

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 resinous flooring systems.

1.3 QUALITY ASSURANCE

- A. All materials must be recommended and manufactured by a single supplier to insure compatibility and proper chemical and mechanical bond.

B. Surfacing shall be applied by a surfacing applicator approved by the Owner, with a minimum of seven (7) years experience installing the brand of surfacing in similar size and function projects. A list of ten (10) completed projects using the specified materials must be submitted proving seven (7) years experience by the lead mechanic.

C. Surfacing applicator shall provide to the Owner a completed list of jobs including the names of the Architect, General Contractor, Owner, telephone numbers of all concerned, materials used, quantity installed and date completed on similar projects.

D. Surfacing applicator must provide a written guarantee for materials and workmanship between applicator and surfacing manufacturer for one (1) year.

E. Surfacing applicator or manufacturer seeking approval of products other than what is specified must supply samples, full product information, technical data with specifications, certification from an independent testing laboratory that the product being submitted for approval meets all requirements of the performance properties specified within this specification, installation instructions and comply with the above quality assurances in writing fourteen (14) days before bid letting. Omission of any item will result in an automatic rejection.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product. Include manufacturer's technical data, application instructions, and recommendations for each resinous flooring component required.

B. Samples for Initial Selection: For each type of exposed finish required.

C. Samples for Verification: For each resinous flooring system required, 6 inches square, applied to a rigid backing by Installer for this Project.

1.5 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.

1.6 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 PERORMANCE REQUIREMENTS

- A. Flammability: Self-extinguishing according to ASTM D 635.

2.2 MANUFACTURERS

- A. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, from single source from single manufacturer. Obtain secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from manufacturer recommended in writing by manufacturer of primary materials.

2.3 RESINOUS FLOORING – Broadcast (Drawing Indication: RES1)

- A. Resinous Flooring System: Abrasion-, impact-, and chemical-resistant, aggregate-filled, and resin-based monolithic floor surfacing designed to produce a seamless floor without integral cove base.

- 1. Installers: Subject to compliance with requirements, provide products as installed by one of the following: Refer to products listed in specification for manufacturer's product system specifications.

- a. Desco Coatings.
- b. Epoxy Coating Specialists.
- c. Treadwell.
- d. Uni Floor.

- B. System Characteristics:

- 1. Color and Pattern: custom color mixes will be used; contractor to provide samples for Owner selection. Refer to drawings for number of color mixes used.
- 2. Wearing Surface: Orange-peel texture.
- 3. Overall System Thickness: 1/8 inch.

- C. Primer: Type recommended by resinous flooring manufacturer for substrate and resinous flooring system indicated.

- 1. Subject to compliance with requirements, provide product by one of the following:

- a. Tennant: MPE Epoxy
- b. Desco: Primer
- c. Tnemec: Epoxoprime Series 201
- d. Dur-a-Flex: WB glaze 4

- 2. Formulation Description: 100 percent solids.

- D. Moisture Vapor Reducer Primer:

- 1. Moisture Vapor Reducer: type recommended by resinous flooring manufacturer for substrate and resinous flooring system indicated. Product must have the ability to bond to

concrete with a relative humidity (RH) as high as 99% at 40% depth and designed to reduce moisture vapor emission levels up to 20 lbs/1000 sq ft.

2. Subject to compliance with requirements, provide product by one of the following:

- a. Tennant: MVS.
- b. Desco: Hydrabond.
- c. Tnemec: MVT Series 208.
- d. Dur-a-Flex: Dur-a-Glaze.

E. Reinforcing Membrane: Flexible resin formulation that is recommended by resinous flooring manufacturer for substrate and resinous flooring system indicated and that inhibits substrate cracks from reflecting through resinous flooring.

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

G. Body Coats:

1. Subject to compliance with requirements, provide product by one of the following:

- a. Tennant: Eco-DFS.
- b. Desco: Granite Series.
- c. Tnemec: Deco Fleck Series 224.
- d. Dur-a-Flex: Dur-a-Chip.

2. Resin: Epoxy.

3. Formulation Description: 100 percent solids.

4. Type: Clear.

5. Application Method: Self-leveling slurry with broadcast aggregates Self-leveling slurry.

6. Number of Coats: Two.

7. Thickness of Coats: 1/8 inch.

8. Aggregates: Vinyl flakes from either Torginol or Chips Unlimited.

H. Grout Coat:

1. Subject to compliance with requirements, provide product by one of the following:

- a. Tennant: Eco-URE.
- b. Desco: Grout.
- c. Tnemec: Series 224.
- d. Dur-a-Flex: Glaze 4.

2. Resin: Epoxy.

3. Formulation Description: 100 percent solids.

4. Type: Clear.

5. Thickness of Coat: 8 - 12 mils

I. Topcoats: Sealing or finish coats.

1. Subject to compliance with requirements, provide product by one of the following:

- a. Tennant: Eco-HTS.
- b. Desco: WBU Satin.
- c. Tnemec: Everthane Series 248.
- d. Dur-a-Flex: Armor Top.

2. Resin: Epoxy.
3. Formulation Description: 100 percent solids.
4. Type: Clear Pigmented.
5. Number of Coats: One.
6. Thickness of Coats: 3 - 5 mils
7. Finish: Gloss.

J. System Physical Properties: Provide resinous flooring system with the following minimum physical property requirements when tested according to test methods indicated:

1. Compressive Strength: 10,000 psi minimum according to ASTM C 579.
2. Tensile Strength: 2,2050 psi minimum according to ASTM C 307.
3. Flexural Modulus of Elasticity: 4,000 psi minimum according to ASTM C 580.
4. Impact Resistance: No chipping, cracking, or delamination and not more than 1/16-inch permanent indentation according to MIL-D-3134J.
5. Resistance to Elevated Temperature: No slip or flow of more than 1/16 inch according to MIL-D-3134J.
6. Abrasion Resistance: 0.08 mg loss maximum weight loss according to ASTM D 4060.
7. Hardness: 85-90, Shore D according to ASTM D 2240.

2.4 RESINOUS FLOORING – Trowelled (Drawing Indication: RES2)

A., Resinous Flooring System: Abrasion, Impact, and chemical-resistant, aggregate filled and resin-based monolithic floor surfacing designed to produce a seamless floor with integral cove base.

Installers: Subject to compliance with requirements, provide products as installed by one of the following: Refer to products listed in specification for manufacturer's product system specifications.

- a. Desco Coatings.
- b. Epoxy Coating Specialists.
- c. Treadwell.
- d. Uni Floor.

B. Body Coats:

- a. Resin: Epoxy .
- b. Formulation Description: 100 percent solids.
- c. Type: Clear.
- d. Application Method: Troweled or screeded.
- e. Number of Coats: One.
- f. Thickness of Coats: 1/8 inch (3.2 mm).
- g. Aggregates: Manufacturer's standard.

C. Overall Thickness: 3/16 inch.

D. Waterproofing Membrane: Type recommended by resinous flooring manufacturer for substrate and resinous flooring system indicated.

- a. Provide manufacturer's standard moisture barrier system.
- c. Formulation Description: 100 percent solids.

PART 3 - EXECUTION

3.1 PREPARATION

RESINOUS FLOORING

A. 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. Roughen concrete substrates as follows:

a. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.

2. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written instructions.

3. Verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels according to manufacturer's written instructions.

a. 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.

b. Plastic Sheet Test: ASTM D 4263. Proceed with application only after testing indicates absence of moisture in substrates.

c. 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.

4. 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. Patching and Filling: Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.

1. Install control and expansion joints in accordance with standard practice per ACI-501.

2. The floor contractor may fill non-moving control joint(s) with approved elastomeric sealant or full depth semi-rigid two-component epoxy joint filler, designed specifically for this purpose (use full depth joint filler when reinforcement of the joint edges is desirable), or two-component epoxy and filler (epoxy to be same material as flooring).

3. Filling of moving isolation joints or expansion joints is not recommended.

4. Filling of non-moving isolation joints with elastomeric caulking and sealants or with a semi-rigid epoxy joint filler or two-component epoxy and filler is acceptable.

5. Joint identified by owner/designer or general contractor as moving joints shall be treated by terminating flooring on each side of joint. After flooring is completed, joint shall then be filled by sealant contractor.

D. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.

3.2 APPLICATION

- A. 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. Expansion and Isolation Joint Treatment: At substrate expansion and isolation joints, comply with resinous flooring manufacturer's written instructions.
- B. Primer: Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- C. Reinforcing Membrane: Apply reinforcing membrane to substrate cracks.
- D. 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.
- E. Self-Leveling Body Coats: Apply self-leveling slurry body coats in thickness indicated for flooring system.
1. Aggregates: Broadcast aggregates at rate recommended by manufacturer and, after resin is cured, remove excess aggregates to provide surface texture indicated.
- F. Grout Coat: Apply grout coat, of type recommended by resinous flooring manufacturer, to fill voids in surface of final body coat.
- G. Topcoats: Apply topcoats in number indicated for flooring system and at spreading rates recommended in writing by manufacturer and to produce wearing surface indicated.

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 096723