

**SECTION 09 67 23
RESINOUS FLOORING**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies a low-odor, zero-volatile organic compound (VOC) seamless flooring system with integral base.
- B. Flooring consists of epoxy resin, aggregate, and finish coats for non-slip finish.

1.2 RELATED WORK

Color and room finish schedule: Section 09 06 00, SCHEDULE FOR FINISHES.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:
 - 1. Description of product to be provided; technical data showing compliance with specifications.
 - 2. Application and installation instructions, including proposed deviations from specifications.
- C. Samples:
 - 1. Each color specified in Section 09 06 00, SCHEDULE FOR FINISHES.
 - 2. Sample 300 mm (12-inch) square in each finish specified.
 - 3. Sample showing construction from substrate to finish surface in thickness specified.
- D. Certification and Approval:
 - 1. Manufacturer's certification of material compliance.
 - 2. Manufacturer's approval of installers.
 - 3. Contractor's certificate of compliance with Quality Assurance requirements.
- E. Warranty: Manufacturers warranty of materials and installation.

1.4 QUALITY ASSURANCE

- A. Single Source Responsibility:
 - 1. Obtain primary resinous flooring materials including primers, resins, hardening agents, finish or sealing coats from a single manufacturer.
 - 2. Provide secondary materials only of type and from source recommended by manufacturer of primary materials.
- B. Installer trained and approved by manufacturer of primary material and having completed at least five projects of similar size and complexity.
- C. Pre-Installation Conference
 - 1. Arrange a meeting not less than thirty days prior to starting work.

2. Attendance
 - a. Contractor
 - b. Contracting Officers Technical Representative (COTR), with approval of the Contracting Officer.
 - c. Manufacturer and Installer's Representative.
3. Topics of discussion to include, but are not limited to, the following: storage of materials, staging of work, mixing of material, floor prep noise and dust mitigation, scheduling of work in conjunction with other work, installation of resinous flooring, exhausting of spaces to receive resinous flooring, odor control, protection of finished spaces, and testing.

1.5 MATERIAL PACKAGING DELIVERY AND STORAGE

- A. Deliver materials to the site in original sealed packages or containers, clearly marked with the manufacturer's name or brand, type and color, production run number and date of manufacture.
- B. Protect materials from damage and contamination in storage.
- C. Maintain temperature of storage area between 15°C and 32°C (60° and 90°F).
- D. Package materials in factory pre-weighed and in single, easy to manage batches sized for ease of handling and mixing proportions from entire package or packages.

1.6 WARRANTY

- A. Work subject to the terms of the Article "Warranty of Construction" FAR clause 52.246-21.
- B. Extend warranty period to three years.

1.7 APPLICABLE PUBLICATIONS

- A. The publication listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - B221-06.....Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
 - C267-01 (R2006).....Chemical Resistance of Mortars, Grouts, and Monolithic Surfacing
 - C413-01 (R2006).....Absorption of Chemical-Resistant Mortars, Grouts, and Monolithic Surfacing, and Polymer Concretes
 - C580-02.....Flexural Strength and Modulus of Elasticity of Chemical Resistant Mortars, Grouts, Monolithic Surfacing and Polymer Concretes

- C722-04.....Chemical-Resistant Resin Monolithic Surfacing
- C811-98 (R2003).....Surface Preparation of Concrete for Application
of Chemical-Resistant Resin Monolithic
Surfacings
- C882-05.....Bond Strength of Epoxy-Resin Systems Used with
Concrete by Slant Shear
- D2047-04.....Static Coefficient of Friction of Polish-Coated
Floor Surfaces as Measured by the James Machine
- C. National Association of Architectural Metal Manufacturers (NAAMM):
AMP 501.....Finishes for Aluminum

PART 2 - PRODUCTS

2.1 BASIS-OF-DESIGN PRODUCT

- A. Subject to compliance with requirements, provide Steri-Flor-SL by
Dudick, Inc. Comparable products may be proposed by other manufacturers.

2.2 SYSTEM DESCRIPTION

- A. 100 Percent Solids, self-leveling, Epoxy resinous flooring including
concrete epoxy primer, quartz aggregate epoxy resin mortar, clear epoxy
sealer coat, and finish coat for non-slip finish.
- B. System resistant to chemicals and abrasion.

2.3 EPOXY FLOORING SYSTEM

- A. Conform to ASTM C722, Type A, Epoxy resin, quartz aggregate.
- B. Physical Properties of flooring system addition to C722 when tested as
follows:

Property	Test	Value
Hardness	ASTM D2240 Shore Durometer	80-90
Bond	ASTM C882 Bonding epoxy flooring to hardened concrete	min 400 psi
Water Absorption	ASTM C413	max 0.1 percent
Abrasion Resistance	ASTM D4060 Taber Abrader CS-17 wheel, 1000 gm load; 1000 cycle	max 0.10 gms. weight loss
Flexural Strength	ASTM C580	min 1800 psi
Extent of Burning extinguishing Heat Resistant	ASTM D635 For continuous exposure min 140 deg. F For intermittent spills min 200 deg. F	max 0.25 inch self No Effect No Effect
Coefficient of Friction	ASTM D 2047	0.7
Tabor Abrasion	ASTM D-4060	33 mg
Tensile Bond Strengthen	ASTM D-4541	Cohesive Failure of Concrete
Tensile Strength	ASTM D-638	2200 psi
Volatile Organic Compounds	ASTM D-3960	Zero
Chemical Resistance of the following:	ASTM C267	No Effect
Acetic acid	5 percent	
Ammonium hydroxide	10 percent	
Citric Acid	50 percent	
Fatty acid Motor Oil, 20W		
Hydrochloric acid	10 percent	
Salt water		
Sodium Hydroxide	10 percent	
Sulfuric acid	10 percent	
Trisodium phosphate	5 percent	
Urine		
Feces		
Hydrogen peroxide	28 percent	
Distilled Water		
Sodium Hypochloride	5.28 percent	

- C. Primer, Coloring, Sealer, and Finish coats as standard with manufacture of flooring system.
- D. Base cap: Extruded aluminum, clear anodized finish unless specified otherwise in Section 09 06 00, SCHEDULE FOR FINISHES.

2.4 BASE CAP STRIP

- A. Material: Zinc alloy.
- B. Shape for 5 mm (3/16 inch) depth of base material, "J" configuration.

PART 3 - EXECUTION

3.1 PROJECT CONDITIONS

- A. Maintain temperature of materials above 21°C (70 degrees F), for 48 hours before installation.
- B. Maintain temperature of rooms where work occurs, between 21°C and 32°C (70°F and 90°F) for at least 48 hours, before, during, and 24 hours after installation. Maintain temperature at least 21°C (70 degrees F) thereafter.
- C. Perform moisture testing of concrete substrates per ASTM D-4263 "Plastic Sheet" test. A "Passing" result is required prior to the commencement of resinous flooring installation.
- D. Area free of other trades during and for a period of 24 hours after installation.

3.2 INSTALLATION REQUIREMENTS

- A. The respective manufacturer's instructions for application and installation will be considered for use when approved by the COTR.
- B. Submit proposed installation deviation from this specification to the COTR indicating the differences in the method of installation.

3.3 PREPARATION

- A. Prepare surface in accordance with ASTM C811 except where specific manufacturers instructions supersede.
- B. Mechanically remove bond inhibiting materials, including mortaring and grouting materials at demolished quarry tile floor and base, and loose or laitance materials to ensure bond.
- C. Prepare wall and set base cap mold level.
 - 1. Fill voids within the height of the wall where base is applied even with the wall surface.
 - 2. Grind, sand, or cut away protrusions.

3.4 APPLICATION

- A. Mix and apply each component of resinous flooring system in compliance with manufacturer's specifications to produce a uniform monolithic flooring surface of 5 mm (3/16 inch) minimum thickness.
- B. Turn flooring up for coved 100 mm (4-inch) high base at vertical wall surfaces and penetrations. Cove joint with floor; 25 mm (1-inch) radius. Round interior and external corners.
- C. Apply primer over prepared substrate at manufacturers specified rate. Coordinate timing of primer application with application of troweled mortar to ensure optimum adhesion between resinous flooring materials and substrate.
- D. Uniformly spread mortar over substrate adjusted to manufacturer's recommended maximum thickness to plane line of floor.

- E. Trowel finish for smooth surface on base and coved surface.
- F. Grout mortar surface as specified by manufacturer and broad cast quartz aggregate uniformly distributed for non-slip texture on floors to within one inch of base cove horizontal edge.
- G. Apply a clear finish coat.

3.5 CURING, PROTECTION AND CLEANING

- A. Cure resinous flooring materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process.
- B. Close area of application for a minimum of 24 hours.
- C. Protect resinous flooring materials from damage and wear during construction operation.
 - 1. Cover flooring with kraft paper.
 - 2. Covers paper with 6 mm (1/4 inch) thick hardboard, plywood, or particle board where area is in foot or vehicle traffic pattern, rolling or fixed scaffolding and overhead work occurs.
- D. Remove temporary covering and clean resinous flooring just prior to final inspection. Use cleaning materials and procedures recommended by resinous flooring manufacturer.

3.6 TOLERANCE

- A. From line of plane: Maximum 3 mm (1/8 inch) in total distance of flooring and base.
- B. From radius of cove: Maximum of 3 mm (1/8 inch) plus or 1.6 mm (1/16-inch) minus.

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