

SECTION 096700 - FLUID-APPLIED FLOORING

This Section specifies a high performance, 100% solids epoxy flooring system produced by SCI Coatings, Inc., 8320 Grenache, Anjou (QC) H1J 1C5 Canada. Telephone: (514) 907-7722. Website: www.scicoatings.com.

SCI-100 Coating System is a two-component seamless epoxy coating with high covering power. It can be used to restore deteriorated floors or project new floors. The product provides excellent abrasion and chemical resistance, and has a low VOC content. There is a wide range of color choices and a slip-resistant surface option. An integral cove base can be provided if required as part of the system design.

Primary applications include aircraft hangars, classrooms, clean rooms, laboratories, mechanical rooms, light manufacturing facilities, and walkways.

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 high performance fluid-applied flooring system as indicated on Drawings and specified herein.
- B. Related Requirements:
 - 1. Section 033000 "Cast-in-Place Concrete."

1.2 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM D570: Standard Test Method for Water Absorption of Plastics.
 - 2. ASTM D638: Standard Test Method for Tensile Properties of Plastics.
 - 3. ASTM D695: Standard Test Method for Compressive Properties of Rigid Plastics.
 - 4. ASTM D2240: Standard Test Method for Rubber Property-Durometer Hardness.
 - 5. ASTM D4060: Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.

6. ASTM D4541: Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.

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).

E. South Coast Air Quality Management District (SCAQMD):

1. SCAQMD Method 304-91: Determination of Volatile Organic Compounds (VOC) in Various Materials.

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 50 deg F to 86 deg F. Maximum allowable relative humidity during application is 85 percent. Substrate temperature must be 5.5 Deg F above dew point measured.

- 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 coating from humidity, condensation, and contact with water during the initial 48 hour curing period.
- E. Do not expose fluid-applied 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-100 Coating System"; SCI Coatings Inc.

2.2 FLUID-APPLIED FLOORING

Editing Note: Manufacturer offers an optional two-component epoxy primer, **SCI-100-LV**, before application of SCI-100, as a system enhancement. Contact manufacturer for applicability.

- A. Description: Two-component epoxy coating system applied in two coats. 100 percent solids by weight.
 - 1. First Coat Thickness: 8 mils.
 - 2. Second Coat: 16 mils.
 - 3. VOC: Less than 42 g/L.

Editing Note: Select color option.

4. Color: **[Scheduled on Drawings] [Selected from manufacturer's full range].**
- B. Performance Criteria: Tested property values as follows, based on 73 deg F and 50 percent relative humidity conditions:
 1. Abrasion Resistance: 0.10 g, CS-17 Wheel/1000g/1000 cycles; ASTM D4060.
 2. Bond Resistance: 268 psi; ASTM D4541.
 3. Permeability: 0.3 percent; ;ASTM D570.
 4. Hardness (Shore D): 85 to 90; ASTM D2240.
 5. Tensile Strength: Minimum 5500 psi; ASTM D638.
 6. Compressive Strength: Minimum 10,000 psi; ASTM D695.
 7. Elongation at Break: 6.7 percent; ASTM D638.
 8. VOC Determination: SCAQMD Method 304-91.

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

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

Editing Note: Retain the following if an integral cove base is required.

2.3 INTEGRAL COVE BASE

- A. Basis of Design Product: "SCI Sanitary Cove Base System"; SCI Coatings Inc.
- B. Description: Vertical epoxy mortar application. Seamless, antibacterial, scratch resistant, and impact resistant. Color to match floor coat.
 1. Primer: "SCI-COVE Quartz System." 4.0 mils thickness.
 2. Trowel Coat: "SCI-COVE Quartz System." 1/8 inch thickness. 6 inch height. 1 inch radius at the floor-wall juncture. Install maximum 30 linear feet at a time.
 3. Broadcast Coat: "SCI-300-100 HD". 4.0 mils thickness. Broadcast flakes.
 4. Seal Coat: "SCI-200-8084." 4.0 mils thickness.
 5. Top Coat: SCI-100-8084." 4.0 mils thickness.

2.4 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 3 - EXECUTION

3.1 EXAMINATION

- A. Verify substrates and conditions are acceptable to receive fluid-applied flooring.
- B. Verify concrete substrates to receive the specified coating have a minimum 3500 psi compressive strength at 28 days and minimum 215 psi tensile strength.
- C. Commencement of work will constitute acceptance of substrates and conditions to receive the work.

3.2 SURFACE PREPARATION

- A. Remove wax, 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.

3.3 APPLICATION

- A. General: Apply coatings 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 both 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.
- E. Comply with manufacturer's recommendations for cure times required (foot traffic, light traffic, and full cure time durations).

Editing Note: Retain the following if an integral cove base is required.

3.4 INTEGRAL COVE BASE INSTALLATION

- A. Integral Cove Base: Apply cove base mix to wall surfaces according to manufacturer's written installation instructions.
 - 1. Internal and External Corners: Round profile.
 - 2. Cove Base Height: 6 inches.
- B. Special Mixing Instructions: Combine Part A component and Part B component into the provided bucket and mix for one minute. Prime 32 linear feet with resin only, then add silica sand to the remaining resin and mix using the appropriate paddle.
- C. Application Sequence:
 - 1. Primer Coat: Apply at 2.0 to 3.0 mils thickness with brush or roller. Avoid drips.
 - 2. Trowel Coat: 1/8 inch thickness vertical. Apply with a metal finishing trowel; for 1 inch base radius use a cove trowel. Apply and spread mortar on tacky primer until surface is smooth and free of imperfections.
 - 3. Broadcast Coat; Apply at 4.0 to 5.0 mils thickness with brush or 4 inch roller. Add flakes.
 - 4. Seal Coat: Apply at 2.0 to 3.0 mils thickness with brush or 4 inch roller. Avoid drips.
 - 5. Top Coat: Apply at 2.0 to 3.0 mils thickness with brush or 4 inch roller. Avoid drips.

3.5 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 096700