

SECTION 09 96 56 High-Performance Epoxy Coating

Specifier Note: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-part format. The 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: StarSeal EF Epoxy floor coating is engineered to deliver superior performance and value for a wide range of environments in one easy system. This protective and decorative breathable coating is extremely tough, providing excellent resistance to damage from wear, abrasion, impact and chemical attack. StarSeal EF Epoxy systems form a seamless, breathable attractive surface that is highly durable, long-lasting and easy to clean and maintain.

Colored flakes can be blended to produce flooring that is both aesthetically pleasing and durable.

All StarSeal EF epoxies feature Vexcon’s breathable technology which allows moisture vapor to pass through rather than becoming trapped, preventing whitening, blistering, loss of adhesion (peeling) and flaking.

Specifier Note: StarSeal EF products are high performance building materials that are dedicated to reducing their environmental foot print by improving the environmental performance of buildings, the air quality of its inhabitant’s and reducing the effects of volatile organic compounds (VOC’s) on the environment.

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

1.1 SUMMARY

A. This section specifies StarSeal EF Epoxy [clear] [color] a breathable high performing water based epoxy coating for [interior] or [exterior] [new] or [existing] concrete floors

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

1.2 RELATED SECTIONS

A. 033000 - Cast In Place Concrete

1.3 REFERENCES

A. American Society for Testing Materials - ASTM

1. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.
2. ASTM D 4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.
3. ASTM D 2047 Standard Test Method for Static Coefficient of Friction of Coated Flooring Surface as Measured by the James Machine.
4. ASTM G 53 Standard Practice for Operating Light-and Water Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials.
5. ASTM D 2240 Standard Test Method for Rubber Property-Durometer Hardness
6. ASTM D 3363 Standard Test Method for Film Hardness by Pencil Test
7. ASTM D 4060 Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abrader.
8. ASTM D 523 Standard Test Method for Specular Gloss
9. ASTM F 1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Sub-floor Using Anhydrous Calcium Chloride
10. ASTM D 1653 Standard Test Methods for Water Vapor Transmission of Organic Coating Films
11. ASTM C 309 Standard Specification for Membrane Forming Curing Compounds
12. ASTM C 1315 Standard Specification for Liquid Membrane Forming Compounds having Special Properties for Curing and Sealing Concrete.
13. ASTM D 2369 Standard Test Method for Volatile Content of Coatings

B. United State Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED)

1. New Construction and Major Renovations v2.2.

C. United States Environmental Protection Agency (EPA)

1. Method 24 – Determination of Volatile Matter Content of Surface Coatings

1.4 SUBMITTALS

A. Comply with section 013300 – Submittal Procedures

B. Comply with section 013100 – Project Management and Coordination/LEED Submittals

1. Obtain written certification from manufacturer on manufacturer's letterhead for all field applied sealants and coatings indicating compliance with LEED NC 2.2 EQ 4.1/4.2 Low Emitting Materials

a. The Volatile Organic Compound (VOC) content in grams/liter or lbs./gallon. per EPA method 24, compliance with California Air Resource Board (CARB), VOC limits for architectural coatings effective 1/2010, the environment label and the declaration requirements of ISO 14020 and ACT 15 of the Federal Trade Commission guide on use of environmental marketing claims.

2. Provide documentation from manufacturer to validate compliance with LEED NC 2.2 MR 5.1/5.2 Regional Materials

3. Provide documentation from manufacturer indicating contribution towards LEED NC 2.2 MR 2.1/2.2 Construction Waste Management.

C. Manufactures product data sheet: Include manufacturer's specifications, surface preparation, special notes and application instructions.

D. Manufactures material safety data sheet

E. Test Data: Confirm compliance with specified requirements from independent testing laboratory.

F. Samples: Submit 8" x 10" drawdown samples for each color. Samples shall be made of coating specified and color matched as selected by the architect/owner.

G. Applicators Quality Assurance: Submit list of minimum of 5 completed comparable projects applying epoxy coatings. Include for each project:

1. Project name and location

2. Name of contractor, architect and coating manufacturer

3. Approximate size of project and quantity epoxy coatings applied

4. Date of completion

H. Comply with section 017700 – Closeout Procedures

1.5 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Specialize in manufacture of epoxy coatings with a minimum of 10 years successful experience.

B. Installation Qualifications: Firm certified in writing by manufacturer as an approved applicator.

C. Regulatory Requirements: Products shall comply with federal, state and local VOC regulations.

D. Product shall contribute to LEED NC 2.2 points.

E. Source Limitations: Materials shall be products of a single manufacturer.

F. Mock-Up:

1. Provide a 10' x 10' sample for each specified coating, to be applied to each substrate to receive coating using same application equipment and methods as finished job.
2. Mock-up should be applied at the job site on the same surface to be coated as selected by the architect/owner/general contractor.
3. Obtain written approval from architect/owner prior to proceeding.
4. Leave mock-up in place as part of completed project.

1.6 DELIVERY, STORAGE AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Storage: Store materials in clean, dry area in accordance with manufacturer's instructions. Keep containers sealed until ready for use.

C. Handling: Protect materials during handling and application to prevent damage or contamination.

D. Do not use materials beyond manufacturer's shelf life limits

1.7 PROJECT CONDITIONS

A. Environmental Requirements

1. Follow all manufacturer's written dry time instructions.
2. Do not apply epoxy coating when surface temperatures are below 60°F
3. Do not apply epoxy coating when surface temperatures are above 85°F
4. Do not apply epoxy coating on windy days
5. Keep from freezing
6. Mechanically mix well before each use
7. Coating when adverse weather conditions are expected within 12 to 24 hours of application should be avoided
8. Do not apply to frozen, frost or snowy surfaces

1.8 WARRANTIES

A. Provide manufacturers 5 year warranty that the product will remain adhered to the surface without cracking or peeling and will provide resistance to molds, fungi, and water penetration. Contact manufacturer for sample of warranty terms and conditions.

PART 2 – PRODUCTS

2.1 Acceptable Manufacturer

A. Vexcon Chemicals 7240 State Road Philadelphia PA 19135
Toll Free Technical Assistance 888.Vexcon1, fax 215.332.997, website www.vexcon.com
email sales@vexcon.com.

B. Substitutions: Not permitted

2.2 Acceptable Material

A. Product: StarSeal EF Epoxy [Clear] [Semi-Gloss/Matte] [Concrete Gray] [French Gray] [Custom Color]

B. Description: Low VOC breathable water base epoxy coating

C. Compliances:

1. US EPA method 24 - VOC

a. < 192 grams/liter or 1.60 #/gal [Clear]

b. <150 grams/liter or 1.25#/gal [Pigmented]

2. ASTM D 2369 - Minimum solids

a.67% [Clear]

b.62% [Pigmented]

3. Meets all state, federal and local VOC clean air regulations including South Coast Air Quality District (SCAQD) rule # 1113 dated June 2008

4. ASTM E 84: Class A rating

5. ASTM D 4541:

a. Primed: 395

b. Unprimed: 350

6. ASTM D 2047:

a. Smooth: 0.70 average

b. Nonslip: 1.20 average

7. ASTM G 53: 200 hours unprimed: No chalking, delamination or deleterious effects

8. ASTM D 2240:

a. Shore A: 95-96

b. Shore B: 84-87

9. ASTM D 3363: Pencil hardness: 3H

10. ASTM D 4060: 1000 g load, cs 17 wheels, 2 coats cured 7 days: 0.22 g , 0.8 percent loss per 1,000 cycles.

11. ASTM D 523: Gloss 90

12. ASTM F 1869 ASTM F 1869 3.0#/1000sq.ft./24 hrs. vs. uncoated of 27#/1000sq.ft./24hrs.:

13. ASTM D 1653: 3.30 perms

14. LEED NC 2.2 EQ 4.2

A. Product: StarSeal EF Primer Clear

B. Description: Low VOC water base cure and prime coat for StarSeal EF epoxy

C. Compliances:

1. ASTM C 309 Standard Specification for Membrane Forming Curing Compounds

2. ASTM C 1315 Standard Specification for Liquid Membrane Forming Compounds having Special Properties for Curing and Sealing Concrete.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify by examination that the concrete and masonry surfaces are acceptable to receive the epoxy coating. Do not proceed with work until any unsatisfactory conditions have been corrected. Notify architect/general contractor in writing if surfaces are not acceptable to receive the specified product

B. Commencement of installation will be construed as the applicators acceptance of surface conditions.

3.2 PROTECTION

A. Adjoining glass, vegetation, metal and painted surfaces should be protected from over spray and splash. Inadvertent splashes should be removed following manufacturers instructions.

B. Protect completed coated surface from dirt and damage.

3.3 SURFACE PREPARATION

- A. Prepare surface in accordance with manufacturer's written instructions for specific surface to type to be coated. The use of compatible Vexcon surface prep and specialty cleaning products is recommended.

3.4 MATERIAL PREPARATION

- A. Prepare material in accordance with manufacturer's written instructions. Do not add thinners or dilute.

3.5 APPLICATION

- A. Apply in accordance with manufacturer's written application instructions.
- B. Apply materials at specified film thickness by method recommended by manufacturer.
- C. Allow each coat to thoroughly dry before re-coating. Follow manufacturer's written recommended re-coat and dry times.
- D. Use same lot numbers throughout project.
- E. Make finish coats smooth, uniform in color and free of brush or roller marks, laps, runs, dry spray, overspray and skipped or missed areas.

Specifier Note: Use the following sentence when specifying a nonslip finish

- F. Apply epoxy coating with Vexcon Epoxy NonSlip Additive in accordance with manufacturer's instructions.

Specifier Note: Use the following sentence when specify a Deco Chip finish

- G. Apply Vexcon Deco Chips in accordance with manufacturer's instructions.

3.6 FIELD QUALITY CONTROL

A. Inspection: Architect/owner to visually inspect surface. Any defects will be documented and provided to applicator/contractor/general contractor and Vexcon.

1. Applicator/contractor will touch-up, repair and restore any defects in the finished surface until accepted by architect/owner.
2. Applicator/contractor will receive written acceptance of final surface from architect.
3. Applicator/contractor will provide Vexcon with all documentation and application required for warranty.

3.7 CLEANING AND PROTECTION

- A. During course of work, remove discard coating materials, rubbish, cans, rags and other discarded materials from the project site.
- B. Protect completed coated surface from dirt and damage.
- C. After completion of application, clean glass and splattered surfaces.

END OF SECTION