

SECTION 03 36 00 - SPECIAL CONCRETE FLOOR FINISHES

PART 1 GENERAL

1.01 SUMMARY

- A. This section Provides polished concrete finishing system where indicated on the drawings.
 - 1. Concrete floor substrate grinding to a specified finish.
 - 2. Applying dye sealer, hardener and densifier (Retroplate 99) and performing grinding and polishing to a specified finish.

1.02 REFERENCES

- A. American Society for Testing and Materials:
 - 1. ASTM-C779, Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces
 - 2. ASTM G23-81, Ultraviolet Light & Water Spray
 - 3. ASTM C805, Impact Strength
- B. American Concrete Institute: ACI 302. 1R-89, Guide for Concrete Floor and Slab Construction
- C. Other Test: Reflectivity

1.03 SUBMITTALS

- A. Comply with provisions of Section 01 33 00 - Submittals.
- B. Product data:
 - 1. Submit special concrete finishes manufacturer's specifications and test data.
 - 2. Submit special concrete finishes describing product to be provided, giving manufacturer's name and product name for the specified material proposed to be provided under this section.
 - 3. Submit special concrete finishes manufacturer's recommended installation procedures; which when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.
 - 4. Submit special concrete finishes technical data sheet giving descriptive data, curing time, and application requirements.

5. Follow all special concrete finishes published manufacturer's installation instructions.
- C. Test Reports: Provide certified test reports, prepared by an independent testing laboratory, confirming compliance with specified performance criteria.
- D. Samples: Each floor has its own unique appearance when completed. Manufacturer's lab samples are supplied only to show a smooth surface indicative of the gloss, not the mix color or aggregate size, color or amount of aggregate exposed. The final appearance of a finished floor cannot be guaranteed to match a sample due to the natural variations in concrete.
- E. Product Variations: RetroPlate and Solvent-based Dyes. The variegated colors and appearance are unique to each concrete surface and depend on the chemical composition, mix design, porosity, age, texture and color of the concrete substrate. Mottling and wide variations in color and intensity may occur. If contaminants remain on the surface, the penetration of the RetroPlate and Solvent-based Dye may be blocked. Concrete from different loads or pours, and in patched areas, may appear significantly different in color from adjacent areas, when treated with RetroPlate or Solvent-based dye.
- F. Fly Ash: No more than 20% of the weight of the Portland cement should be substituted for with fly ash. If fly ash is to be Class substituted, C is preferred.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications:
 1. Use a certified installer and adequate number of skilled workmen who are thoroughly trained and experienced in the necessary craft.
 2. The special concrete finish manufacturer (Advanced Floor Products) shall certify the applicator.
 3. Applicator shall be familiar with the specified requirements and the methods needed for proper performance of work of this section. Applicator must have availability of proper equipment to perform work within scope of this project on a timely basis. Applicator should have successfully performed a minimum of 6 projects of at least 5000 square feet each.
- B. Manufacturer's Certification: Provide letter of certification from Advanced Floor Products stating that installer is certified applicator of special concrete finishes, and is familiar with proper procedures and installation requirements required by the manufacturer.

C. Mock-ups:

1. Apply mock-ups of each type finish, to demonstrate typical joints, surface finish, color variation (if any), and standard of workmanship.
 - a. Build mock-ups approximately 30 square feet in the location indicated or if not indicated, as directed by the Architect or Owner Representative.
 - b. Notify Architect or Owner Representative seven days in advance of dates and times when mock-ups will be constructed when practical.
 - c. Obtain from the Architect or Owner Representative approval of mock-ups before starting construction.
 - d. If the Architect or Owner Representative determines that mock-ups do not meet requirements, demolish and remove them from the site and cast others until mock-ups are approved.
 - e. Maintain mock-ups during construction in an undisturbed condition as a standard for judging the completed work.
 - f. Approved mock-ups may become part of the completed work if undisturbed at time of substantial completion.

2. Protection

- a. All hydraulic powered equipment must be diapered to avoid staining of the concrete.
- b. No trade will park vehicles on the inside slab. If necessary to complete their scope of work, drop cloths will be placed under vehicles at all times.
- c. No pipe cutting machine will be used on the inside floor slab.
- d. Steel will not be placed on interior slab to avoid rust staining.
- e. All equipment must be equipped with non-marking tires.
- f. Do not drag or drop equipment or material across the slab which will scratch or chip it.
- g. No satisfactory chemical or cleaning procedure is available to remove petroleum stains from the concrete surface. Prevention is therefore essential.

- D. Pre-Installation Conference: Schedule and conduct pre-installation conference at project site to establish guidelines and expectations for providing special concrete floor finish specified, including application requirements, degree of polish, concrete finish specifications, substrate tolerances, and similar issues. Make available approved control sample for understanding of desired finish.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original containers, with seals unbroken, bearing manufacturer labels indicating brand name and directions for storage.
- B. Dispense special concrete finish material from factory numbered and sealed containers. Maintain record of container numbers.

1.06 PROJECT CONDITIONS

- A. Environmental Requirements:
 - 1. Comply with manufacturer's written instructions for substrate temperature and moisture content, ambient temperature and humidity, ventilation, and other conditions affecting special concrete floor finish.
 - a. Concrete must have an average Floor Flatness rating of at least 35.
 - b. Concrete must have an average Floor Levelness rating of at least 40.
 - c. Concrete must be cured a minimum of 28 days or as directed by the manufacturer before application of Retro Plate can begin.
 - 2. Application of Retro-Plate shall take place prior to installation of equipment or racking, thus providing a complete, uninhibited concrete slab for application.
 - 3. Close areas to traffic during floor application and after application, for a time period recommended in writing by manufacturer.
 - 4. The completed Retroplated slab will be covered to prevent damage by the other trades during store completion.
 - 5. Owner will be responsible for providing disposal of slurry and finish by products in compliance with all applicable codes.

PART 2 - PRODUCTS

2.01 MATERIALS AND MANUFACTURERS

A. Hardening/Sealing Agent

1. RetroPlate 99 manufactured by Advanced Floor Products, Inc., P.O. Box 50533, Provo, Utah 84605, 888-942-3144. www.retroplatesystem.com
 - a. Performance Criteria:
 - i. Abrasion Resistance: ASTM C779 – Up to 400% increase in abrasion resistance.
 - ii. Impact Strength: ASTM C805 – Up to 21% increase impact strength.
 - iii. Ultra Violet Light and Water Spray: ASTM G23-81 – No adverse effect to ultra violet and water spray.
 - iv. Reflectivity: Up to 30% increase in reflectivity.

B. Solvent-Based Dye Color

1. AmeriPolish Dye distributed by RetroPlate System 1-888-942-3144.
2. Color chart available at www.ameripolish.com
3. Any request for product substitution must be approved by the Manufacturers' Representative and the Architect.

C. Heavy Duty Stain Inhibitor and Sealer: Retroguard by Advanced Floor Products (No Substitution)

D. Diamond Grinding and Polishing Discs: Only grinding and polishing discs distributed by Advanced Floor Products are to be used by Certified RetroPlate Applicator only.

1. Contact: For additional information go to www.retroplatesystem.com, or Leo Henderson & Curtis Turnbull at RetroPlate for list of Certified Applicators and product questions. Leo@retroplatesystem.com, curtis@retroplatesystem.com, or 1-888-942-3144

E. Joint Filler: RetroPlate PE75 Flexible Control Joint Filler

2.04 RELATED MATERIALS

A. Water: Potable

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS:

- A. Examine substrate, with owner representative present, for conditions affecting performance of finish. Correct conditions detrimental to timely and proper work. Do not proceed until unsatisfactory conditions are corrected.
- B. Verify that base slab meets finish and surface profile requirements in Division 3 Section "Cast-In-Place Concrete," and Project Conditions above.
- C. Prior to application, verify that floor surfaces are free of construction latents

3.02 APPLICATION

- A. The following RetroPlate process for new and/or existing construction will be followed as listed below:

New Construction

A concrete grinding machine must be used. Floors should be started using the diamond Grit Metal or Resin pad he sees necessary depending of the condition of the slab. The remaining process follows:

- 1. Grind floor using 50 or 100 grit resin diamond, paying close attention to expose only fine aggregate, physically seen as speckle or sand (Class B – Fine Aggregate). Continue until scratch pattern is uniform throughout.
- 2. Scrub and rinse floor.
- 3. Grind floor using 200 grit resin diamond.
- 4. Scrub and rinse floor.
- 5. Grind floor using 400 grit resin diamond.
- 6. Double Scrub and rinse floor.
- 7. Apply RetroPlate 99 to floor at 200 sq. ft. per gallon, scrubbing product into the floor and allowing product to soak until turning slick. If it becomes sticky, apply water to RetroPlate 99, leaving the product on the floor for at least 60 minutes.
- 8. Scrub and rinse floor to remove any dirt or residue. Let the floor dry overnight.
- 9. Grind floor using 800 grit resin diamond
- 10. Scrub and rinse floor.
- 11. Grind floor using 1500 or 1600 grit resin diamond, to achieve a Level 3 shine, achieving a gloss reading of 60 or higher, and at 50 ft, side lighting & overhead lighting will be well defined.
- 12. Scrub and rinse floor.

13. Apply RetroGuard at the rate of 1200 feet per gallon. Dilute RetroGuard 50-50 with water prior to application using sprayer. Burnish with high speed burnisher.
14. After concrete grinding, cut control joints. Clean concrete substrate of dirt, chalk, markings and saw-cut debris.

B. Finish Requirements

1. Start any of the floor finish applications in presence of manufacturer's technical representative.
2. Sealing, Hardening and Polishing of Concrete Surface: Concrete must be in place a minimum of 28 days or as directed by the manufacturer before application can begin.
3. Application is to take place prior to racking and other in-store accessory installation, thus providing a complete, uninhibited concrete slab for application.
4. Only a certified applicator shall apply Retro-Plate 99 and Dye. Applicable procedures must be followed as recommended by the product manufacturer and as required to match approved test sample.
5. Achieve waterproofing, hardening, dust-proofing, and abrasion resistance of the surface without changing the natural appearance of the concrete, except for the color and sheen.
6. Polish to required polish level.

3.03 WORKMANSHIP AND CLEANING:

- A. The premises shall be kept clean and free of debris at all times.
- B. Remove spatter from adjoining surfaces, as necessary.
- C. Repair damages to surface caused by cleaning operations.
- D. Remove debris from jobsite. Dispose of materials in separate, closed containers in accordance with local regulations.

3.04 SPECIFIC QUALIFICATIONS / EXCLUSIONS:

- A. Removal of contamination of the slab by soil, foot prints, drag marks, welding marks, hydraulic fluids, or any other outside contaminant will be at time and materials, and will be performed to the best of ability, but without guarantee of removal.
- B. Assumption that the RetroPlate 99 System will be applied prior to the installation of any floor covering.
- C. No other trades will be allowed in the area being worked on due to possible safety and floor contamination issues.
- D. The areas to receive the RetroPlate 99 System will be delivered to the applicator in clean and swept condition. All equipment and supplies will be removed prior to turning the space over to the applicator. If the applicator is required to clean the space, and/or move other's supplies, staging and equipment, it will be done at time and materials.
- E. PROTECTION OF THE FLOOR FOLLOWING THE APPLICATION OF THE RETROPLATE 99 SYSTEM AND POLISHING IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
- F. Applicator will provide all materials including buffing/polishing pads & CreteClean Plus for one (1) month of recommended, routine floor maintenance. All material including brushes/pads shall remain at the project location and be stored in the janitor's closet. Applicator shall also provide floor finish maintenance instructions for Owner.

3.05 PROTECTION:

- A. Protect finished work until fully cured in accordance with manufacturer's recommendations.

END OF SECTION