

## SECTION 03360

### SPECIAL CONCRETE FLOOR FINISHES (RETROPLATE)

#### PART 1 GENERAL

##### 1.01 SUMMARY

- A. This section includes the following.
  - 1. Applying Sealer and Hardener, and polishing concrete to specified finish level.
- B. Related Work:
  - 1. Section 03310 Cast-In-Place Concrete

##### 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
  - 1. ACI 302. 1R-89, Guide for Concrete Floor and Slab Construction
- C. Other Test:
  - 1. Reflectivity

##### 1.03 SUBMITTALS

- A. Comply with pertinent provisions of Product Requirements Section.
  - 1. Provide submittal information within 35 calendar days after the contractor has received the owner's notice to proceed.
- 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. Submit special concrete finishes manufacturer's Material Safety Data Sheet (MSDS) and other safety requirements.
  - 6. Follow all special concrete finishes published manufacturer's installation instructions.
- C. Test Reports:
  - 1. Provide certified test reports, prepared by an independent testing laboratory, confirming compliance with specified performance criteria.

#### 1.04 QUALITY ASSURANCE

- A. Installer Qualifications:
1. Use an experienced installer and adequate number of skilled workmen who are thoroughly trained and experienced in the necessary craft.
  2. The special concrete finish manufacturer 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.
- B. Manufacturer's Certification:
1. Provide letter of certification from concrete finish manufacturer 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 of finish, to demonstrate typical joints, surface finish, color variation (if any), and standard of workmanship.
    - a. Build mock-ups approximately 50 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.
    - 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 the time of substantial completion.
- D. Protection
1. No satisfactory chemical or cleaning procedure is available to remove petroleum stains from the concrete surface. Prevention is therefore essential.
    - 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 always be placed under vehicles.
    - c. No pipe cutting machine will be used on the inside floor slab.
    - d. Steel will not be placed on the interior slab to avoid rust staining.
    - e. Acids and acidic detergents will not come into contact with slab.
    - f. All trades informed that the slab must be protected at all times.
- E. Pre-Installation Conference:
1. Conduct conference at project site to comply with requirements in Division 1 Section "Project Management and Coordination".

**This is to be a MANDATORY MEETING and it is to be conducted prior to the placement of concrete in any areas that are to receive a RETROPLATE Concrete Floor Finish System. The scheduling of this Mandatory Meeting is the responsibility of the General Contractor. Those entities required to be in attendance are as follows: Owner's Representative, General Contractor, Architect, Concrete Supplier, Concrete Subcontractor, the Retroplate Applicator Subcontractor and a representative of Retroplate.**

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original containers, with seal's 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 limitations:
  - 1. Comply with manufacturers written instructions for substrate temperature and moisture content, ambient temperature and humidity, ventilation, and other conditions affecting topping performance.
    - a. Concrete Floor Flatness rating recommended at least 40, where possible.
    - b. Concrete Floor Levelness rating recommended at least 30, where possible.
    - c. Concrete must be cured a minimum of 45 days or as directed by the manufacturer before application of Retro Plate can begin.
    - d. Application of Retro-Plate shall take place 10 days prior to installation of equipment and substantial completion, thus providing a complete, uninhibited concrete slab for application.
    - e. **Concrete slab fly-ash content shall not exceed 20 percent.** The fly-ash present in blended cement conforming to ASTM C595 shall be included in the calculated percentage.
- B. Close areas to traffic during floor application and after application, for time period recommended in writing by manufacturer.

**PART 2 – PRODUCTS**

2.01 MATERIALS AND MANUFACTURERS

- A. HARDENING/SEALING AGENT
  - 1. Retro-Plate 99, manufactured by Advanced Floor Products, Inc., P.O. Box 50533, Provo, Utah 84605, 801-812-3420.
    - 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. Ultraviolet Light and Water Spray: ASTM G23-81 – No adverse effects to ultra violet and water spray.
      - iv. Reflectivity: Up to 30% increase in reflectivity.
- B. Note:

Retro-Plate is a system based on a Silicate product. Other similar systems based on a Siliconate product will not be considered or equal. Only systems which are expressly called a Silicate in the manufacturer's literature will be considered for substitution.

2.04 RELATED MATERIALS

- A. Neutralizing Agent:
  - 1. Tri-sodium Phosphate

- B. Water:
  - 1. Potable

### **PART 3- EXECUTION**

#### **3.01 SURFACE CONDITIONS:**

- A. Examine substrate, with installer 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 meet 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. Start any of the floor finish applications in presence of manufacturer's technical representative.
- B. Sealing, Hardening and Polishing of Concrete Surface
  - 1. Concrete must be in place a minimum of 45 days or as directed by the manufacturer before application can begin.
  - 2. Application is to take place at least 10 days prior to racking and other in-store accessory installation, thus providing a complete, uninhibited concrete slab for application.
  - 3. Only a certified applicator shall apply Retro-Plate 99. Applicable procedures must be followed as recommended by the product manufacturer and as required to match approved test sample.
  - 4. Achieve waterproofing, hardening, dustproofing, and abrasion resistance of the surface without changing the natural appearance of the concrete, except for the sheen.
  - 5. Polish Level 2 (Medium Finish) (800 Grit)

#### **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 damage to surface caused by cleaning operations.
- D. Remove debris from jobsite.
  - 1. Dispose of materials in separate, closed containers in accordance with local regulations.

#### **3.04 PROTECTION:**

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

END OF SPECIFICATION SECTION 03360