



Section 03 35 00 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.

SECTION 03 35 36

POLISHED CONCRETE FINISHING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Polished Concrete and finishing with use of silicate sealer, hardener, and densifier floor finish.

1.02 RELATED SECTIONS:

- A. Section 03 30 00- Cast In Place Concrete: Concrete Floors.
- B. Section 03 35 13 - Concrete Floor and Architectural CIP Finishing

1.03 REFERENCE STANDARDS

- A. ASTM C642-06 Standard Test Method for Density, Absorption, and Voids in Hardened Concrete
- B. ASTM D5178-98/08 Standard Test Method for Mar Resistance of Organic Coatings
- C. ASTM D2486-06 Standard Test Methods for Scrub Resistance of Wall Paints
- D. ASTM D4060-07 Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abrasion: Modified
- E. ASTM G154-06 Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials
- F. ASTM D4541-09 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers

- G. ASTM D236- 07 Standard Test Method for Volatile Content of Coatings
- H. ASTM D2047-04 Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine
- I. Reflectivity according to use of Horiba IG-320 Gloss Checker
- J. ASTM C1378-04 (2009) Standard Test Method for Determination of Resistance to Staining

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. Complete and submit manufacturer's required Project form work.
 - 1. Vexcon "Project Conference and Job Survey".
- 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. LEED Submittals: Conform to Section 01 81 00 for documentation of LEED credits contributing to certification of project under USGBC LEED-NC 2.2 Green Building Rating System for sustainable building requirements.
 - 1. Credit EQ 4.2 Low Emitting Materials: Paint and Coatings
 - a. For each product used provide manufacturer written certification that the VOC levels, calculated according to 40 CFR 59, Subpart D (EPA Method 24), in all paints and coatings used in the project do not exceed the current VOC content limits of South Coast Air Quality Management District (SCAQMD) Rule #1113 Architectural Coating rule in effect July 2006 and rule #1168 in effect July 2005.
 - 2. Credit MR 5.1/5.2 Regional Materials:
 - a. Provide documentation from manufacturer to validate compliance with LEED NC 2.2
 - 3. Credit MR 2.1/2.2 Construction Waste Management and Disposal:
 - a. Provide documentation from manufacturer indicating contribution towards LEED NC 2.2
- D. Product Data: Provide data on all products, including information on compatibility of different products and limitations
- E. Indicate installation procedures and interface required with adjacent construction
- F. Provide Manufacturers Maintenance Instructions
- G. Provide Installer certification and job experience
- H. Test Data: Provide test reports and warranty

1.06 INFORMATIONAL SUBMITTALS

- A. Quality Assurance
 - 1. Certificates
 - a. Product certificates signed by the manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
 - b. Current contractor's certificate signed by the manufacturer declaring contractor as a certified and approved installer of the polishing system.
- B. Qualifications:
 - 1. Installer certified by Vexcon Chemicals and experienced in performing work of this section who has specialized in installation of work similar to that required for this project.
 - 2. Installer trained and holding current certification for Certi-Shine Clear, Certi-Shine Clear FSR or Certi-Shine Micro-Stain FSR installation.
- C. Pre-installation Meetings: Conduct a pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.
 - 1. Environmental requirements.
 - 2. Scheduling and phasing of work.
 - 3. Coordinating with other work and personnel.
 - 4. Protection of adjacent surfaces.
 - 5. Surface preparation.
 - 6. Repair of defects and defective work prior to installation.
 - 7. Cleaning.
 - 8. Application of liquid hardener, densifier.
 - 9. Importance of un-reacted silicate rinse.
 - 10. Installation of polished non-film forming floor finishes
 - 11. Protection of finished surfaces after installation.

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 ft2 (9.3 m2)] [_____] 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: Choose one that applies

Certi-Shine Clear [] **Certi-Shine Clear FSR** [] **Certi-Shine MicroStain FSR** []

- A. **Certi-Shine 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. **Certi-Shine Clear FSR (Food Stain Resistant):** 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 resistant and food stain resistant.
- C. **Certi-Shine MicroStain FSR (Food Stain Resistant):** Provide 10 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.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. **Basis of Design:** Subject to compliance with requirements provide Vexcon Chemicals system Certi-Shine Clear [] Certi-Shine Clear FSR [] Certi-Shine MicroStain FSR []
 - 1. Vexcon Chemicals, Inc.
 - a. Contact Jennifer Faller 1-888-VEXCON-1; jfaller@vexcon.com;
Fax 215-332-9997; 7240 State Rd., Philadelphia., PA 19135; www.vexcon.com
 - b. Local certified Certi-Shine installer
- B. **Available Products:** Subject to compliance with requirements, products that may be incorporated into the work must have 5 years of recognized polishing use on jobs of similar magnitude.

2.02 SYSTEM DESCRIPTION

- A. Polished Concrete: Includes grinding installation of silicate sealer, (hardener, densifier), polishing, and a stain repellent
- B. Performance Data
 - 1. ASTM C642 Absorbability: Reduction of 75% of Control
 - 2. ASTM D5178 Balance Beam Mar Tester: Greater than 50% harder
 - 3. ASTM D2486 Abrasive Scrub: 1200 Cycles
 - 4. ASTM D4060 Modified Taber Abrasion 600 Rev: 0.37% treated vs. 0.68% untreated
 - 5. ASTM G154: 5000 HR QUV: No fade, change or erosion
 - 6. ASTM D4541 Bonding: Greater than 50 psi
 - 7. ASTM D2369 Solids: 18% Min.
 - 8. ASTM D2047 Coefficient of Friction Determinations by Case Consulting Laboratories:
 - a. Certi-Shine Clear - average - 0.54
 - b. Certi-Shine Finish Coat Ultra - average - 0.63
 - 9. Reflectivity: Change in gloss to 30, 60 or 80 depending on Certi-Shine system, as measured using a gloss meter in accordance with Horiba IG-320 Gloss Checker.
 - 10. ASTM C1378 Stain resistance: Food, Chemical, Oil and common stain resistance. See manufacturer's literature for list.

2.03 PRODUCTS/SYSTEMS:

- A. Hardener, Penetrating Sealer, Densifier: Proprietary, water based, odorless liquid, VOC compliant, environmentally safe chemical hardening solution leaving no surface film.
 - 1. Acceptable Material: Vexcon Chemicals, Inc., **Certi-Shine Clear**.
- B. Unreacted Silicate Rinse: Liquid rinse solution, increases stain resistance.
 - 1. Acceptable Material: Vexcon Chemicals, Inc., **Certi-Shine Fixative**.
- C. Stain Repellent (non-film forming): Ready to use, food (oil and acid), hydraulic fluid and motor oil stain and water repellent, Silane and Silane polymer blend available in 3 formulations
 - 1. Acceptable Material: Vexcon Chemicals, Inc., **Certi-Shine Finish Coat Ultra**
 - a. Note: Product choice will depend on VOC regulations or preference
 - 1. Certi-Shine Finish Ultra Coat Water Base
 - 2. Certi-Shine Finish Coat Ultra AIM
 - 3. Certi-Shine Finish Coat Ultra
- D. Concrete Stain: Vibrant colors, UV resistant, Zero VOC, Silicate Micro-Stain, chemically bonds with the concrete, formulated for use on polished concrete.
 - 1. Acceptable Material: Vexcon Chemicals, Inc., **Certi-Shine MicroStain**.
 - 2. Color _____.
- E. Silicate floor repair material: Liquid silicate material which fills and repairs concrete surface imperfections (optional).
 - 1. Acceptable Material: Vexcon Chemicals Inc., **Certi-Shine Fusion**.
- F. Cleaning Solution: Eco-friendly degreaser and cleaner, concentrate pH must be slightly alkaline.
 - 1. Acceptable Material: Vexcon Chemicals, Inc., **StarSeal EF Degreaser and Cleaner**.
- G. Finish Gloss Level Standard: **(Choose from)**
 - a. High shine (Platinum), equivalent to 60° film gloss of 80 when viewed at an angle
 - b. Medium shine (Gold), equivalent to 60° film gloss of 60 when viewed at an angle
 - c. Satin shine (Silver), equivalent to 60° film gloss of 30 when viewed at an angle

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.

Specifier Note: Certi-Shine MicroStain is UV resistant and can be installed on interior and exterior concrete. Certi-Shine MicroStain is the only stain that offers a ten year warranty. Vexcon's Certi-Shine MicroStain Colors can be custom-matched. For color selection, refer to Vexcon's Certi-Shine Stain color chart at www.vexcon.com

PART 3 - EXECUTION

3.01 EXAMINATION

- 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. Vexcon product: 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 CONCRETE FINISH APPLICATION AND POLISHING

- A. Immediately following cleaning operation, install concrete polishing material(s) per manufacturer's instructions.
- B. Perform polishing operation to the specified polish level.
 - 1. Polishing Levels for Certi-Shine products
 - a. Platinum – High Shine - Equivalent to 60° film gloss of 80 when viewed on an angle.
 - b. Gold - Medium Shine - Equivalent to 60° film gloss of 60 when viewed on an angle.
 - c. Silver - Satin shine - Equivalent to 60° film gloss of 30 when viewed on an angle.

3.04 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. Certi-shine products:
 - a. PowerCoat Primer
 - b. PowerCoat Flexible Epoxy Joint Sealant

3.05 PROTECTION

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

END OF SECTION