



SECTION 09671 - RESINOUS FLOORING

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:
 - 1. Industrial resinous flooring systems.
- B. Related Sections:
 - 1. Section 07920 "Joint Sealants" for sealants installed at joints in resinous flooring systems.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's technical data, application instructions, and recommendations for each resinous flooring component required.
- B. Samples for Verification: For each resinous flooring system required, 6 inches square, applied to a rigid backing by Installer for this Project.
- C. Product should match existing quality, surface texture and visual appearance of existing work

1.4 INFORMATIONAL SUBMITTALS

- A. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
- B. Material Certificates: For each resinous flooring component, from manufacturer.
- C. Material Test Reports: For each resinous flooring system.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For resinous flooring to include in maintenance manuals.



1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of flooring systems required for this Project.
 - 1. Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.
- B. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, from single source from single manufacturer. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.
- C. Preinstallation Conference: Conduct conference at Project site.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.

1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.
- B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.
- C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application unless manufacturer recommends a longer period.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide SoySTEP by Soy Resin Systems or pre-approved comparable product.

2.2 MATERIALS

- A. Epoxy should be approved under MIL-Spec MIL-D-24613 Type III and be 100% solids, non-toxic containing no solvents or thinners. ROCK to RESIN RATIO MUST BE LESS THAN 3LBS of AGGREGATE PER POUND OF EPOXY RESIN (EXCLUDING TOP COAT).



- B. Select the desired color patterns consisting of marble, silica sand and quartz.
- C. Comply with IEQ Credit 4 Group 1: Interior Adhesives and Sealants: Meet SCAQMD #1168 and GS-36. Adhesives and sealants do not contain carcinogen or reproductive toxicant components present at more than 1% of total mass as defined in the California Office of Environment Health Hazard Assessment's (OEHHA) list entitled "Chemicals Known to the State to Cause Cancer" or the Reproductive Toxicity, Safe Drinking Water and Toxic Enforcement Act of 1986 (PROPOSITION 65)
 - 1. Laboratory Test Reports for Credit IEQ4: For floor systems, documentation indicating that the products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers"
 - 2. Product Data for IEQ 4: Liquid Applied Flooring Components, documentation including printed statement of VOC content. SoyPoxy – VOC Label must not exceed 45 g/l

2.3 INDUSTRIAL RESINOUS FLOORING

- A. Resinous Flooring: Abrasion-, impact- and chemical-resistant, industrial-aggregate-filled, resin-based, monolithic floor surfacing designed to produce a seamless floor and integral cove base.
- B. System Characteristics:
 - 1. Color and Pattern: SoySTEP by Soy Resin Systems
 - 2. Wearing Surface: **Orange-peel**
 - 3. Overall System Thickness: **1/8 inch**
- C. Body Coats:
 - 1. Resin: **SoyPoxy**.
 - 2. Formulation Description: 100 percent solids.
 - 3. Application Method: **Troweled**.
 - a. Thickness of Coats: **1/8 inch**.
 - b. Number of Coats: **One**.
 - 4. Aggregates: Marble, Silica Sand and Quartz
- D. Topcoat: Sealing or finish coats.
 - 1. Resin: **Urethane**.
 - 2. Formulation Description: **Water based**.
 - 3. Type: **Clear**.
 - 4. Finish: **Epoxy**.
 - 5. Number of Coats: **One**.
- E. System Physical Properties: Provide resinous flooring system with the following minimum physical property requirements when tested according to test methods indicated:



1. Compressive Strength: 17,800 psi after 7 days per ASTM C 579.
2. Adhesion Strength: ASTM-D-4541 >500 psi with 100% concrete failure.
3. Tensile Strength: 7,100 psi after 7 days per ASTM C 307.
4. Flexural Modulus of Elasticity: 10,000 psi after 7 days per ASTM C 580.
5. Coefficient of Linear Expansion: 2.5×10^{-5} per ASTM D-696.
6. Linear Shrinkage: ASTM C-531 <.02% Specifications for SoySTEP Flooring System
7. Water Absorption: <.2% per ASTM D-570.
8. Indentation: Shall not exceed 1 percent maximum per ASTM D-2794.
9. Impact Resistance: No chipping, cracking, or delamination per MIL-D-24613 ASTM D-2794 >24,000 psi..
10. Abrasion Resistance: MIL-D-24613, MIL-STD-1623 42 mg ASTM C-501 18mg.
11. Temperature Resistance ASTM D-2794 150-200 F No visible softening, cracking or delaminating.
12. Flame Spread MIL-D-24613, MIL-STD-1623 PASSED ASTM E-84 <3 Class A
Flammability ASTM D-570 Self Extinguishing Critical Rad Flux E-648 >1.07w/cm
13. Smoke Developed MIL-D-24613, MIL-STD-1623 PASSED Smoke Density ASTM E-662 <3.
14. Critical Radiant Flux: E-648 >1.07w/cm².
15. Odor ASTM D-2794 Free from objectionable odors.
16. Weight ASTM D-2794 1.2 lbs/ft² @ 1/8" thickness.
17. Hardness: At 14 days Shore D 80 per ASTM D 2240.

F. Chemical Resistance

Chemical Resistance @ 25°C (77°F) after curing 7 days

<u>Duration in weeks</u>	<u>1</u>	<u>2</u>	<u>4</u>	<u>8</u>
Distilled water	+	+	+	+
Sea water	+	+	+	+
Sulfuric acid, 30%	+	+	+	+
Sulfuric acid, 70%	+	+	+	+
Hydrochloric acid, 10%	+	+	+	+
Hydrochloric acid, 20%	+	+	+	+
Acetic acid, 5%	+	+	+	+
Ammonia, 10%	+	+	+	+
Toluene	a	a	a	a
MIBK	a	a	a	a
Ethanol, 50%	a	d	d	d
Gasoline, high test	+	+	+	+
Pine oil	+	+	+	+

+ = Resistant Film thickness 12 – 16mils
 a = Affected Cure Schedule 7 days at 21°C
 d = Destroyed Substrate, Sandblasted steel

- G. Patching and Fill Material: Resinous product of or approved by resinous flooring manufacturer and recommended by manufacturer for application indicated.



PART 3 - EXECUTION

3.1 PREPARATION

- A. General: Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean, dry substrate for resinous flooring application.
- B. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring.
 - 1. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written instructions.
 - 2. Alkalinity and Adhesion Testing: Verify that concrete substrates have pH within acceptable range. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.
- C. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.
- D. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.
- E. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written instructions.

3.2 APPLICATION

- A. General: Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
 - 1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
 - 2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
 - 3. At substrate expansion and isolation joints, comply with resinous flooring manufacturer's written instructions.
- B. Vertical Application:
- C. Integral Cove Base: Apply cove base mix to wall surfaces before applying flooring. Apply according to manufacturer's written instructions and details including those for taping, mixing, priming, troweling, sanding, and topcoating of cove base. Round internal and external corners.
 - 1. Integral Cove Base: **6 inches** high.
- D. Apply troweled body coats at 1/8" for flooring system. Hand or power trowel to fill voids. When cured, remove trowel marks and roughness using method recommended by manufacturer.



- E. Apply topcoats in number indicated for flooring system and at spreading rates recommended in writing by manufacturer.

3.3 PROTECTION

- A. Protect resinous flooring from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by resinous flooring manufacturer.

END OF SECTION 09671