

SECTION 096723 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 SUMMERY

A. Section Includes:

1. High-Performance Polyurethane Resinous flooring systems.
2. Decorative Polyurethane Resinous flooring systems.

B. Related Sections:

1. Division 03 Sections for Concrete and Concrete Curing methods
2. Division 03 Sections for concrete slab levelness and slope to drain tollerances.
3. Division 03 Sections for Cementitious Decks and Toppings.
4. Division 07 Section for “Joint Sealants” for sealants installed at joints in resinous flooring systems.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufactures technical data, application instructions, and recommendations for each resinous flooring system required.

B. LEED Submittal:

1. Product Data for Credit IEQ 4.2: for Liquid-applied flooring components documentation including printed statement of VOC content.

- C. Samples for Verification: For each resinous flooring system required, 12 inches square (30cm Square) applied to a rigid backing by installer for this project.

- D. Product Schedule: For Resinous flooring use same designations indicated on Drawings.

- E. Installer Certificates: Signed by manufacturer certifying that the installers use on this project have been trained and certified by the manufactured in the proper installation of the specified resinous flooring system.

- F. Material certificates: For each Resinous flooring system certifying that the system components meet the criteria specified, from the manufacturer.

- G. Maintenance Data: Provide manufactures O & M maintenance recommendations for the resinous flooring system specified.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced manufacturer trained and approved installer (applicator) who is experienced in applying flooring systems similar in material, design and extent to those indicated for this project, whose work has resulted in applications with record of successful in-service performance, and who is acceptable to resinous flooring Manufacturer.
 - 1. Engage an installer who employs only persons trained and approved by resinous flooring manufacturer for applying resinous flooring systems indicated.
 - 2. 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, resinous, hardening agents, grouting coats, and topcoats, from single source and single manufacturer. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and source from the resinous flooring manufacturer or products recommended by the resinous flooring manufacturer.

- C. References: Installer shall submit examples of not less than three (3) projects of similar size and complexity. Include project name and location type of flooring installed, date of completion, and owners contact name and telephone number.

- D. Material Certificates: For each resinous flooring component signed by Manufacturer.

- E. Maintenance Data: For resinous flooring system providing recommendations and required maintenance data.

- F. Job Site file: installer to organize and maintain the following in the construction office and the job site for turnover to the Owner at Substantial Completion
 - 1. Installation instructions.
 - 2. Work log.
 - 3. Environmental Data log: Including temperature and relative humidity beginning not less than one (1) month before installation. May use local weather records for this report.
 - 4. System component Material Safety Data Sheets (MSDS) or Safety Data Sheets (SDS)
 - 5. Test records from Owner's testing agency

- G. Mandatory Testing By Owners testing agency:
 - 1. ASTM E 1907 Standard Guide to Methods of Evaluating Moisture Conditions of Concrete Floors to Receive Resilient floor Coverings.
 - a. ASTM F 1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Sub-floor Using Anhydrous Calcium Chloride.

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- b. ASTM D 4263 Standard Test method for Indicating Moisture I Concrete by the Plastic sheet method.
- c. ASTM F 2170 Standard Test Method for Determining Relative humidity in Concrete Slabs Using in-situ Probes.

2. ASTM F 710 Standard practice for preparing concrete Floors to receive Resilient Flooring.
3. ASTM D 4501 Standard Test method for Shear Strength of Adhesive Bonds between Rigid Substrates by the Block-Shear method.

1.5 DELIVERY STORAGE AND HANDELING

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

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with resinous flooring Manufactures written instructions for substrate temperature, ambient Temperature, moisture, ventilation and other conditions affecting resinous flooring application.
- B. Lighting: Provide permanent lighting producing a minimum of 50 foot candles uniform distribution or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.
- C. Protection of floor application: Close spaces to traffic during resinous flooring application and for not less than twenty-four (24) hours after application unless Manufacturer recommends a longer period.
- D. Mitigation of Damaging Conditions: Leaks from piping, condensate spills from air conditioning systems and other sources of intrusion upon the resinous floor application area must be corrected prior to commencement of the floor application.

1.7 WARRANTY

- A. Manufactures Standard Form in which manufacturer agrees to repair resinous flooring that fails in materials or workmanship within specified warranty period.
 1. Warranty period: On year from date of completion of installation.
- B. Warranty limitations: Warranty does not cover damage due to
 1. Structural design that produces slab cracking from lateral, vertical or rotational slab movement.
 2. Damage caused by others: Including gauging or other damage caused by forklifts or other trades.
 3. Delamination caused by vapor transmission.

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4. Acts of God, or other elements beyond the scope of protection of the flooring system nor causes not related to the system materials.
- C. Warranty Claim Procedures: Owner will notify the Manufacturer/Contractor in writing within thirty (30) days of the first appearance of a problem covered under this warranty. Owner will provide free and unencumbered access to the area during normal working hours for warranty rework. Property protection is the owner's responsibility. Remedy is limited to the direct repair of the resinous flooring system.

PART 2 – PRODUCTS

2.1 MANUFACTURES – HIGH PERFORMANCE RESINOUS FLOORING

- A. Basis-of Design Product: DecoFloor™ Quartz Aggregate System DFL-130 as manufactured by Gold Medal Construction Corporation. 5615 2nd Street West, Lehigh Acres, FL 33971, Ph. (239) 303-7380, Fax (239) 303-7364 Email ghrunka@earthlink.com web: www.thedecofloor.com
1. Other high performance Polyurethane resinous flooring system as selected by Architect.

2.2 MATERIALS

- A. VOC Content of Resinous Flooring : Provide Resinous flooring systems for use inside a weatherproof building system that comply with the following limits for (Volatile Organic Compound) VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24)
1. Resinous Flooring system: Zero VOC content.
- B. General Description: Abrasion, impact and chemical-resistant, high-performance-aggregate filled, resin based, monolithic surfacing designed to produce a seamless floor and integral cove base.
- C. System Characteristics:
1. Color and pattern: to be selected by Architect from manufactures full standard color range.
 2. Wearing Surface: Textured for slip resistance.
 3. Integral cove base:
 - a. Integral cove base to be 4 inches (10.24 cm) high.
 - b. Integral cove base to be 6 inches (15.24 cm) high.
 - c. Integral cove base to be as indicated on drawings (4 or 6 inches)
 4. Overall System thickness: 1/8 inch, 0.125 inch, (3.1750 mm)
 5. System identification: DecoFloor™ Quartz Aggregate System DFL-130

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D. Primer Coat:

1. Composition: Polyurethane Floor Primer with moisture mitigation properties when applied in identified wet areas.
2. Formulation Description: 100% solids
3. VOC content: Zero (no) VOC content.

E. Body coat:

1. Resin: Polyurethane slurry coat with Quartz Aggregates
2. Matrix: Quartz Aggregate in an Aliphatic Urethane colored slurry.
3. Formulation Description: 100% solids
4. VOC Content: Zero (no) VOC content.

F. Topcoat:

1. Resin: Polyurethane Clear Gloss Sealer coat.
2. Formulation Description: 100% solids.
3. VOC Content: Zero (no) VOC content.
4. Application two (2) coats.

G. System Physical Properties:

1. Hardness: 70 Shore D, per ASTM D-2240.
2. Tensile Strength: 2,500 PSI, per ASTM D-638.
3. Elongation: 65%, per ASTM D-638.
4. Bond Strength: >400 psi (100% Concrete Failure), per ASTM D-7234.
5. Critical Radiant Flux of Floor Covering: >1.16 W/cm² Class I, per ASTM E684-03
6. Anti-Microbial Growth: Passes Anti-Fungal test; Coating is devoid of Microbial growth, Per MIL 810 G.
7. Coefficient of Friction: 0.78 μ_s N, per ASTM 2047
8. Abrasion Resistance: <0.1070 mg, per ASTM D-4060, CS17.

H. System Chemical Resistance: Test specimens of cured resinous Flooring system are unaffected when tested according to ASTM C267 for immersion in the following regents for no fewer than seven days.

1. Flooring to resist common chemicals used in a commercial cooking kitchen producing institutional foods for human consumption.

2.3 MANUFACTURES - DECORATIVE RESINOUS FLOORING

- A. Basis-of Design Product: DecoFloor™ Flake Aggregate System DFL-210 as manufactured by Gold Medal Construction Corporation. 5615 2nd Street West, Lehigh Acres, FL 33971, Ph. (239) 303-7380, Fax (239) 303-7364 Email ghrunka@earthlink.com
web: www.thedecofloor.com

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1. Other decorative Polyurethane resinous flooring system as selected by Architect.

2.4 MATERIALS

- A. VOC Content of Resinous Flooring : Provide Resinous flooring systems for use inside a weatherproof building system that comply with the following limits for (Volatile Organic Compound) VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24)

1. Resinous Flooring system: Zero VOC content.

- B. General Description: Abrasion, and impact resistant, Decorative-aggregate filled, resin based, monolithic surfacing designed to produce a seamless floor and integral cove wall base.

- C. System Characteristics:

1. Color and pattern: to be selected by Architect from manufactures full standard color range.
2. Wearing Surface: Textured for slip resistance.
3. Integral cove base:
 - a. Integral cove base to be 4 inches (10.24 cm) high.
 - b. Integral cove base to be 6 inches (15.24 cm) high.
 - c. Integral cove base to be as indicated on drawings (4 or 6 inches)
4. Overall System thickness: 1/6 inch-1/8 inch minimum, 0.0625 inch - 0.125 inch, (1.5875 mm - 3.1750 mm)
5. System identification: DecoFloor™ Flake Aggregate systemDFL-210

- D. Primer Coat:

1. Composition: Polyurethane floor primer.
2. Formulation Description: 100% solids
3. VOC content: Zero (no) VOC content.

- E. Body Coat

1. Resin: Polyurethane colored slurry coat with Decorative Vinyl Flake Chips.
2. Formulation Description: 100% solids
3. VOC content: Zero (no) VOC content.

- F. Topcoat

1. Resin: Polyurethane Clear Gloss Sealer Coat.

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2. Formulation description: 100% solids
3. VOC content: Zero (no) VOC content.

G. System Physical Properties:

1. Hardness: 70 shore D, per ASTM D-2240.
2. Tensile Strength: 2.500 PSI, per ASTM D-638.
3. Elongation: 65%, per ASTM D-638.
4. Bond Strength: >400 PSI (100% Concrete Failure), per ASTM D-7834.
5. Critical Radiant Flux of Floor Covering: >1.16 W/cm² Class I, per ASTM E684-03
6. Anti-Microbial Growth: Passes Anti-Fungal test; Coating is devoid of Microbial growth, Per MIL 810 G.
7. Coefficient of Friction: 0.60 μ_s N , per ASTM 2047
8. Abrasion Resistance: <0.3938 mg, per ASTM D-4060, CS17.

2.5 ACCESSORIES

- A. Patch and fill material: Resinous product of / or approved by resinous flooring manufacturer and recommended by manufacturer for application indicated.
- B. Sealant: As recommended by resinous floor manufacturer for use with the resinous flooring system(s) indicated.

PART 3 – EXECUTION

3.1 PREPARATION

A. PRE INSTALLATION PREPARATION:

1. Contractor shall visit the area scheduled to receive the resinous flooring system to evaluate the substrate condition, including substrate moisture transmission, quantity and severity of base slab cracking and the extent of repairs needed.
2. Concrete substrate shall be a sound concrete surface free of laitance, glaze, and efflorescence, curing compounds, form release agents dust, dirt, grease, oil and other contaminants incompatible with resinous flooring.
3. Concrete base slab moisture content and areas relative humidity must be within the tolerance range of the resinous flooring manufactures recommendations.
4. Prior to the resinous flooring installation the contractor shall prepare the concrete base slab to remove laitance and open the surface by means of light brush grit blasting or by acid etching. The surface profile shall be similar to medium grit sandpaper and free from bonding agents.
5. Each floor drain in the area to receive Resinous flooring shall be set to the finish height of the resinous flooring system used.
6. Prior to installation minimum concrete slab and room temperature shall be a minimum of 60 degrees F (16 degrees C) before commencing installation, during

installation and for at least 72 hours after installation is complete. The substrate temperature must be at least 5 degrees (2.8 Degrees C) above the dew point during installation.

7. Resinous flooring installation shall not commence before the installer has accepted the base slab in writing.

3.2 APPLICATION – HIGH PERFORMANCE RESINOUS FLOORING

- 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 floor system to substrate, and optimum inter-coat 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 manufacture's written instructions.
 - a. Isolation / Expansion and other cast joints subject to movement shall be honored through the flooring system
- B. Integral Cove Wall 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, trawling, sanding, and top coating the cove wall base. Round interior and external corners. Wall base height as specified or as indicated on drawings.
- C. Application of Body Coat: Apply troweled body coats in thickness indicated for flooring system. Hand or power trowel to fill voids. When cured remove trowel marks and roughness using method recommended by manufacturer.
- D. Application of topcoat(s): Apply clear polyurethane top coats in number indicated for this flooring system and at spread rates recommended in writing by the manufacturer.

3.3 APPLICATION – DECORATIVE RESINOUS FLOORING

- A. General:
 1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum inter-coat adhesion.
 2. Cure resinous flooring components according to Manufacturer's written instructions. Prevent contamination during application and curing process.
 3. Do not use water or steam in the vicinity of the application.

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4. Only apply when the relative humidity is less than 80%.
 5. Apply with adequate ventilation.
 6. Follow resinous flooring manufactures recommendations for application procedures.
 7. At substrate expansion and isolation joints continue the joint to the top of the resinous flooring system.
- B. Integral Cove Wall Base: apply cove wall base to wall surfaces before applying flooring. Apply wall base according to manufactures written instructions and details including those for taping, mixing, priming, troweling, sanding, and top-coating of the coved wall base. Round internal and external corners. Wall base height as specified or as indicated on drawings.
- C. Application of Body Coat: Apply Vinyl Chip Infused Polyurethane base coats in method as provided by the resinous flooring manufacturer. Provide color coat and subsequent coats in a manor to produce a homogenous evenly colored floor system.
- D. Application of Topcoat: Apply clear polyurethane sealer coat as directed by the resinous flooring manufacturer.

3.4 CLEANING AND PROTECTION

- A. General Contractor shall protect the resinous floor system from damage and wear during the remainder of the construction period. Use protective methods and materials including temporary coverings and protection methods as directed by the resinous flooring manufacturer. If required, remove temporary coverings just prior to final inspection.
- B. Clean the resinous floor system just prior to final inspection, following the cleaning solutions and cleaning methods as recommended by the resinous floor manufacturer.
- C. Owner is to follow the cleaning means and methods to maintain the resinous floor system as outlined in the O & M data provided with the resinous flooring system.

END OF SECTION 096723