

## SECTION 09 67 23 - RESINOUS FLOORING

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section includes:

1. Cementitious urethane resinous flooring system.

#### 1.2 DEFINITIONS

- A. Approved Standard Sample: Manufacturer's standard sample pre-approved by Owner showing color and texture developed exclusively for the Owner and maintained by Manufacturer.

#### 1.3 ADMINISTRATIVE REQUIREMENTS

- A. Approved Applicators: Contact resinous flooring manufacturer to obtain a list of approved qualified applicators located within the geographic region of the Project. Accept pricing only from qualified applicators approved by the resinous flooring manufacturer.
- B. Sequencing: Resinous flooring installation must be completed within a 12 hour time frame. This includes existing floor preparation, installation of body and topcoat, and required cure time ready for foot traffic. Time frame does not include any required patching of existing concrete floor slab.

#### 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: Approved Standard Sample for each exposed finish.
- C. Qualified Installers: Complete list of manufacturer certified/approved installers available for the work.
- D. Qualification Data of Selected Installer: Written information that demonstrates capabilities and experience of selected firm. Include list of at least 10 completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- E. Installer Certificate/Letter of Approval: Signed by manufacturer certifying that selected installers comply with specified qualification requirements.
- F. Concrete Moisture and Ph Test Reports: For each area where resinous flooring system is to be installed.
- G. Field Technical Services Representative Reports.

- H. Warranties: Sample of special warranties.

## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who employs only persons trained and approved by resinous flooring manufacturer for applying resinous flooring systems indicated and has completed at least ten installations of similar size and complexity.
1. Engage an installer who is certified/approved in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated and has completed at least ten projects of similar size and complexity.
  2. The Installer's supervisor shall be on site at all times and will be thoroughly familiar with the work in progress. This supervisor shall have authority to receive and execute all direction provided by the Architect, manufacturer's field technical services representative, or the Owner.
- B. Field Technical Services Representative Qualifications: Employed by the system manufacturer to assist in the quality assurance and quality control process of the installation and to perform/assist installer with any required field inspections and problem solving with the installer.
- C. Mockups: Apply mockups to verify that material and installation matches the Approved Standard Sample and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Apply full-thickness mockups on 3/4 inch (19 mm), 2 feet by 3 feet (610 mm by 915 mm) exterior grade plywood.
  2. Simulate finished lighting conditions for Owner's review of mockups.
- D. Preinstallation Conference: Conduct conference not less than thirty days prior to starting work at Project site with Contractor, installer, Owner, and manufacturer's field technical services representative.

## 1.6 FIELD CONDITIONS

- A. Site Requirements
1. Temperature: Between 60 deg F (15.6 deg C) and 85 deg F (29.4 deg C) providing the substrate temperature is above the dew point. Consult manufacturer for temperatures outside of this range.
  2. Relative Humidity: Less than 85 percent. Surface temperature shall be at least 5 deg F (15 deg C) above the dew point.
  3. Lighting: Provide adequate lighting equal to the final lighting level during the preparation and installation of the system.
- B. Conditions of new concrete to be coated with cementitious urethane material.

1. Moisture cure concrete for a minimum of 7 days and fully cure for 14 days in accordance with ACI-308 prior to the application of the coating system pending moisture tests. Consult manufacturer for parameters outside of this range.
2. Concrete shall have a flat rubbed finish, float or light steel trowel finish (a hard steel trowel finish is neither necessary nor desirable).
3. Sealers and curing agents should not be used. If sealers and curing agents are used, they must be completely removed prior to installation of the system.

#### 1.7 WARRANTY

- A. General warranty information is specified in Division 01 Section "Product Warranties."
- B. Special Manufacturer's Warranty: Manufacturer agrees to repair or replace components of resinous flooring system that fail in materials or workmanship within specified warranty period.
  1. Warranty Period: Five years.
- C. Special Project Warranty: Submit resinous flooring Installer's warranty, signed by Installer, covering the installation of resinous flooring, including all components of resinous flooring system for the following warranty period:
  1. Warranty Period: Five years.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS:

- A. Manufacturers: Specify store number and address when ordering:
  1. DAF Dur-A-Flex, Inc.
    - a. Contact: Chris Carney; (312) 882-3024; chrisc@dur-a-flex.com.
  2. KEY KeyResin/FlowResin Company.
    - a. Contact: Dan O'Connell, 513-903-7984; doconnell@keyresin.com.
  3. SHW The Sherwin-Williams Company.
    - a. Contact: Scott Kaiser; 503-319-5209; scott.kaiser@sherwin.com.
  4. SIKA Sika Industrial Flooring, Division of Sika USA.
    - a. Contact: Michael Carroll; (206) 406-4400; carroll.michael@us.sika.com.
  5. STHD The Stonhard Group, a part of RPM Performance Coatings.
    - a. Contact: David Senn; (330) 472-6178; dsenn@stonhard.com.

## 2.2 RESINOUS FLOORING (URETHANE SLURRY FLOORING SYSTEM)

- A. Location: Deli, meat, dairy, and other locations as indicated.
- B. System Characteristics:
  - 1. Color: Match Approved Standard Sample for color as specified in Division 01 Section "Interior Finishes and Colors."
  - 2. Wearing Surface: Textured for slip resistance. Match Approved Standard Sample.
  - 3. Overall System Thickness: 1/4 inch (6.4 mm) (exclusive of waterproofing and reinforcing membrane, when required).
- C. System Components: Manufacturer's standard components that are compatible with each other and as follows:
  - 1. Body: Pigmented cementitious urethane resin, 100 percent solids.
    - a. Products:
      - 1) DAF Poly-Crete MDB.
      - 2) KEY Urecon SL.
      - 3) SHW FasTop Multi SL45.
      - 4) SIKA PurCem 22NA.
      - 5) STHD Stonclad UT.
    - b. Color: Match topcoat color.
  - 2. Non-Slip Broadcast: Manufacturer's standard silica sand or quartz aggregate for pigmented topcoat.
  - 3. Topcoat: Gloss, pigmented, two component, solid color polyaspartic topcoat.
    - a. Products:
      - 1) DAF Accelera S.
      - 2) KEY Key Resin #470/471.
      - 3) SHW 4844 or 4850.
      - 4) SIKA Sikafloor 510/510LPL.
      - 5) STHD Stonseal UT-7.
    - b. Color: As specified in Division 01 Section "Décor Interior Finishes and Colors."

## 2.3 ACCESSORY MATERIALS

- A. Patching and Fill Material: Resinous product of or approved by resinous flooring manufacturer and recommended by manufacturer for application indicated.
- B. Contraction (Sawed) Joint Filler and Construction (Cold) Joint Filler: 100 percent solids polyurea filler, Shore A 80 or higher, Rapid curing, self-leveling elastomer.

1. Product:
  - a. Euclid Chemical Company (The); EUCO QWIKjoint 200
  - b. L&M Construction Chemicals, Inc; Joint Tite 750.
  - c. Metzger/McGuire; Spal-Pro RS 88.
  - d. The Sherwin-Williams Company; 4880 Polyurea Joint Sealant.
  - e. Sika USA; Sikafloor Load Flex.
2. Color: As specified in Division 01 Section "Décor Interior Finishes and Colors."

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where resinous flooring will be installed for compliance with requirements for installation tolerances, floor slope, and other conditions affecting performance of the Work. Report any discrepancies to Owner and proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. General: Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean and dry substrate with a Ph of 11-13 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. Concrete Substrate Testing: Perform concrete substrate testing indicated and submit results to Owner for verification. Proceed with application only after substrates pass testing and have been verified by Owner's testing agency.
    - a. Perform in situ probe test, ASTM F 2170. Proceed with application only after substrates do not exceed a maximum potential equilibrium relative humidity of 90 percent.
    - b. Verify that concrete substrates are dry. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with application only after substrates have maximum moisture-vapor-emission rate of 15 lb of water/1000 sq. ft. (6.8 kg of water/92.9 sq. m) of slab in 24 hours.
    - c. Verify that concrete substrates have a Ph of 11-13 and that resinous flooring will adhere to them. Perform tests recommended by manufacturer.
  2. Mechanically abrade the concrete surface as recommended by the resinous flooring manufacturer.
- 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. Install patching and fill material in appropriate time frame prior to installation of resinous flooring to allow for complete cure.
- E. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written recommendations.

### 3.3 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, matching the Approved Standard Sample and approved mockup.
  - 1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion. Do not use primer.
  - 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, provide joint in resinous flooring to comply with resinous flooring manufacturer's written recommendations.
  - 4. For junction points in floor areas adjacent to epoxy flooring that are not covered by details, obtain approval of methods proposed from Owner's Representative prior to proceeding.
- B. Terminations
  - 1. Chase edges to lock the resinous flooring system into the concrete substrate along lines of termination.
  - 2. Penetration Treatment: Lap and seal flooring system onto the perimeter of the penetrating item by bridging over compatible elastomer at the interface to compensate for possible movement.
  - 3. Trenches: Continue coating system into trenches to maintain monolithic protection. Treat cold joints to assure bridging of potential cracks.
  - 4. Treat floor drains by chasing the coating to lock in place at point of termination.
- C. Integral Cove: 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 (150 mm) high.
  - 2. Location:
    - a. Restroom floors as indicated on Drawings.
    - b. Other areas to receive resinous flooring if required by health department of authority having jurisdiction.
- D. Joints and Cracks
  - 1. Treat control joints to bridge potential cracks and to maintain monolithic protection.

2. Treat cold joints and construction joints to bridge potential cracks and to maintain monolithic protection on horizontal and vertical surfaces as well as horizontal and vertical interfaces.
3. Discontinue floor coating system at vertical and horizontal contraction and expansion joints by installing backer rod and compatible sealant after coating installation is completed. Provide sealant type recommended by manufacturer for traffic conditions and chemical exposures to be encountered.

### 3.4 FIELD QUALITY CONTROL

#### A. Resinous Flooring Inspection:

1. Arrange for resinous flooring manufacturer's field technical services representative to inspect resinous flooring installation and perform field problem solving issues with the installer at the following phases of installation:
  - a. Floor preparation.
  - b. Base coat installation.
  - c. Top coat installation.
2. Field technical services representative shall submit report to Owner at each phase of installation stating:
  - a. Any issues noted and resolution of issues.
  - b. Certification that resinous flooring was installed properly and in accordance with this Section and manufacturer's written installation instructions.

#### B. At the direction of Owner and at locations designated by Owner, conduct the following tests:

1. Core Sampling: Take one core sample per 1000 sq. ft. (92.9 sq. m) 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 and correct deficiencies.
2. Bond Test: At the direction of Owner and at locations designated by Owner, conduct bond test using procedures as recommended by the resinous flooring manufacturer.

#### C. Non-Conforming Work: Any area found to be defective, for any reason other than damage caused by the Owner, will result in a complete removal of the material within the room or area and reinstallation or the material at the expense of the Contractor. The Contractor will also be responsible for all additional costs associated with the non-conforming work including but not limited to the following:

1. Removal of fixtures and equipment to a location designated by Owner including disconnecting of utilities.
2. Replacement of fixtures and equipment to original operating location including reconnecting of utilities.
3. Temporary relocation and start up of fixtures and equipment for use by the Owner while corrective work is undertaken.
4. Monetary compensation to Owner due to the interruption of normal business operation as determined by Owner's store operations as a result of any corrective work required.

3.5 PROTECTION AND CLEANING

- A. Protect resinous flooring materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with manufacturer's recommendations for protective materials and method of application.
- B. Remove temporary covering and clean resinous flooring just prior to final inspection. Use cleaning materials and procedures recommended by resinous flooring manufacturer.

END OF SECTION 09 67 23