

SECTION 033519 - STAINED CONCRETE FINISHING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes concrete finishing, including staining.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples for Initial Selection: For each type of product requiring color selection.
- C. Samples for Verification: For each type of exposed color.

1.4 FIELD CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.
- B. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting liquid applied product application.

PART 2 PRODUCTS

2.1 DYE:

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Ameripolish Surelock Concrete Dye or a comparable product by another manufacturer.

2.2 DENSIFIER:

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Ameripolish 3DHS Hybrid Densifier or a comparable product recommended by the dye manufacturer.

2.3 STAIN PROTECTOR/SEALER:

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Ameripolish 3DSP Stain Protector or a comparable product recommended by the dye manufacturer.

2.4 ACCESSORIES:

- A. Repair Material: A product that is designed to repair cracks and surface imperfections. The specified material must have sufficient bonding capabilities to adhere after the polishing to the concrete surface and provide abrasion resistance equal to or greater than the surrounding concrete substrate.
- B. Grout Material: A thin mortar used for filling spaces. Acceptable products shall be:
 - 1. Epoxy, urethane, polyurea, or polyaspartic resins.
 - 2. Latex or acrylic binders mixed with cement dust from previous grinding steps.
 - 3. Silicate binders mixed with cement dust from previous grinding steps.

2.5 DYEING EQUIPMENT:

- A. Spray Equipment:
 - 1. Provide a low pressure sprayer with tips and floor finish applicator pads recommended by dye manufacturer.

2.6 POLISHING EQUIPMENT:

- A. Field Grinding and Polishing Equipment:

1. A multiple head, counter rotating, walk behind or ride on machine, of various size and weights, with diamond tooling affixed to the head for the purpose of grinding concrete. Excludes janitorial maintenance equipment.
 2. If dry grinding, honing, or polishing, use dust extraction equipment with flow rate suitable for dust generated, with squeegee attachments to meet OSHA requirements.
 3. If wet grinding, honing, or polishing, use slurry extraction equipment suitable for slurry removal and containment prior to proper disposal.
- B. Edge Grinding and Polishing Equipment: Hand-held or walk-behind machines which produces the same results, without noticeable differences, as field grinding and polishing equipment.
- C. Diamond Tooling: Abrasive tools that contain industrial grade diamonds within a bonded matrix (such as metallic, resinous, ceramic, etc) that are attached to rotating heads to refine the concrete substrate.
1. Bonded Abrasive: Abrasive medium that is held within a bonding that erodes away to expose new abrasive medium as it is used.
 2. Metal Bond Tooling: Diamond tooling that contains industrial grade diamonds with a metallic bonded matrix that is attached to rotating heads to refine the concrete substrate. These tools are available in levels of soft, medium, and hard metallic matrices that are matched with contrasting concrete substrates (i.e. hard matrix/soft concrete, medium matrix/medium concrete, soft matrix/hard concrete) and are typically used in the grinding and early honing stages of the polishing process.
 3. Resin Bond Tooling: Diamond tooling that contains industrial grade diamonds within a resinous bonded matrix (poly-phenolic, ester-phenolic, and thermoplastic-phenolic) that is attached to rotating heads to refine the concrete substrate. Resin bond tooling does not have the soft/medium/hard characteristics of metal bond tooling and are typically used for the later honing and polishing stages of the polishing process.
 4. Hybrid Tooling: Diamond tooling that combines metal bond and resin bond that has the characteristics of both types of tooling. These types of tools are typically used as either transitional tooling from metal bond tools to resin bond tools or as a first cut tool on smooth concrete surfaces.
 5. Transitional Tooling: Diamond tooling that is used to refine the scratch pattern of metal bond tooling prior to the application of resin bond tooling in an effort to extend the life of resin bond tooling and to create a better foundation for the polishing process.
 6. Abrasive Pad: An abrasive pad, resembling a typical floor maintenance burnishing pad that has the capability of refining the concrete surface on a microscopic level that may or may not contain industrial grade diamonds. These pads are typically used for the maintenance and/or restoration of previously installed polished concrete flooring.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Newly placed concrete shall be at least 28 days old before staining.
- B. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents.

3.2 PREPARATION

- A. Cleaning Concrete Surfaces:
 1. Prepare and clean concrete surfaces.
 2. Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, paint splatter, and other contaminants incompatible with liquid applied products and polishing.

3.3 POLISHING AND DYEING CONCRETE FLOORS

- A. Grind up to minimum of 100-grit resin bond diamonds.

- B. Remove all dust and debris. If wet cleaning is performed, allow surfaces to dry. Vacuum surface thoroughly.
- C. Dyeing: After initial grinding, apply dye according to manufacturer's recommendations allowing surface to dry before proceeding.
- D. Densifier Application: After dyeing per manufacturer's recommendations, apply to point of rejection, remove excess liquid, and allow curing according to manufacturer's instructions.
- E. Honing:
 - 1. Use grinding equipment with hybrid or resin bonded tooling.
 - 2. Hone concrete in one direction with 100 grit tooling and make as many sequential passes as required to remove scratches, each pass perpendicular to previous pass.
- F. Dyeing: After honing, apply dye again per manufacturer's instructions to maximize color.
- G. Stain Protector: After dyeing, apply stain protection in accordance with manufacturer's requirements.

3.4 PROTECTION

- A. Protect polished concrete floors from damage during remainder of construction. Any damage to floor shall be repaired by the contractor to satisfaction of owner.

END OF SECTION 033519

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