

This section includes editing notes to assist the user in editing the section to suit project requirements. These notes are included as hidden text, and can be revealed or hidden by the following method in Microsoft Word:

Display the FILE tab on the ribbon, click OPTIONS, then DISPLAY. Select of deselect HIDDEN TEXT.

SECTION 03 35 43

POLISHED CONCRETE FINISHING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Polished concrete finishing [and color dye]

1.2 REFERENCES

- A. American National Standards Institute (www.ansi.org)
 - 1. B101.3 -Test Method for Measuring Wet DCOF of Common Hard Surface Floor Materials.
- B. ASTM International (www.astm.org)
 - 1. D4039 – Standard Test method for Reflection Haze of High-Gloss Surfaces
 - 2. D5767 – Standard Test method for Instrumental Measurement of Distinctness-of-Image (DOI) Gloss of Coated Surfaces
- C. Terminology: Concrete Polishing Council’s (CPC) glossary (www.ascconline.org)
 - 1. Definitions.
 - 2. Aggregate Exposure Chart.
 - 3. Concrete Appearance Chart.

1.3 SUBMITTALS

- A. Action Submittals
 - 1. Product Data: Manufacturer’s descriptive data for the following:
 - a. Cleaner.
 - b. Densifier.
 - c. Protector.
 - d. Surface repair material.
 - e. [Dye color chart.]**
 - 2. CPC Aggregate exposure and appearance charts
 - 3. Manufacturers approved installers certificate.

4. Pre-concrete finishing conference meeting notes.
 5. Post-installation testing results:
 - a. ASTM D5767 Distinctness-of-Image, percentage
 - b. ASTM D523 – Standard Test Method for Specular Gloss
- C. Close Out Submittals:
1. Operation and Maintenance information.
 - a. Cleaning and servicing data.
 - b. Manufacturers cleaner, 1-gallon minimum.
- B. Sustainable Design Submittals:
1. Indoor Air Quality: Low-Emitting material compliance per CDPH Standard Method.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications:
1. Five (5) years successful installation experience in work of this Section.
 2. Manufacturer approved and accepted installer.
- B. Manufacturer:
1. Minimum 10 years successful experience in producing specified materials.
 2. Materials are compliant with third party CDPH low-emitting material testing.
- C. Pre-Concrete Finishing Conference
1. Schedule: Four (4) weeks prior to concrete placement
 2. Attendance: [Concrete finisher] [Polishing installer] [Batch plant] [___]
 3. Record the meeting discussion, and approvals for distribution to parties.
 4. Review and discuss:
 - a. Floor flatness (FF and FL) requirements, ASTM E1155:
 1. Concrete placement - F_F 60/ F_L 40 – super flat
 2. 30 Days after placement - F_F 45/ F_L 35 – very flat
 - b. Curing Options: Water curing or white, light reflective blanket per ASTM C171.
 - c. Specified aggregate exposure and appearance requirements.
 - d. Floor protection.
 - e. Mix design and component requirements:
 1. Compressive Strength: 4,000psi
 2. Fly Ash: limited to 5%
 3. Slag: Not recommended.
 4. Evaporation Retarders: Not recommended.
 5. Manufacturers cellulose fibers as secondary reinforcement
 6. Manufacturers finishing hardener and surface conditioning aid
- D. Mock- Up Approval Conference

1. Schedule: Four (4) weeks prior to installation
2. Size: 100 square feet
3. Location: Area subjected to direct and indirect sunlight
4. Attendance: [Owner] [Architect] [Polishing installer] [Construction Manager]
5. Review and discuss installed mock-up and the following for approval:
 - a. Interior environmental and lighting requirements.
 - b. Review submittal samples.
 - c. Surface repair materials.
 - d. Review aggregate exposure and appearance requirements.
 - e. ASTM D5767 Distinctness-of-Image requirements
 - f. ASTM D4039 Reflection Haze of High-Gloss Surfaces requirements
 - g. Staging and sequencing.
 - h. Protection of completed work.
6. Remove rejected mock-ups and re-install materials as directed by Architect.
7. Mockup may remain as part of the Work when approved in writing by Architect.

1.5 PROJECT CONDITIONS

- A. Prohibit concrete surfaces from the following prior to and after application process:
 1. Vehicular traffic and pipe cutting operations in, around and above surfaces
 2. Storage of wood, ferrous metals, plastic, or any other materials to prevent damage
 3. Liquid drippings, sprinkler discharge and sprinkler testing on surfaces.
 4. Chemical storage, acids and acidic detergents
 5. Protect concrete surfaces from contamination.
 6. Diaper all hydraulic lines of equipment that must enter polished floor spaces.
- B. Maintain interior room conditions of 50 and 90 degrees F.
- C. Ventilate areas to promote proper curing of components.
- D. Restrict trade traffic from work areas during and after application process.

1.6 MAINTENANCE

- A. Deliver 2-gallons of manufacturers approved cleaning material and maintenance instructions to Owner at Occupancy.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Contract documents based on Lythic by Solomon Colors www.solomoncolors.com
- B. Substitutions: [No substitutions] [Under provisions of Division 01.]

2.2 MATERIALS

- A. Secondary Reinforcement: Micro-cellulose fibers (770 million fibers per pound) for newly poured concrete to reduce plastic shrinkage cracks, hydration, and surface impact strength.
 - 1. Product: Ultrafiber500 by Solomon Colors
 - 2. Rate: 1.5 lbs per cubic yard
 - 3. Compliance: Meets ASTM D7357, D6942 and C-1116-08, Section 4.1.4 Type IV

- B. Finishing Hardener: Liquid applied, finishing aid for newly poured concrete to reduce shrinkage cracks, hydration, and surface impact strength.
 - 1. Source: Day1 by Solomon Colors
 - 2. Rate: 500 square feet per gallon, standard rate
 - 3. Abrasion Resistance: 35-percent improvement, when tested to ASTM C779.
 - 4. Scaling Resistance: 70-percent improvement, when tested to ASTM C672.
- C. **Dye Colorant: Manufacturer's translucent, liquid color dye.**
 - 1. Source: Pro-Dye by Solomon Colors
 - 2. VOC Content: < 50 grams per liter, maximum
 - 3. Color: **[add color]**

- D. Surface Cleaner: Water-based, colloidal silica blended surfactant, silica dust reducer
 - 1. Source: Lythic Cleaner by Solomon Colors.
 - 2. VOC Content: < 50 grams per liter, maximum
 - 3. pH Level: 10.0pH, non-hazardous waste per EPA requirements.

- E. Hardener and Densifier: Water-based, colloidal silica, odorless, penetrating hardener
 - 1. Source: Densifier & XL by Lythic
 - 2. VOC Content: < 50 grams per liter, maximum
 - 3. pH level: 10.0pH or less, non-hazardous waste per EPA requirements.
 - 4. Reaction: Reaction at application and requires no broom agitation, scrubbing or rinse

- F. Protector: Water-based, penetrating film forming protector, colloidal-silica co-polymer acrylic
 - 1. Source: Protector by Lythic
 - 2. VOC Content: < 50 grams per liter, maximum

- G. Surface Repair Products: Color matching repair system by **[_____]** **[or approved substitute]**.

2.3 ACCESSORIES

- A. Joint Sealer: **[See Section 07 92 00 Joint Sealers.] [Epoxy or polyurea-based sealer as approved by Architect]**

- B. Grout and grouting: Resinous or cementitious based recommended by manufacturer.

- C. Temporary Protection: Seamless, spill, stain and water-resistant sheeting.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Test floors in accordance with manufacturer's instructions.

3.2 INSTALLATION

- A. Install materials in accordance with manufacturer's instructions.
- B. Provide continuous aggregate exposure, appearance and maximum refinement as defined by CPC from wall to wall.
- C. **[Apply dye colorant in accordance with manufacturer's instructions]**
- D. Apply a minimum of two (2) coats of hardener and densifier to the point of rejection.
- E. Apply surface repair, grout and grouting to achieve a uniform surface appearance.
- F. Concrete Floor Finish: Class **[A – Cement Fines; 85 to 95 percent cement fines, 5 to 15 percent fine aggregate.] [B - Fine Aggregate; 85 to 95 percent fine aggregate, 5 to 15 percent blend of cement fines and coarse aggregate.] [C - Coarse Aggregate; 80 to coarse aggregate; cement fines, 10 to 20 percent blend of cement fines and fine aggregate.]**
- G. Final Concrete Floor Gloss: Level **[1 – Flat, image clarity value 0 to 9 percent, haze index less than 10] [2 – Satin; image clarity value 10 to 39 percent, haze index less than 10.] [3 – Polished; image clarity value 40 to 69 percent, haze index less than 10.] [4 – Highly Polished; image clarity value 70 to 100 percent, haze index less than 10.]**
- H. Protector:
 - 1. Apply two (2) coats in accordance with manufacturer's instructions.
 - 2. Burnish to produce maximum appearance and liquid resistance properties.

3.3 FIELD QUALITY CONTROL

- A. Measure slip resistance in accordance with ANSI B101.3 -Test Method for Measuring Wet Dynamic Coefficient of Friction (DCOF) of Common Hard Surface Floor Materials.
 - 1. Results of **[high traction] [0.60] [0.50]** or in accordance with authorities having jurisdiction.

- B. Floor Testing:
 - 1. Verify floors are free of scratches, and abrasions upon completion of process.
 - 2. Perform the following appearance tests at a minimum of one (1) test for each 1,000 square feet of polished concrete.
 - a. ASTM D5767 Distinctness-of-Image
 - b. ASTM D 4019 Haze
 - 3. Re-polish floors to remove scratches at no cost to Owner.
 - 4. Apply protector when surface meets appearance testing requirements.

3.4 PROTECTION

- A. Install approved temporary floor protection.
 - 1. Repair, replace, and maintain continuous temporary floor protection until Substantial Completion.

END OF SECTION