

**SECTION 09 67 23
RESINOUS FLOORING**

Addendum 01 (24-0328): Section revised and reissued.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General Conditions and other Division 1 Specification Sections, apply to the Work of this Section, with special attention to the following:
 - 1. Section 01 81 13 - Sustainable Design Requirements
 - 2. Section 03 30 00 – Cast in Place Concrete

1.2 DESCRIPTION OF WORK

- A. Section includes necessary labor and materials required for installation of an epoxy and silica aggregate mortar, high build grout and seal coat, skid inhibiting flooring system including floor surface preparation, on concrete floors. Refer to Drawings for extent of coating required and for locations to receive coating in addition to the following:
 - 1. Apparatus Bay

1.3 SHOP DRAWINGS AND PRODUCT DATA

- A. Comply with applicable provisions of section 01 33 00.
- B. Product Literature: Submit the following:
 - 1. Manufacturer's Technical data including information about product type, recommended use, performance characteristics, substrate preparation, application recommendations, and safety precautions.
 - 2. Material Safety Data Sheets (MSDS) indicating ingredients, health hazard data, first aid procedures, reactivity data, and other special precautions.
 - 3. Samples for Verification: 6-inch square, applied to a rigid backing by Installer for this Project.
 - 4. Installer Certificates: Signed by the manufacturer certifying that installers comply with specified requirements.
 - 5. Maintenance Data: For resinous flooring to include maintenance manuals.
- C. Samples for Initial Selection: For each type of exposed finish required.
- D. Samples for Verification: For each resinous flooring system required, 6 inches square, applied to a rigid backing by Installer for this Project.
- E. Sustainable Design Submittals: Provide LEED Submittal in accordance with 018113 to include completed "LEED Submittal Coversheet" and provide manufacturer supporting documentation that identifies the LEED product requirements listed in PART 2.
- F. Informational Submittals:
 - 1. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.

2. Material Certificates: For each resinous flooring component, from manufacturer.
 3. Material Test Reports: For each resinous flooring system, by a qualified testing agency.
- G. Closeout Submittals:
1. Maintenance Data: For resinous flooring to include in maintenance manuals.

1.4 REFERENCE STANDARDS

- A. ASTM D4263 – Standard Test Method for Indicating Moisture in Concrete.

1.5 WARRANTY

- A. Provide manufacturer's standard warranty for replacement due to defective coatings and or workmanship for a minimum period of one (1) year from effective date of warranty commencement. See Section 01740.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer (applicator) who is experienced in applying resinous flooring systems similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance, and who is acceptable to resinous flooring manufacturer.
1. Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.
 2. Contractor shall have completed at least 10 projects of similar size and complexity.
- B. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, through one source from a single manufacturer, with not less than ten years of successful experience in manufacturing and installing principal materials described in this section. 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. Manufacturer Field Technical Service Representatives: Resinous flooring manufacture shall retain the services of Field Technical Service Representatives who are trained specifically on installing the system to be used on the project.
1. Field Technical Services Representatives shall be employed by the system manufacturer to assist in the quality assurance and quality control process of the installation and shall be available to perform field problem solving issues with the installer.
- D. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Apply full-thickness mockups on 96-inch-square floor area selected by Architect.
 2. Simulate finished lighting conditions for Architect's review of mockups.
 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- E. Preinstallation Conference: Conduct conference at Project site.

1. General contractor shall arrange a meeting not less than thirty days prior to starting work.
2. Attendance:
 - a. General Contractor.
 - b. Architect/Owner's Representative.
 - c. Manufacturer's technical representative.
 - d. Installer.
3. Review project conditions and product installation requirements. Review schedule and material availability.
4. Review mockup.

1.7 PRODUCT, DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in sealed, unopened containers with coating manufacturer's labels intact.
- B. Store materials in protected area at a temperature not to exceed maximum and minimum temperature as recommended by manufacturer. Protect from freezing.

1.8 FIELD 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 24 hours after application unless manufacturer recommends a longer period.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Sustainable Design Requirements:
 1. EQc Low-Emitting Materials (Flooring Category):
 - a. General Emissions Evaluation: Flooring products must have been tested according to California Department of Public Health (CDPH) Standard Method v1.2–2017 using Office Environment (i.e. FloorScore, GREENGUARD GOLD).
- B. VOC Content of Liquid-Applied Flooring Components: Not more than 100 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- C. Flammability: Self-extinguishing according to ASTM D 635.

2.2 ACCEPTABLE COATING MANUFACTURERS

- A. **EREZ-1 Basis of Design:** General Polymers TPM #115-U4 Upgraded Troweled Mortar System by Sherwin Williams, 101 W. Prospect Ave., Cleveland, Ohio 216-566- 2000 (sherwin-williams.com)

- B. Requests for substitutions shall be made in accordance with the Contract provisions. All substitution product requests shall be accompanied with samples, data sheets, and unit costs of both the originally specified product and the product substitution.
- C. Other manufacturers who may offer acceptable products include but may not be limited to the following:
 - 1. Industrial Protective Coatings, Inc.
 - 2. Tennant Company.
 - 3. Tnemec.

2.3 PRODUCT DESCRIPTION AND REQUIREMENTS

- A. Concrete Primer: Two Part, 3579 A and 3579 B epoxy.
- B. Mortar: 3561 A, 3561 B' and 5115 aggregate.
- C. Bonding/Broadcast Coat: 3745 A, 3745 B, and 5310 Dry Silica Sand aggregate.
 - 1. Apply 3745 using a spring steel trowel or red rubber squeegee.
 - 2. Broadcast 5310 to excess into wet bonding coat.
- D. Grout Coat: 3745 A, 3745 B
 - 1. Apply 3745 using a spring steel trowel or red rubber squeegee.
- E. Top Coat: 3745 A, 3745 B

PART 3 - EXECUTION

3.1 PRE-APPLICATION INSPECTION

- A. Examine surfaces to be coated. Notify the Architect and Owner's Representative in writing of any conditions that would adversely affect the appearance or performance of the coating.
- B. Do not proceed with surface preparation until observed adverse conditions have been corrected.
- C. Moisture Testing: Perform tests so that each test area does not exceed 1000 sq. ft. and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.
 - 1. Anhydrous Calcium Chloride Test: ASTM F 1869. Proceed with application of resinous flooring only after substrates have maximum moisture-vapor-emission rate of 3 lb. of water/1000 sq. ft. of slab area in 24 hours.
 - 2. Relative Humidity Test: Use in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.
 - 3. 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.

3.2 SURFACE PREPARATION

- A. General

1. Floor surfaces shall be clean, dry, and free from loose and peeling paint, dirt, grease, and other contaminants.
 2. Grind patched, raised, and uneven surfaces.
 3. Follow manufacturer's written recommendations for surface preparation.
- B. Unpainted Concrete
1. New concrete shall be allowed to cure at least 28 days before applying floor coating. Test new concrete for moisture content in accordance with ASTM D4263.
 2. Remove dirt and other debris by sweeping and/or scraping.
 3. Remove contaminants such as grease or oil by use of solvents or detergents. Thoroughly rinse to remove residue and allow surface to dry completely.
 4. Where surface coatings such as hardeners and sealers have been applied, remove by means of acid etching, followed by a thorough rinsing. Allow surface to dry completely.
- C. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written instructions.

3.3 ENVIRONMENTAL CONDITIONS

- A. Apply coating only when ambient, floor surface, and coating material temperatures are above 50°F. In addition, floor surface temperature shall be at least 5°F above the dew point. Permissible temperature ranges are as follows:
1. Ambient: 50°F to 100°F
 2. Coating Material: 50°F to 90°F
 3. Substrate (Floor): 50°F to 130°F

3.4 PAINT GRAPHICS

- A. The floor coating system in apparatus bay includes three (3) colors. Refer to drawings for graphic layout.
1. Color 1: Field color.
 2. Colors 2 and 3: Striping colors.
- B. Floor coating system shall be installed such that all floor areas have the same number of finish coats. After prime coat has cured, install Color 1 field color throughout the entire apparatus bay.
1. After Color 1 has cured, layout striping with masking and install 4" wide Color 3 striping.
 2. Next, install Color 2 striping between Color 3 striping.
 3. Lastly, install a second coat of Color 1 over the first coat of Color 1 between Color 3 striping.
- C. Install gloss clear top coat over entire apparatus bay floor to achieve a monolithic appearance.

3.5 MATERIAL PREPARATION

- A. Blend components "A" and "B" together in accordance with Manufacturer's written instructions and recommended mixing rate. Do not use mixed material beyond recommended Pot Life.

3.6 SAFETY PROCEDURES

- A. Carefully follow manufacturer's written recommendations and precautionary information regarding safe application of coating.
- B. Maintain adequate ventilation during application. If ventilation is restricted or cannot be maintained, workmen shall wear NIOSH/MSHA approved respirators.
- C. Contractor's personnel shall be familiar with potential health hazards associated with application of coating.

3.7 FIELD QUALITY CONTROL

- A. Material Sampling: Owner may, at any time and any number of times during resinous flooring application, require material samples for testing for compliance with requirements.
 - 1. Owner will engage an independent testing agency to take samples of materials being used. Material samples will be taken, identified, sealed, and certified in presence of Contractor.
 - 2. Testing agency will test samples for compliance with requirements, using applicable referenced testing procedures or, if not referenced, using testing procedures listed in manufacturer's product data.
 - 3. If test results show applied materials do not comply with specified requirements, pay for testing, remove noncomplying materials, prepare surfaces coated with unacceptable materials, and reapply flooring materials to comply with requirements.
- B. Core Sampling: At the direction of Owner and at locations designated by Owner, take one core sample per 1000 sq. ft. of resinous flooring, or portion of, to verify thickness. For each sample that fails to comply with requirements, take two additional samples. Repair damage caused by coring. Correct deficiencies in installed flooring as indicated by testing.

3.8 CLEAN-UP

- A. Promptly remove all excess materials associated with the coating application from the premises and dispose of legally.
- B. Remove coating splatters from all adjoining surfaces not scheduled to be coated.
- C. Repair damage to adjacent coatings surfaces, materials and/or equipment, where such damage has been caused as a result of the coating application.

3.9 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