in developing a project specification for the use of Super-Krete Products. This section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building codes. Coordinate this section with other specification sections and drawings.

This is the recommended specification for the Super-Krete Concrete Resurfacing System. Each Super-Krete product acts as an inherent part of a proven system. Super-Krete products are professional, contractor grade products. Training in the use of these products is available. Consult Super-Krete for assistance locating contractors in your area or training dates.

**Specifier Notes:** Super-Krete Architectural Deco Surfacing System Specification S-9000 is a guide for designers, specifiers and contractors for the functional resurfacing of concrete substrates. For the purpose of this specification, S-9000 specification provides all of the necessary requirements and procedures used to apply a uniform and smooth finished thin-set overlayment over existing concrete substrates to create a fresh Art Deco appearance and provide a decorative artistic, colored finish by adding integral pigments and/or by using designs, templates and diverse coloring and sealing options. The surface will provide a very smooth surface with increased wearability and traffic resistance when coated with one of several Super-Krete sealers available. Refer to Super-Krete Specification S-2 Selecting the Right Sealer for sealer options.

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. This is the recommended specification for the Super-Krete Concrete Resurfacing System for the placement of Super-Krete cementitious overlayments over all types of cementitious substrates both interior and exterior.

##### 1.2 SECTION INCLUDES

- A. Concrete cleaning and degreasing.
- B. Surface preparation.
- C. Application of clear, colorless liquid concrete hardener, densifier and moisture reduction barrier.
- D. Addressing of cracks in concrete.
- E. Application of cementitious coating.
- F. Application of protective sealers.

##### 1.3 RELATED SECTIONS

**Specifier Notes:** Edit the list of related sections as required for the project. List other sections dealing with work directly related to this section.

- A. Section 07 16 13 Polymer Modified Cement Waterproofing.



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- B. Section 07 16 16 Crystalline Waterproofing
- C. Section 07 18 00 Traffic Coatings
- D. Section 09 97 26 Cementitious Coatings

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Product Data:  
Manufacturer's product literature including MSDS shall be submitted and shall consist of detail specifications and job-specific application instructions for project.
- C. Submit manufacturer's application guidelines and product data sheets on each product to be used including preparation instructions and recommendations, test data, recommendations, storage and handling requirements and installation methods.
- D. Limitations on admixtures, curing compounds, bond breakers, etc.

#### 1.5 QUALITY ASSURANCE

- A. Provide Super-Krete products required for this system installation as outlined in Application Procedures.
- B. A Manufacturer's Representative shall be present during installation of product from surface preparation until deemed necessary.
- C. Manufacturer Qualifications:
  - a. Manufacturer shall have a minimum of 20 years experience in the production, sales and technical support of cementitious coatings, industrial flooring and related materials.
  - b. No requests for substitutions shall be considered that would change the generic type of the specified system.
  - c. System shall be in compliance with requirements of United States Department of Agriculture (USDA) and Food and Drug Administration (FDA).
- D. Installer Qualifications:
  - a. All installers of this system must apply and file with Manufacturer a copy of project specifications, Applicator Certificate and required products list, tools and equipment to be utilized on the project prior to application for manufacturer warranty.
  - b. Installers are to be experienced with similar products and have an appropriate sized crew for the size of the project.
- E. Samples:
  - a. A 12" square sample of the proposed system shall be provided by the Installer for approval. Color, texture and thickness shall be representative of overall appearance of finished system.
- F. Pre-Bid Conference:
  - a. A pre-bid conference shall be held between prospective installers and the Engineer to resolve design details prior to bidding of project.

#### 1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Packaging and Shipping
  - a. All components of the system shall be delivered in unbroken original packages bearing the Manufacturer's name and brand designation, batch number and date of manufacture.
- B. Storage and Protection:
  - a. The Installer shall be provided with a storage area for all components. The area shall be between 35° F and 85° F, dry, out of direct sunlight, and elevated from the floor to avoid contact with moisture, and in accordance with the Manufacturer's

recommendations and relevant health and safety regulations. Liquid products are to be kept from freezing and dry goods to be protected from humidity.

- b. Copies of MSDS for all components shall be kept on site for review by the Engineer and other personnel.
- c. Protect materials during handling and application to prevent damage or contamination.
- d. Dispose of cementitious materials as concrete and dispose of solvent-based materials in accordance with requirements of local authorities having jurisdiction.
- e. Product to be purchased through authorized Super-Krete distributor.

## 1.7 SEQUENCING AND SCHEDULING

- A. The installer, general contractor and owner shall agree upon a schedule for coordination between trades working in the area which is to receive the system.

## 1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Apply products only when surface temperature is at least 55°F and rising. Do not apply products when rain is imminent. Ensure precipitation is not expected within the time required for the surface to be completely dried and cured. Do not apply products when surface or ambient temperatures exceed 90°F.

## PART 2 – PRODUCTS

### 2.1 MANUFACTURERS

- A. Provide products from the following manufacturer:
  - a. Super-Krete International, Inc. 1290 North Johnson Avenue #101, El Cajon, CA 92020 USA 619 401 8282 / 800 995 1716 / 619 401 8288 FAX [www.super-krete.com](http://www.super-krete.com)
  - b. Manufacturer of approved system shall be single source and made in the USA.
  - c. Substitutions: Not permitted.
  - d. Requests for substitutions will be considered in accordance with provisions of Section 01 62 00.

### 2.2 APPROVED MATERIALS

- A. ARCHITECTURAL DECO RESURFACING SYSTEM
  - a. S-12000 Heavy Duty Degreaser™
  - b. S-1300 Pene-Krete®
  - c. S-3500 Elastique Matting™
  - d. S-9300 Super-Krete Bond-Kote®
  - e. S-9304 Micro-Bond™
  - f. S-2000 Integral Color™
  - g. S-9500 Color Stain™
  - h. Super-Krete Sealer of preference or specified application.

## 2.3 RELATED MATERIALS

- A. Proprietary Based Specification:
  - a. Products and System shall be manufactured by Super-Krete International, Inc.
- B. Surface Cleaning:
  - a. The surface cleaning system shall be S-12000 Heavy Duty Degreaser. Performance of this product is required to ensure the maximum chemical reaction within the pores of concrete. Required pH of this cleaning product is 11.5.
- C. Concrete Treatment:
  - a. Concrete hardener, densifier, moisture vapor reducer: The moisture vapor reduction and chemical encapsulation treatment shall be a combination of S-1300 Pene-Krete and S-9300 Bond-Kote.
- D. Crack Treatment:
  - a. Cracks shall be addressed using Super-Krete S-9900 Crack Treatment System, S-3500 Elastique Matting, alkaline-resistant fibermesh in conjunction with S-9300 Bond-Kote or S-9600 Structural Mix.
- E. Toppings:
  - a. The Portland cement-based underlayment or topping Bond-Kote shall be based upon the specified base material. Portland-cement based topping is a single-component, ready-mix material for mixing quality control.
  - b. The Portland cement-based, fine aggregate surface smoother Micro-Bond shall be based upon the specified finished appearance. Portland-cement based topping is a single-component, ready-mix material for mixing quality control.
- F. Water for mixing shall be clean, potable and not exceed 70° F.

## 2.4 MIX DESIGNS

- A. S-12000 Heavy Duty Degreaser is ready-to-use. Do not dilute. Mix thoroughly for one minute before use.
- B. S-1300 Pene-Krete is ready-to-use. Do not dilute. Mix thoroughly for one minute before use.
- C. S-3500 Elastique Matting shall be cut to length of crack.
- D. S-9300 Bond-Kote is ready-mix. Add water only to desired consistency and mix until flowable, lump free and no segregation is present. Mix mechanically using a ½ inch drill and mixing paddle or plaster mixer.
- E. S-9304 Micro-Bond is ready-mix. Add water only to desired consistency and mix until flowable, lump free and no segregation is present. Mix mechanically using a ½ inch drill and mixing paddle or plaster mixer.
- F. To determine the appropriate mix designs for each Super-Krete underlayment or topping refer to the manufacturer's specific product guide.
- G. Sealer shall be selected dependent on proposed use and desired finished appearance. Refer to Specification S-2 Selecting The Right Sealer.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Visually examine substrate for structural damage or reinforcing steel corrosion.
  - a. When not certain, consult a structural engineer for professional evaluation.
  - b. Spalling, carbonation and reinforcement damage require professional evaluation and testing to determine if substrate is treatable or requires complete replacement.
- B. Application will proceed when the moisture vapor emissions rate from the slab is less than and not higher than 3 lbs per 1,000 SF / 24 hrs. The test method is ASTM E1869-98



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Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

- C. If the vapor drive exceeds 3 lbs per 1,000 SF / 24 hrs then the Owner and/or Engineer shall be notified and advised of additional cost for the possible installation of a vapor mitigation system that has been approved by the manufacturer or other means to lower the value to the acceptable limit.
- D. A carbonation depth analysis should be completed at this time to determine if substrate to be treated is of sufficient strength to receive repairs.
- E. Alkalinity levels shall be tested using a pencil pH test method In accordance with ASTM 4262-83. SUPER-KRETE requires that pH levels do not exceed that of 9.
- F. Examine surface to receive treatment. Do not begin installation until substrates have been properly prepared. Surfaces that are not profiled to the acceptable level will not provide the required penetration and cohesive bond between toppings and substrates. Notify architect is surfaces are not acceptable.
- G. Examine substrate to insure proper expansion joints were placed. Add additional expansion joints as needed to relieve stress on any substantial cracking.
- H. If substrate preparation is the responsibility of another installer, notify architect of unsatisfactory preparation before proceeding.

### 3.2 SITE REQUIREMENTS

- A. Application may proceed while air, material and substrate temperatures are between 55°F and 90°F provided the substrate temperature is at least 5°F above the dew point. Outside of this range, the Manufacturer shall be consulted. SUPER-KRETE products are not to be applied when precipitation is expected within 24 hours following completion of application or when rain is imminent.
- B. The Applicator shall ensure that adequate ventilation is available for the work area. This shall include the use of manufacturer's approved fans, smooth bore tubing and closure of the work area.
- C. The Applicator shall be supplied with adequate lighting equal to the final lighting level during the preparation and installation of the system.
- D. The Applicator shall be provided with adequate disposal facilities for non-hazardous waste generated during installation of the system.
- E. New concrete shall be moisture-cured for a minimum of 7 days and have fully cured a minimum of 28 days in accordance with ACI-308 prior to the application of the coating system pending moisture tests.
  - a. Sealers and curing agents should not to be used.
  - b. Concrete surfaces on-grade shall have preferably been constructed with a vapor barrier for additional protection against the effects of vapor transmission and possible delamination of the system.
- F. Safety Requirements
  - a. All open flames and spark-producing equipment shall be removed from the work area prior to commencement of application.
  - b. "No Smoking" signs shall be posted at the entrances to the work area.
  - c. The Owner shall be responsible for the removal of foodstuffs from the work area.
  - d. Non-related personnel in the work area shall be kept to a minimum.

### 3.3 PREPARATION

- A. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions. Super-Krete recommends the method of shotblasting, grinding, scarifying or high pressure waterblasting to remove existing coatings, paints, sealers or other bond-breakers from the existing surface.



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- B. All cementitious based substrates must be structurally sound, solid, profiled and of adequate porosity to provide product penetration and co-adhesive bond. Surface profile shall be that of I.C.R.I.'s # 4 on surface profile template. Refer to International Concrete Repair Institute's surface profile template.
- C. The substrate shall be cleaned and prepared in accordance with manufacturer specifications and free of any surface contamination that may create a bond-breaker and prevent product from penetrating the surface and providing a co-adhesive bond.
- D. Substrates shall be tested prior to treatment to determine the MVT rate using testing procedure ASTM F1869. Rate of moisture vapor transmissions shall not exceed 12 lbs. per 1,000 square feet at time of application.
- E. Protect adjacent surfaces not designated to receive treatment.
- F. When applying Super-Krete Portland cement based underlayments and toppings the surface will require a lightly water dampened surface to open the pores of the substrate to achieve a co-adhesive bond, to dissolve fine dust particles and to provide additional workability.
  - a. Apply products in accordance with manufacturer's instructions.
  - b. Ensure application equipment is clean and free of previously used materials.
  - c. Ensure proper and safe clean-up of materials.
  - d. Do not dilute products.
- G. All cracks and spalls shall be treated prior to installing underlayments or toppings to resist future crack flexing.
- H. Clean, repair and honor all control joints during entire application process. Clean and treat all cracks and spalls in accordance with manufacturer's specifications.
- I. Allow all surface repairs to cure for 24 hours before applying underlayment or toppings.

### **3.4 APPLICATION OF CONCRETE CLEANER**

- A. All surfaces to be coated must be thoroughly cleaned with Heavy Duty Degreaser.
- B. Heavy Duty Degreaser contains a high level of alkalinity which encourages a strong reaction with moisture vapor barrier to be applied as in Section 3.5.
- C. Heavy Duty Degreaser shall be used to remove any contaminants on the surface. Apply Heavy Duty Degreaser undiluted using a hand-held a hand held pump sprayer and immediately scrub the surface with a stiff bristled broom.
- D. Scrub Heavy Duty Degreaser into the surface using a stiff broom and allow to sit for a minimum of thirty minutes for deep penetration. Rinse thoroughly using clean water. High pressure waterblasting may be required for heavy-duty cleaning.
- E. Allow surface to dry prior to application of moisture barrier.

### **3.5 APPLICATION OF MOISTURE BARRIER: INTERIOR AND EXTERIOR**

- A. Fresh Concrete
  - a. Liberally apply treatment product as soon as concrete is firm enough to work on after final troweling.
  - b. Apply undiluted treatment product at approximately 300 square feet per gallon using a low-pressure sprayer and spreading evenly with a soft-bristled broom.
  - c. Do not allow material to puddle on the surface.
- B. Existing Concrete
  - a. Saturate the surface with concrete treatment and apply in accordance with manufacturer's specifications by sprayer or broom.
  - b. Do not allow treatment product to gel or puddle on the surface. If this occurs, immediately spread the material with a soft-bristled broom and remove any excess with water.

- c. Scrub the surface with a broom or mechanical scrubber to increase the penetration of the treatment product.
- d. Thoroughly flush the surface with water and agitate the surface with a broom to aid in the removal of the excess treatment product. Remove all excess material.
- C. Allow the treated surface to cure for 24 hours followed by pressure washing for exterior surfaces or wet mopping for interior floors to remove any excess chemicals forced to the surface during the curing period. If treatment product does not penetrate the substrate, remove immediately before it hardens on the surface with clean water.

### 3.6 CRACK TREATMENT

- A. Cracks shall be addressed and treated per Super-Krete Specification S-9900 CRACK TREATMENT SYSTEM. Structural cracks that present risk to structural integrity shall be repaired per architects recommendation.
  - a. Inspect and establish extent and cause of damage.
  - b. Clean debris from crack using Shop-Vac or compressed air.
  - c. Clean crack with HEAVY DUTY DEGREASER and allow to dry.
  - d. Fill crack with STRUCTURAL MIX repair product until flush with surface.
  - e. Allow repair product to cure for 24 hours.
  - f. Apply thin layer (1/16") of BOND-KOTE 8" wide with trowel or painter's brush.
  - g. Immediately embed ELASTIQUE MATTING into wet material and remove any wrinkles or lifted matting using trowel or brush.
  - h. Apply 1 additional coat of BOND-KOTE material over matting to ensure bondability.
  - i. Allow 24 hours before proceeding with work.

### 3.7 APPLICATION OF ARCHITECTURAL DECORATIVE SURFACING SYSTEM

- A. Apply S-9000 Architectural Decorative Surfacing System in accordance with manufacturer's specifications for the selected system:
  - a. The system shall be applied in the distinct steps as listed below:
    1. Concrete Evaluation, Crack Treatment and Surface Preparation
    2. Cleaning of Substrate
    3. Treatment of Substrate
    4. Application of Cementitious Overlayment
    5. Application of Architectural Cementitious Surfacing
    6. Application of Stain
- B. Immediately prior to the application of any component of the system, the surface shall be dry and any remaining dust or loose particles shall be removed using a vacuum or clean, dry, oil-free compressed air.
- C. The handling, mixing and addition of components shall be performed in a safe manner to achieve the desired results in accordance with the Manufacturer's recommendations.
- D. The system shall follow the contour of the substrate unless pitching or other leveling work has been specified by the Architect.
- E. A neat finish with well-defined boundaries and straight edges shall be provided by the Applicator.
- F. Application of Cementitious Coating
  - a. Bond-Kote shall be applied using squeegee, trowels or other systems approved for

- use by the Manufacturer.
- b. Deep repairs shall be consolidated or otherwise vibrated so as to consolidate the material before final finishing. Neither feather edging nor broom finishing shall be permitted.
  - c. Bond-Kote is to be applied at a maximum thickness of 1/8" per coat.
  - d. 2 applications (1/64"-1/16" thick) of Super-Krete Bond-Kote Mix shall be applied over all bare, treated concrete prior to any finish coatings. These applications will make the floor smooth, fill all ridges and defects and reduce moisture vapor emissions significantly. Reducing vapor emissions reduces the chances of flooring failure due to delamination. Allow each application to dry thoroughly before additional applications are applied.
  - e. Remove any ridges or irregularities using a floor scraper between each application.
  - f. Check the surface for uniformity using a string line and apply additional applications if necessary.
  - g. The finished surface shall be free of all ridges and tool marks.
  - h. 2 applications of Super-Krete Micro-Bond Mix shall be applied over surface previously coated with Bond-Kote. These applications will make the floor smooth, fill all ridges and cover defects. Additional applications may be necessary to achieve desired finish. Allow each application to dry thoroughly before additional applications are applied and allow 24 hours to dry after final application.
  - i. Micro-Bond may be colored using S-2000 Integral Color for enhanced color effects.
  - j. Surface may be sanded for a smoother finish.

### 3.7 BOND TEST

- A. Random tests for adequate bond strength shall be conducted on the substrate while the surface preparation is ongoing and prior to application of the color, in accordance with the Manufacturer's recommendations, at a minimum frequency of three tests per 5000 sf. Smaller areas shall receive a minimum of three tests.
- B. Based on the test results, additional substrate preparation may be required before proceeding with the installation of the system.

### 3.8 APPLICATION OF WATER BASED ACRYLIC/URETHANE STAIN

- A. Immediately prior to the application of any component of the system, the surface shall be dry and any remaining dust or loose particles shall be removed using a vacuum or clean, dry, oil-free compressed air.
- B. The handling, mixing and addition of components shall be performed in a safe manner to achieve the desired results in accordance with the Manufacturer's recommendations.
- C. Water Based Acrylic/Urethane Stain
  - a. Two applications of S-9500 Color Stain shall be applied to dry surface by means of airless sprayer or hand-pump type sprayer with a fine-tip nozzle at a rate of 300 SF per gallon at 4 hour intervals. Spray a light mist of clean water between coats.
  - b. Use a soft-bristled broom to work in stain, if mottled look is desired, do not use brush, but allow stain to remain.
  - c. Always shake well and strain Color Stain when pouring into sprayer.
  - d. Spray in light, even coats not allowing material to drip onto the surface.
  - e. Allow 24 hours for Color Stain to cure before applying a protective sealer.
  - f. S-9500 Color Stain is translucent in appearance and may not hide surface flaws or defects. Additional coats may be required to achieve desired color and consistency.
  - g. Apply lighter colors first and highlight with darker colors if desired.

### **3.9 FINISHING**

- A. Designs may be added using stencils or by cutting lines and joints using a hand-held dustless grinder and may be grouted for more dramatic effects.
  - a. Grouting shall be performed between sealer coats.
- B. Apply selected sealer for added protection and durability. Refer to Super-Krete Specification S-2 Selecting the Right Sealer.
- C. Waxing Super-Krete architectural finishes is recommended indoors to obtain a high sheen, and to protect the floor. This should be done on a weekly or monthly basis, depending upon the amount of traffic

### **4.0 PROTECTIVE SEALING**

- A. All cementitious underlayments and toppings require a protective paint, coating or sealer for protection.
- B. Appropriate sealer must be selected based upon expected traffic and the level of protection required for the surface.
- C. Apply protective sealer in accordance with manufacturer's specifications.

### **4.1 FIELD QUALITY CONTROL**

- A. Super-Krete products are available as ready-mixed pre-package goods that require minimal mixing (add water only) or are ready to use as packaged. This provides excellent quality field control when mixing and applying product. Ready-mixed products allow field superintendents or architects to properly estimate the proper amount of material to be used based upon the coverage rate of each unit or product.
- B. For testing of products, Super-Krete International, Inc. will provide an unopened pre-packaged container of the required product to be tested by an independent laboratory specializing in the required test procedures. Since the underlayment and topping products contain Portland cement, the finished surface will vary in color the same as traditional concrete. Super-Krete S-9500 Color-Stains or S-11000 Ure-Kote paints are available to establish a more consistent colored finish.
- C. Precautions and cleaning are the responsibility of the General Contractor until project completion.

### **4.2 MAINTENANCE**

- A. To provide long term maximum life of the newly installed surface, Super-Krete recommends the surface be properly sealed using the appropriate sealer, depending upon the use of the surface. Clean and reseal as required depending upon traffic conditions. Refer to Super-Krete Specification M-1 Maintenance of Decorative Overlayments.
- B. Clean floor regularly with Super-Krete Super-Scrub and clean water.
- C. Clean up spills immediately.

**END OF SECTION**