

## **SECTION 03 35 00**

### **CONCRETE FLOOR COLORING, DENSIFICATION, AND PROTECTION**

*Specifier Notes: This section covers the NOX-CRETE Duro-Floor Color System for decorative polished concrete floors. The system consists of Duro-Color penetrating concrete dye, Duro-Nox HSC concrete hardener/densifier, and Duro-Shield protective treatment.*

*Consult NOX-CRETE, Inc. for assistance in editing this section for the specific application.*

#### **PART 1 GENERAL**

##### **1.1 SECTION INCLUDES**

- A. Decorative concrete coloring
- B. Concrete floor hardening and densification
- C. Protective treatment for polished concrete floors

##### **1.2 RELATED REQUIREMENTS**

*Specifier Notes: Edit the following list of related sections as required. Limit the list to sections with specific information that the reader might expect to find in this section but is specified elsewhere.*

- A. Section 03 30 00 – Cast-in-Place Concrete
- B. Section 09 61 00 – Flooring Treatment: Concrete floor polish

##### **1.3 REFERENCE STANDARDS**

*Specifier Notes: List standards referenced in this section, complete with designations and titles. Delete standards not included in the edited section. Including a standard here does not require compliance with that standard.*

- A. ASTM C 805/C 805M – Standard Test Method for Rebound Number of Hardened Concrete
- B. ASTM D 2047 – Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine
- C. ASTM D 4060 – Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
- D. 24 Hour Stain Resistance Testing

##### **1.4 SUBMITTALS**

*Specifier Notes: Edit submittal requirements as required. Delete submittals not required.*

- A. Comply with Section 01 33 00 – Submittal Procedures
- B. Product Data: Submit manufacturer's current Product Data for Duro-Color, Duro-Nox HSC, and Duro-Shield, as applicable to the specified system.
- C. Color Selection: Submit manufacturer's current Duro-Color standard color selection.
- D. Manufacturer's Certification: Submit manufacturer's certification that materials comply with specified requirements and are suitable for the intended application.
- E. Manufacturer's Project References: Submit manufacturer's list of successfully completed decorative polished concrete flooring projects utilizing the Duro-Floor Color System.
- F. Warranty Documentation: Submit manufacturer's standard warranty documentation.

## **1.5 QUALITY ASSURANCE**

- A. Manufacturer's Qualifications: Manufacturer regularly engaged, for the past 5 years, in manufacture of decorative concrete coloring, concrete hardeners/densifiers, and protective treatments of similar type to those specified
- B. Applicator's Qualifications:
  - 1. Applicator regularly engaged, for the past 5 years, in installation of decorative polished concrete flooring systems of similar type to those specified
  - 2. Personnel trained in application of the specified materials

*Specifier Notes: Edit site test application as required. Delete site test application if not required.*

- C. Site Test Application: Construct site test application of the complete Duro-Floor Color System for evaluation of color, appearance, and workmanship.
  - 1. Construct site test application using the same materials proposed for the Work.
  - 2. Construct site test application at locations determined by Architect.
  - 3. Do not proceed until workmanship and appearance of the site test application are approved by Architect.
  - 4. Approved site test application shall establish the standard for completed Work.

*Specifier Notes: Edit preinstallation meeting as required. Delete meeting if not required.*

### **D. Preinstallation Meeting:**

- 1. Convene preinstallation meeting two weeks before start of installation.
- 2. Require attendance of parties directly affecting the Work, including Contractor, Architect, applicator, and manufacturer's representative.

3. Review surface preparation, coloring, densification, protection, polishing sequence, and coordination with other Work.

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

- A. Delivery and Acceptance Requirements: Deliver materials in manufacturer's original, unopened containers with labels clearly identifying product name and manufacturer.
- B. Storage and Handling Requirements:
  1. Store and handle materials in accordance with manufacturer's instructions.
  2. Keep materials in original unopened containers until use.
  3. Store materials between 40° F (4° C) and 100° F (38° C).
  4. Store materials indoors in a clean, dry location out of direct sunlight.
  5. Protect materials from freezing.
  6. Protect materials from contamination and damage during storage and handling.

## **1.7 AMBIENT CONDITIONS**

- A. Apply system components only when substrate and ambient temperatures are between 40° F (4° C) and 100° F (38° C).
- B. Do not apply materials in direct sunlight.

## **1.8 WARRANTY**

|                                                                                                              |
|--------------------------------------------------------------------------------------------------------------|
| <i>Specifier Notes: Specify warranty type. Consult NOX-CRETE, Inc. regarding available warranty options.</i> |
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- A. Manufacturer's Warranty: [Standard].

# **PART 2 PRODUCTS**

## **2.1 MANUFACTURER**

- A. **NOX-CRETE, Inc.**  
1444 S. 20th Street  
Omaha, Nebraska 68108  
Telephone: 402-341-2080  
customerservice@nox-crete.com  
www.nox-crete.com

## **2.2 SYSTEM DESCRIPTION**

- A. The Duro-Floor Color System shall consist of:
  1. Duro-Color penetrating concrete dye

2. Duro-Nox HSC concrete hardener/densifier.
3. Duro-Shield protective treatment.

*Specifier Notes: The Duro-Floor Color System has been developed as a compatible system. Substitution of individual products may adversely affect color development, gloss, stain resistance, durability, maintenance characteristics, and overall system performance. Delete this note before issuing the Project Manual.*

## **2.3 DECORATIVE CONCRETE COLOR**

**A. Product:** Duro-Color penetrating concrete dye.

1. Description: ready-to-use penetrating concrete dye formulated for use on mechanically ground and polished concrete. The product penetrates prepared concrete surfaces to produce permanent decorative coloration without forming a topical coating.
2. Odor: Mild
3. Flash Point: >200° F (>93° C)
4. Flammability: Nonflammable (when diluted with a VOC exempt solvent, flash point and flammability may change, depending on solvent used)
5. VOC: <550 g/L
6. VOC Classification: Stains (low solids)
7. Solubility: Duro-Nox HSC, Water, VOC Exempt Solvent
8. Bulk Density: 8.1 lbs/gal (970 g/L)
9. Dilution Ratio: ranges from 1:1 to 1:7, depending on desired color intensity

*Specifier Notes: Actual finished color will vary depending upon concrete composition, cement source, aggregate, finishing methods, concrete age, grinding sequence, and installer technique.*

*Require Owner approval of field mock-ups before production work. Printed color charts are intended only as preliminary selection guides.*

*Delete this note before issuing the Project Manual.*

## **2.4 CONCRETE HARDENER / DENSIFIER**

- A. General:** Following application of Duro-Color, densify the polished concrete using Duro-Nox HSC. Concrete hardener shall chemically react within the concrete matrix to increase surface density, reduce dusting, and improve abrasion resistance without forming a topical film.

**B. Product:** Duro-Nox HSC

1. Description: ready-to-use hybrid lithium/potassium silicate concrete hardener
2. Color: Colorless
3. Clarity: Clear
4. Odor: None
5. Freeze Point: 32° F (0° C)
6. Flammability: Nonflammable
7. VOC: 0 g/L

8. VOC Classification: Floor Coatings
9. Active Hybrid Silicate Solids: 8%
10. Compliance: USDA compliant for incidental food contact
11. Abrasion Resistance, ASTM D4060: >550% improvement after 100 revolutions

## **2.5 PROTECTIVE TREATMENT**

- A. General: Following completion of the specified polishing sequence, provide Duro-Shield as a protective treatment.
- B. Product: Duro-Shield
1. Description: water-based protective treatment formulated to enhance gloss while providing stain protection for polished concrete floors
  2. Color: Milky White
  3. Clarity: Opaque
  4. Odor: Pleasant
  5. Bulk Density: 8.4 lbs/gal (1.0 kg/L)
  6. VOC: 120 g/L
  7. VOC Classification: Floor Coatings (low solids)
  8. Static Coefficient of Friction, ASTM D2047: >0.5

## **2.6 LIMITATIONS**

- A. Variations in concrete color and texture will reflect through the Duro-Floor Color System.
- B. Duro-Floor Color System is recommended for interior applications – exposure to sunlight or UV may cause fading.
- C. Duro-Floor Color System is not recommended for applications where concrete surfaces may be exposed to water.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Examine concrete surfaces before beginning Work.
- B. Verify that concrete has been properly cured and is suitable to receive the specified Duro-Floor Color System.
- C. Verify that surfaces are clean and free of curing compounds, sealers, coatings, adhesives, oil, grease, dirt, laitance, and other contaminants that could interfere with penetration or performance of the specified products.
- D. Do not begin installation until unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Prepare concrete in accordance with the manufacturer's current published recommendations.
- B. Mechanically grind concrete using progressively finer abrasives as required to achieve the specified aggregate exposure and surface profile.
- C. Remove all grinding residue and contaminants before application of Duro-Color.
- D. Protect adjacent finished surfaces from damage during preparation and installation.

### **3.3 APPLICATION**

- A. Install all products in accordance with the manufacturer's current published instructions.
- B. Apply only products that are components of the specified NOX-CRETE Duro-Floor Color System.

### **3.4 CLEANING**

- A. Remove excess materials and debris resulting from installation.
- B. Leave completed flooring clean and free of residue.

### **3.5 PROTECTION**

- A. Protect completed flooring from damage during remaining construction.
- B. Prevent traffic on completed flooring until system components have cured in accordance with the manufacturer's published recommendations.
- C. Replace or restore damaged areas in accordance with the manufacturer's recommendations before project acceptance.

### **END OF SECTION**