



Section 03 35 43  
 Polished Concrete Finishing

**Specifier Note:** This product guide specification is written according to the Construction Specifications Institute (CSI) 3-part format. This section must be carefully reviewed and edited by the Architect or Engineer to meet the requirements of the project and local building codes. Coordinate this section with other specification sections and the drawings. Delete all “Specifier Notes” when editing this section.

**Specifier Note:** This suggested specification is designed for existing or new hardened concrete. Concrete for new construction should be specified under Section 03 30 00 (cast in place) for curing, mix design, compressive strength, finish troweling, and floor flatness tolerances. Vexcon can assist with modification of your existing 03 30 00 specification with emphasis on the sections above and other pertinent sections for designing a concrete floor for polishing.

**Specifier Note:** This guide specification is provided as a start point for the design professional. Any modifications to the specification are the responsibility of the design professional. Contact Vexcon Chemicals with any questions regarding this product.

## **PART 1 – GENERAL**

### **1.01 SECTION INCLUDES**

**Specifier Note:** Select StarSeal PS system desired.

- A. StarSeal PS Clear – Penetrating Liquid Floor Treatment for Polished Concrete Finishes: Clear, chemically reactive, water borne solution of silicate material and proprietary components, odorless that penetrates hardens and is suitable for Polished Concrete surfaces leaving no surface film.
- B. StarSeal PS FSR [Finish Coat] [Guard] [Color]  
Clear or colored food and chemical stain resistant systems for polished concrete finishes. Incorporate StarSeal PS Clear.

**Specifier Note:** See [vexcon.com](http://vexcon.com) for more information.

### **1.02 RELATED SECTIONS**

- A. Section 03 35 00 – Concrete Finishing
- B. Section 09 61 00 – Flooring Treatments

### **1.03 REFERENCE STANDARDS**

- A. ASTM C-642-06 Standard Test Method for Density, Absorption, and Voids in Hardened Concrete
- B. ASTM D-5178-98/08 Standard Test Method for Mar Resistance of Organic Coatings
- C. ASTM D-4060-07 Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abrasion: Modified
- D. ASTM G-154-06 Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials
- E. ASTM D-2369- 07 Standard Test Method for Volatile Content of Coatings
- F. ASTM D-2047-04 Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine
- G. ASTM C-1378-04 (2009) Standard Test Method for Determination of Resistance to Staining
- H. ASTM E-84 – (UL723) – Standard Test Method for Surface Burning of Building Materials
- I. ASTM E-648 (2017) – Standard Method of test for Critical Radiant Flux of Floor Covering Systems Using Radiant Heat Energy Source

### **1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Schedule and hold a pre-installation meeting prior to project start.
  - 1. To attend: Architect, Owners Representative, General Contractor, Installer.
- B. Comply with manufacturers Project & Job Conference requirements.
  - 1. Complete Vexcon's Project Conference and Job Survey form.
- C. Schedule installation and review date for mock-up.

### **1.05 SUBMITTALS**

- A. Comply with section 01 33 00 Submittal Procedures
- B. Comply with section 01 31 00 Project Management and Coordination
- C. MSD Sheet indicating VOC content and safety precautions.
- D. Manufacturer's Quality Assurance: Submit manufacturer's certification that floor treatment complies with specified requirements and is suitable for intended application.
- E. Warranty: Submit manufacturer's standard warranty.
- F. LEED: Submit manufacturer's LEED Certification.

- G. Applicator Qualifications: Submit list of projects reference as documented in this Specification under Quality Assurance Section.
- H. Quality Control Submittals:
  - 1. Provide protection plan of surrounding areas and non-work surfaces.
- I. Product Data: Provide data on all products, including information on compatibility of different products and limitation.
- J. Indicate installation procedures and interface required with adjacent construction.
- K. Provide Manufacturers' Maintenance Instructions.

#### **1.06 INFORMATIONAL SUBMITTALS**

- A. Comply with Sections [01400] [ \_\_\_\_ ].
- B. Pre-installation Conference: Conduct a pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Complete manufacturer's Project & Job Conference form.
- C. Manufacturer Qualifications: Manufacturer shall demonstrate that they have manufactured specified products for a minimum of ten years.
- D. Applicator Qualifications: Company shall have a minimum of five years experience in the application of specified products on projects of similar size and scope and is acceptable to the product manufacturer.

#### **1.07 MOCK-UP**

- A. Installation: Provide an 8' x 10' test area of polished floor as specified in Section 3.03
- B. Mock-up Size: [100 ft<sup>2</sup> (9.3 m<sup>2</sup>)] [ \_\_\_\_ ] sample panel at jobsite at location as directed under conditions similar to those which will exist during actual placement.
- C. Mock-up will be used to evaluate concrete substrate preparation, material application, color selection, and shine.
- D. When approved, Mock-up will demonstrate minimum standard of quality required for proceeding with this work.
- E. Approved Mock-up shall remain for comparison as part of the finished work.

#### **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Store material in dry, enclosed area protected from exposure to moisture and temperatures below 50° F.
- B. Keep containers closed and upright to prevent leakage.

- C. Dispense special concrete finish material from factory numbered and sealed containers.
- D. Maintain record of lot numbers.

### **1.09 PROJECT CONDITIONS**

- A. Protect concrete slabs from staining prior to application of concrete finish system.
- B. Diaper hydraulic powered equipment.
- C. Place drop cloths under parked vehicles.
- D. Do not store structural steel or metal fabrications on slab.
- E. Do not allow pipe-cutting machine on slab.

### **1.10 WARRANTY**

**[StarSeal PS Clear] [StarSeal PS Clear Finish Coat FSR] [StarSeal PS Clear Guard FSR] [StarSeal PS Color FSR]**

- A. **StarSeal PS Clear:** Provide 20 year manufacturer's material warranty commencing at date of building substantial completion. Manufacturer shall warrant to the owner that polished surface will remain water repellent, dustproof, hardened and abrasion resistant.
- B. **StarSeal PS Clear Finish Coat FSR:** Provide 20 year manufacturer's material warranty commencing at date of building substantial completion. Manufacturer shall warrant to the owner that polished surface will remain water repellent, dustproof, hardened, abrasion and food stain resistant.
- C. **StarSeal PS Clear Guard FSR:** Provide 20 year performance and 5 year stain resistance manufacturer's warrant commencing on the date when the concrete surface is treated. Manufacturer warrants to the owner that after the specified burnishing, the treated surface will remain water repellent, dust proof, hardened for 20 years and abrasion and food stain resistant for 5 years.
- D. **StarSeal PS Color FSR:** Provide 20 year performance and 5 year color manufacturer's warranty commencing on the date the concrete surface is treated.

## **PART 2 - PRODUCTS**

### **2.01 MANUFACTURER**

- A. Basis of Design: Subject to compliance with requirements provide Vexcon Chemicals system [StarSeal PS Clear] [StarSeal PS Clear Finish Coat FSR], [StarSeal PS Clear Guard FSR] [StarSeal PS Color FSR]
1. Vexcon Chemicals.
    - a. Contact Brand Manager 1-888-VEXCON-1  
Fax 215-332-9997  
7240 State Rd.  
Phila., PA 19135  
E-mail: [techservice@vexcon.com](mailto:techservice@vexcon.com)  
[www.vexcon.com](http://www.vexcon.com)
- B. Available Products: Subject to compliance with requirements, products that may be incorporated into the work must have 10 years of recognized polishing use on jobs of similar scope.

### **2.02 SYSTEM DESCRIPTION**

- A. Polished Concrete: Includes grinding, installation of [color] silicate sealer, (hardener, densifier), polishing, and [stain repellent].
- B. Performance Criteria: Polishing system shall have the following minimum performance properties.
1. ASTM C-642 Absorption: Reduction of 75% of Control
  2. ASTM D-5178 Balance Beam Mar Tester: Greater than 50% harder
  3. ASTM D-4060 Modified Taber Abrasion 600 Rev:0.37% treated vs. 0.68% untreated
  4. ASTM G-154: 5000 HR QUV: No fade, change or erosion
  5. ASTM D-2369 Solids: 18% Minimum
  6. ASTM D-2047 Coefficient of Friction:
    - a. StarSeal PS Clear - average - 0.54
    - b. StarSeal PS Finish Coat Ultra - average - 0.63
    - c. StarSeal PS Ultra Guard SPE – average – 0.63
  7. ASTM C-1378 Stain resistance: Food, Chemical, Oil and common stain resistance. See manufacturer's literature for list.
  8. ASTM C-672-84 – 100 freeze thaw cycles – 0 (no scaling)

9. ASTM C-67 and ASTM C-140 – reduces water absorption - >84%
10. ASTM E-84 – Surface Burning of Building Materials
  - a. Class A Flame Spread Index - <25 – Result: 0
  - b. Smoke Developed Index - <450 – Result: 0
11. ASTM E-648 – Critical Radiant Flux – Radiant Heat Energy Source – Class I – 0.98 avg.
12. NCHRP 244 series IV – Chloride screen testing – 1 application @ 125 sq.ft./gal min.90%

### 2.03 PRODUCTS/SYSTEM

**Specifier Note:** For [StarSeal PS Clear] select A, F and G. For [StarSeal PS Clear Finish Coat FSR] select A-C, E-G or [StarSeal PS Clear Guard FSR] select A-B, D- G.

- A. Penetrating Liquid Floor Treatment for Polished Concrete Finishes: Clear, chemically reactive, water borne solution of silicate material and proprietary components, odorless that penetrates hardens and is suitable for Polished Concrete surfaces leaving no surface film.
  1. Acceptable Material: Vexcon Chemicals, StarSeal PS Clear.
- B. Unreacted Silicate Rinse: Liquid rinse solution, increases stain resistance.
  1. Acceptable Material: Vexcon Chemicals, StarSeal PS Fixative.
- C. Stain Repellent (non-film forming): Ready to use, food, chemical stain and water repellent, available in 3 formulations.
  1. Acceptable Material: Vexcon Chemicals, StarSeal PS Finish Coat Ultra

**Specifier Note:** Product choice will depend on VOC regulations or preference.

- a. StarSeal PS [Finish Coat Ultra Water Base]
- b. StarSeal PS [Finish Coat Ultra AIM]
- c. StarSeal PS [Finish Coat Ultra]
- D. Stain Repellent (film forming): Ready to use, food, chemical stain and water repellent.
  1. Acceptable Material: Vexcon Chemicals, StarSeal PS Ultra Guard SPE.

**Specifier Note:** Include optional sections E-G as required.

- E. Stain: Deep penetrating water base UV stable color suitable for [interior] or [exterior] applications.

1. Acceptable material: Vexcon Chemicals StarSeal PS Ultra Stain
- F Silicate floor repair material: Liquid silicate material which fills and repairs concrete surface imperfections.
1. Acceptable Material: Vexcon Chemicals, StarSeal Fusion.
- G Cleaning Solution: Eco-friendly degreaser and cleaner, concentrate pH must be slightly alkaline.
1. Acceptable Material: Vexcon Chemicals, StarSeal EF Degreaser and Cleaner.

## **PART 3 - EXECUTION**

### **3.01 EXAMINATION**

**Specifier Note:** If more than one concrete finish is required for the project, copy and edit the following articles as required and identify finishes and other variables in a schedule at the end of Part 3 of this section.

- A. Site Verification of Concrete Conditions
  1. Installer and manufacturer's representative will examine surfaces receiving concrete finish and polishing system.
    - a. Verify that surfaces conform to product manufacturer's requirements for substrate conditions.
    - b. Verify floor is free of curing membrane, bond-breaker, concrete laitance, and will absorb water per water absorbency test.
- B. Concrete slab performance requirements
  1. Verify that all the concrete complies with finishing requirements as specified in Cast In Place Section 03 30 00.

### **3.02 CONCRETE PREPARATION**

- A. Complete surface preparation per manufacturers written instructions.
- B. Power sweep floor area, blow out corners and column footings.
- C. Initial grind should clean the concrete surface, removing all coatings, dirt, oil and laitance.
- D. If grinding does not remove oil spots, treat oil spots with emulsifier and oil absorber materials. Detail scrub with high pH detergent.

1. Acceptable Material: Vexcon Chemicals: StarSeal EF Stripper
- E. Double scrub floor with automatic scrubber capable minimum of 80 to 120 pounds of head pressure, equipped with black stripping pads. Use proper dilution of high pH detergent. Scrub floor once without squeegee or vacuum. On second pass, remove water solution.
- F. Power rinse surface removing all traces of soap residue.
- G. Inspect the concrete surface.
- H. Complete surface preparation per manufacturers written instructions.
- I. Perform water absorbency test.
  1. Repeat any steps as necessary to prepare for polishing.

### **3.03 JOINT FILLER**

- A. Prime and fill with manufacturer's approved epoxy joint sealant those joints that require the application of joint sealant after the application of the finishing system or as directed by the manufacturer.
  1. Powercoat Primer
  2. Powercoat Flexible Epoxy Joint Sealant

### **3.04 PROTECTION**

- A. Protect finished surfaces from damage and soiling and other construction activities.
- B. Without damaging completed work, provide protective cover.

**END OF SECTION**