

**SECTION 033519.13**  
**SPECIAL CONCRETE FINISHES**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
1. Dry-shake colored hardener applied to exterior concrete pavements.
  2. Rock salt finishing applied to exterior concrete pavements.

**1.2 RELATED SECTIONS**

- A. Related Sections include the following:
1. Division 03 Section "Cast-in-Place Concrete" for concrete strength and mix requirements.

**1.3 REFERENCES**

- A. American Concrete Institute (ACI):
1. ACI 301 - Specification for Structural Concrete for Buildings.
  2. ACI 302 IR - Recommended Practice for Concrete Floor and Slab Construction.
  3. ACI 303.1 - Standard Specification for Cast-In-Place Architectural Concrete.
  4. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing of Concrete.
  5. ACI 305R - Recommended Practice for Hot Weather Concreting.
  6. ACI 306R - Recommended Practice for Cold Weather Concreting.
  7. ACI 316 - Recommendations for Construction of Concrete Pavements and Bases.
- B. American Society of Testing and Materials (ASTM):
1. ASTM C 494 -Standard Specification for Chemical Admixtures for Concrete.

**1.4 SUBMITTALS**

- A. Product Data: Submit the manufacturer's complete technical information sheets.
- B. Design Mixes: For each type of concrete.
- C. Samples for Initial Selection: Manufacturer's color charts showing full range of colors available.
- D. Samples for Verification: Submit sample application for each special concrete finish required to verify selections made to demonstrate aesthetic effects.
- E. Qualification Data: For color hardener manufacturer.

### **1.5 QUALITY ASSURANCE**

- A. Concrete Contractor Qualifications: Concrete work shall be performed by firm with three years experience and must have successfully completed not less than 6 projects work of similar scope and quality comparable in scale and complexity.
  - 1. Statement of Contractor Qualifications: Submit list of at least 6 completed projects including project name, project address and owner contact information.
- B. Obtain each specified material from same source and maintain high degree of consistency in workmanship throughout Project.
- C. Colored Concrete Mockup:
  - 1. Construct mockup using processes and techniques intended for use on permanent work, including curing procedures. Include samples of control, construction, and expansion joints in sample panels. Individual workers who will perform the work for the Project will produce mockup.
  - 2. Obtain Architect's approval of mockup before proceeding with topping installation.
  - 3. Accepted mockup provides visual standard for work of Section.
  - 4. Mockup shall remain through completion of the work for use as a quality standard for finished work.
  - 5. Remove mockup when directed.

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

- A. Products shall be delivered in original factory packaging, unopened and undamaged. Packaging will bear identification of product, manufacturer's identification and batch numbers. A technical information sheet and MSDS should be available for each product throughout the project.
- B. Store the product in strict accordance with the manufacturer's recommendations in a location protected from damage, construction activity, and weather conditions.

### **1.7 JOB SITE CONDITIONS**

- A. Protection: Precautions shall be taken to protect surrounding areas and landscaping.
- B. Schedule placement to minimize exposure to wind and hot sun
- C. Avoid placement if rain, snow, or frost is forecast within a 24-hour period. Protect fresh concrete from moisture and freezing.
- D. Comply with professional practices described in ACI 305R and ACI 306R.

### **1.8 PRE-JOB CONFERENCE**

- A. One week prior to placement of concrete a meeting shall be held to discuss the Project and application methods.

- B. It is suggested that the Landscape Architect, General Contractor, Subcontractor, Ready-Mix Concrete Representative, and a Manufacturer's Representative be present.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Lithochrome Color Hardener dry-shake colored hardener by L.M. Schoefield or accepted substitution.

### **2.2 MATERIALS**

- A. Rock salt- sifted to remove all materials smaller than 1/8".
- B. Evaporation Retarder if needed shall be as follows:
  - 1. BRICKFORM® Evaporation Retarder, Rafco Product's factory concentrated surface retardant or accepted substitution.

### **2.3 COLORS**

- A. Colors as selected by Architect from manufacturer's standard and custom colors. More than one color may be selected.

### **2.4 CONCRETE MIX DESIGN**

- A. Concrete shall be as specified in Division 03 Section "Cast-in-Place Concrete.
- B. Slump of concrete shall be as specified in Division 03 Section "Cast-in-Place Concrete.
- C. Do not add calcium chloride to mix as it causes mottling and surface discoloration.
- D. Supplemental admixtures shall not be used unless approved by manufacturer.
- E. Do not add water to the mix in the field.

## **PART 3 - EXECUTION**

### **3.1 CONCRETE PLACEMENT**

- A. Move concrete into place with square-tipped shovels or concrete rakes.
- B. Vibrators, when used, shall be inserted and withdrawn vertically.
- C. Concrete shall be struck to specified level with wood or magnesium straight edge or mechanical vibrating screed.
- D. The concrete surface shall be further leveled and consolidated with highway magnesium straight edge and/or magnesium bull float.

- E. Mechanically float concrete surfaces as soon as concrete surface has taken its initial set and will support weight of a power float machine equipped with float shoes or combination blades and operator.

### **3.2 INSTALLATION – DRY-SHAKE COLORED HARDENER**

- A. Protect surrounding areas as specified.
- B. Apply 2/3 of specified application rate to freshly floated concrete surface. Bleed water shall not be present during or following application of first and second shake.
- C. Do not throw dry-shake; distribute evenly by hand or mechanical spreader designed to apply floor hardeners
- D. As soon as dry-shake material has absorbed moisture, indicated by uniform darkening of surface, mechanically float concrete surface a second time, Using only a wood float, just enough to bring moisture from base slab through dry-shake color hardener.
- E. Immediately following second floating, apply remaining 1/3 of specified application rate. If applied by hand, broadcast in opposite direction of first application for a more uniform coverage. If a mechanical spreader is used, apply the same manner as previously described.
- F. As soon as dry-shake material has absorbed moisture, mechanically float concrete surface a third time using only a wood float.
- G. Do not add water to the surface.
- H. Do not use plastic sheeting to cure the concrete.
- I. After the initial curing period, a clear, non-staining, non-yellowing curing compound that conforms to ASTM C 309 may be used.

### **3.3 APPLICATION OF ROCK SALT**

- A. Screed, tamp, and float concrete.
- B. While concrete is still in a plastic stage, evenly dispense rock salt over surface at the rate of ten pounds per 150 square feet.
- C. Carefully float the rock salt to depress it into concrete. Avoid covering rock salt.
- D. Allow concrete to cure and set thoroughly under normal procedures.
- E. After seven to ten days, thoroughly wash any remaining salt from the area. Do not contaminate any adjacent planting areas with salt.

### **3.4 PROTECTION OF FINISHED WORK**

- A. Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure topping are without damage or deterioration at the time of Substantial Completion.

- B. Protect other work from staining or damage due to cleaning operations.
- C. Prohibit foot or vehicular traffic on floor surface.
- D. Barricade area to protect installation.

**END OF SECTION 033519.13**