SECTION 096723 - RESINOUS FLOORING

This Section specifies a two-component, 100% solids, VOC-compliant aliphatic polyaspartic resinous floor coating produced by SCI Coatings, Inc., 8320 Grenache, Anjou (QC) H1J 1C5 Canada. Telephone: (514) 907-7722. Website: www.scicoatings.com.

SCI-300-8084 SC has been developed for use as UV stable floor coatings. This product exhibits superior chemical, UV, and solvent resistance. There is a range of color choices and a slip-resistance surface option.

Primary applications include marine environments protection, secondary containment, bridges, aircraft hangar floors, offshore platforms, wastewater treatment plants, and car wash facilities.

For sustainable design projects, U.S. Green Building Council (USGBC) LEED v4.1 EQ Credit for Low-Emitting Materials is available.

Section Editing: Informational notes will appear throughout the Section. Bracketed bold text will require a selection to be made.

PART 1 - GENERAL

1.1 SUMMARY

A. Furnish and install a fluid-applied resinous flooring system as indicated on Drawings and specified herein.

B. Related Requirements:

Editing Note: Revise listing to suit Project requirements.

1. Section 033000 "Cast-in-Place Concrete."

1.2 REFERENCES

Editing Note: Edit references to suit Project requirements.

A. ASTM International (ASTM):

1. ASTM D523: Standard Test Method for Specular Gloss.
2. ASTM D570: Standard Test Method for Water Absorption of Plastics.
3. ASTM D638: Standard Test Method for Tensile Properties of Plastics.
4. ASTM D695: Standard Test Method for Compressive Properties of Rigid Plastics.
5. ASTM D1894: Standard Test Method for Static and Kinetic Coefficients of Friction of Plastic Film and Sheeting.
6. ASTM D2240: Standard Test Method for Rubber Property-Durometer Hardness.

7. ASTM D4060: Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.
8. ASTM D4541: Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.
9. ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials.
10. ASTM E96/E96M: Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials.
11. ASTM F710: Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
12. ASTM F1869: Standard Test Method for Measuring Moisture Vapor Emission Rate on Concrete Subfloor Using Anhydrous Calcium Chloride.
13. ASTM F2170: Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

B. International Concrete Repair Institute (ICRI):

1. CSP: Concrete Surface Profile.
2. CSP No. 2 diamond grind.
3. CSP No. 3 light shot blast.

C. Mine Safety and Health Administration (MSHA).

D. National Institute for Occupational Safety and Health (NIOSH).

1.3 SUBMITTALS

A. Product Data: Manufacturer's technical product data and installation instructions. Include Safety Data Sheets.

Editing Note: Retain sustainable design submittals if a Project requirement.

B. Sustainable Design Submittals:

1. VOC Content Data: Product information or statement from manufacturer indicating the VOC content of the product in grams per liter (g/L).
2. Environmental Product Declaration: For each product.

C. Test Reports: Certified test reports produced by an accredited testing agency.

D. Installer qualifications.

1.4 QUALITY ASSURANCE

A. Single Source Responsibility: Provide system components by a single manufacturer.

B. Installer Qualifications: Firm with installation personnel trained and approved by manufacturer.

1.5 ENVIRONMENTAL CONDITIONS

A. Acceptable temperature range for coating application is 59 deg F to 82 deg F. Maximum allowable relative humidity during application is 85 percent. 59 Deg F to 86 Deg F for substrate temperature range, with humidity content less than 4 percent when waterproofing is applied.

B. Do not apply on porous surfaces where a transfer of humidity may occur during application.

C. Avoid exterior use on substrates at ground level

D. Protect resinous flooring from humidity, condensation, and contact with water during the 24 hour initial curing period.

E. Do not expose resinous flooring to ultraviolet light, to prevent discoloration.

F. Work only in a properly ventilated area.

1.6 DELIVERY, STORAGE, AND PROTECTION

A. Delivery: Deliver materials in original containers, with seals unbroken, bearing manufacturer's labels including brand name and directions for storage and mixing.

B. Storage: Store materials not in use in tightly covered containers in a dry, well-ventilated area with ambient temperatures with range required by manufacturer; maximum 12 months shelf life. Keep materials out of direct sunlight and away from potential fire hazards.

C. Handling: Maintain containers in a clean condition, free of foreign materials and residual substances.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Basis of Design Product: "SCI-300-8084 SC"; SCI Coatings Inc.

2.2 RESINOUS FLOORING

A. Description: Two-component aliphatic polyaspartic resinous flooring membrane. 100 percents solids by weight and volume. Formulated for concrete surfaces.

1. Coating System Thickness: 5 to 10 mils dry film thickness for first coat (primer). 6 to 10 mils dry film thickness for second (finish) coat.
2. Primer Option: SCI Coatings Inc.'s "SCI-100" two-component epoxy if determined appropriate for concrete substrate.

3. VOC: 28 g/L.

Editing Note: Select color option.

4. Color: **[_____]** **[Scheduled on Drawings]** **[Selected from manufacturer's full range]**.
5. Gloss: Minimum 95; ASTM D523.

B. Performance Criteria: Tested property values as follows, based on 73 deg F and 50 percent relative humidity conditions:

1. Adhesion (Primer on Concrete): 7500 psi; ASTM D4541.
2. Water Absorption: 0.20 percent; ;ASTM D570.
3. Water Vapor Transmission: 1 perm; ASTM E96/E96M Procedure B.
4. Hardness (Shore D): 75 to 78; ASTM D2240.
5. Coefficient of Friction: 0.5 to 0.7; ASTM D1894.
6. Abrasive Resistance: 30 mg loss (CS17/1000 cycles/1000g); ASTM D4060.
7. Tensile Strength: 7000 to 8000 psi; ASTM D638.
8. Compressive Strength: 9000 to 10,000 psi; ASTM D695.
9. Tear Strength (PLI): 350; ASTM D2240.
10. Elongation at Break: 100 to 110 percent; ASTM D638.
11. Surface Burning Characteristics: 5 flamespread index and 94 smoke development index; ASTM E84. Class A rating.

Editing Note: Retain aggregate requirement, and edit to select aggregate grade below, if slip-resistance is required.

A. Aggregates: Manufacturer's standard **[#40 fine]** **[#28 medium]** **[#16 aggressive]** silica sand.

1.2 MIXING

A. General: Comply with manufacturer's written instructions for mixing procedures, including mix ratios.

B. Precondition materials to minimum temperature of 50 deg F prior to use.

C. Mix Part A component in mixing container, then empty Part B component into mixing container and mix again until uniform consistency in texture and color is achieved. Ensure there is no air entrapment during mixing.

1. Thinning: Use xylene if thinning is required.
2. Do not mix more material than can be applied within working time limits.

PART 2 - EXECUTION

2.1 EXAMINATION

A. Verify substrates and conditions are acceptable to receive resinous flooring.

B. Verify concrete substrates to receive the specified resinous flooring have a minimum 3500 psi compressive strength at 28 days and minimum 215 psi tensile strength.

C. Verify concrete substrates have acceptable values for moisture and alkalinity. Tests are follows; refer to manufacturer's written recommendations for remediation if values are outside of an acceptable range:

1. Alkalinity (pH): ASTM F710.
2. Internal Relative Humidity: ASTM F2170.
3. Moisture Vapor Emission: ASTM F1869.

D. Commencement of work will constitute acceptance of substrates and conditions to receive the work.

2.2 SURFACE PREPARATION

A. Remove dust, laitance, grease, oil, dirt, impregnating agents, foreign materials and other deleterious substances using approved mechanical means, including shot blasting. Resultant surface to have an ICRI-CSP No. 2 or No. 3 profile.

B. Repair damaged and deteriorated surfaces to receive fluid-applied flooring according to manufacturer's written instructions.

C. Use approved patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.

2.3 APPLICATION

A. General: Apply resinous flooring according to manufacturer's written installation instructions, including application methods and materials.

B. Health and Safety Requirements: Wear personal protective equipment (e.g. safety glasses, chemical-resistant gloves, breathing apparatus) as recommended by manufacturer. Breathing apparatus designed for filtering organic vapors and approved by NIOSH/MSHA.

C. Apply all coats with a rubber squeegee, back rolling to obtain a uniform film. Avoid creating puddles.

Editing Note: Retain following if aggregate required for slip resistance.

D. Aggregate Broadcasting: As follows:

1. First Epoxy Coat: After a uniform coating is applied, broadcast the specified aggregate into the wet coating until full saturation is achieved.
2. Second Epoxy Coat: Remove any excess aggregate from first epoxy coat prior to second epoxy coat application. Install 2nd coat with flat squeegee and backroll; avoid puddling to conserve texture.

E. Comply with manufacturer's recommendations for cure times required (foot traffic, light traffic, and full cure time durations).

2.4 CLEANING AND PROTECTION

A. Promptly clean all tools and materials with xylene. Once the product has hardened, it may only be removed by mechanical means.

B. Protect the completed work from deterioration or damage for the remainder of the construction period.

END OF SECTION 096723