

# STONCRETE EFX GUIDE SPEC

**SECTION 096723 - RESINOUS FLOORING**

1. GENERAL
   * + 1. RELATED DOCUMENTS
          1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
       2. SUMMARY
          1. This Section includes one resinous flooring system, one with an epoxy body.

Application Method: Plastic power or metal hand troweled.

* + - 1. SUBMITTALS
         1. Product Data: For each type of product indicated. Include manufacturer's technical data, application instructions, and recommendations for each resinous flooring component required.
         2. Samples for Verification: For each resinous flooring system required, 5 inches (150 mm) square, applied to a rigid backing.
         3. Product Schedule: Use resinous flooring designations indicated in Part 2 and room designations indicated on Drawings in product schedule.
         4. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
         5. Maintenance Data: For resinous flooring to include in maintenance manuals.
      2. QUALITY ASSURANCE
         1. No request for substitution shall be considered that would change the generic type of floor system specified (i.e. epoxy mortar-based system). Equivalent materials of other manufactures may be substituted only on approval of Architect or Engineer. Requests for substitution will only be considered if submitted 10 days before the bid date. Requests will be subject to specification requirements described in this section.
         2. 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 approved by the resinous flooring manufacturer.

Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.

The flooring installer shall have completed at least (5) five projects of similar size and complexity.

* + - * 1. 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 the manufacturer of primary materials.
        2. 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.

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.

* + - * 1. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

Apply full-thickness mockups on a 48-inch- (1200-mm-) square floor area selected by Architect.

Include a 48-inch (1200-mm) length of integral cove base.

Approved mockups may become part of the completed Work if undisturbed at the time of Substantial Completion.

* + - * 1. Pre-installation Conference:

The General contractor shall arrange a meeting not less than thirty days before starting work.

Attendance:

General Contractor

Architect/Owner's Representative.

Manufacturer/Installer's Representative.

* + - 1. DELIVERY, STORAGE, AND HANDLING
         1. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating the brand name and directions for storage and mixing with other components.
         2. Store materials to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects. Store material per the product datasheet.
         3. All materials used shall be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate on-site mixing errors. No on-site weighing or volumetric measurements allowed.
      2. PROJECT CONDITIONS
         1. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.

Maintain material and substrate temperature between 65° and 85° degrees Fahrenheit (18° and 30° degrees Celsius) during resinous flooring application and for not less than 24 hours after application.

* + - * 1. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.
        2. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application, unless the manufacturer recommends a longer period.
        3. The concrete substrate shall be properly cured. A vapor barrier must be present for concrete subfloors on or below grade. Otherwise, an osmotic pressure-resistant grout must be installed before the resinous flooring application.

1.7 WARRANTY

* + - * 1. The manufacturer shall furnish a single, written warranty covering both material and workmanship for (1) full year from date of installation, or provide a joint warranty signed on a single document by the material manufacturer and applicator jointly and severally warranting the materials and workmanship for (1) full year from date of installation. A sample warranty letter must be included with bid package or bid may be disqualified.

1. PRODUCTS
   * + 1. RESINOUS FLOORING
          1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include,

Build of Broadcast or liquid-rich type systems will not be accepted, and will result in disqualification from the bid.

* + - * 1. Acceptable Manufacturers,

Stonhard Basis of design.

* + - * 1. Products: Subject to compliance with requirements:

Stonhard, Inc.; Stoncrete EFX.

* + - * 1. System Characteristics:

Color and Pattern: Choose from Mfg. Standards

Wearing Surface: Standard smooth.

Integral Cove Base: TBD

Overall System Thickness: nominal 3/16” to 1/4”

* + - * 1. System Components: Manufacturer's standard components that are compatible with each other and as follows:

Primer:

Material Basis: Stoncrete Groutcoat

Resin: Epoxy

Formulation Description: (2) two-component, 100 percent solids.

Application Method: Squeegee and roller.

Number of Coats: (1) one.

Mortar Base:

Material design basis: Stonclad EFX

Resin: Epoxy.

Formulation Description: (4) four-component, 100 percent solids.

Application Method: Metal/Plastic Trowel.

Thickness of Coat: nominal 3/16” (4.76mm) to 1/4 inch (6.4 mm).

Number of lifts: One.

Aggregates: Pigmented and natural blended aggregates.

Groutcoat:

Material design basis: Stoncrete EFX Groutcoat

Resin: Epoxy.

Formulation Description: (2) two-component 100 percent solids.

Type: clear.

Application Method: Squeegee and loop roller.

Finish: standard.

Number of Coats: one.

Sealcoat:

Material design basis: Stonkote CE4

Resin: Epoxy.

Formulation Description: (2) two-component 100 percent solids.

Type: clear.

Finish: standard.

Number of Coats: one.

Topcoat:

Material design basis: Stonseal SK6 or Stonseal CF7

Resin: Urethane.

Formulation Description: (2) two-component 100 percent solids.

Type: clear.

Finish: High gloss lightly textured (SK6-GT), Satin micro-texture (SK6-SF), Matte (CF7).

Number of Coats: one (SK6) or two (CF7).

Note: Components listed above are the basis of design intent; all bids will be compared to this standard including resin chemistry, color, wearing surface, thickness, and installation procedures, including the number of coats. The Contractor shall be required to comply with all the requirements of the Specifications and all of the components required by the Specifications, whether or not such products are specifically listed above.

* + - * 1. System Physical Properties: Provide a resinous flooring system with the following minimum physical property requirements when tested according to test methods indicated:

Compressive Strength: 10,000 psi after 7 days per ASTM C 579.

Tensile Strength: 1,750 psi per ASTM C 307.

Flexural Strength: 4,000 psi per ASTM C 580.

4. Flexural Modulus of Elasticity: 2.0x106 psi per ASTM C-580

5. Hardness: .85 to .90, Shore D per ASTM D 2240.

Impact Resistance: > 160 in. lbs. per ASTM D 2794.

Abrasion Resistance: 0.1 gm

Flammability: Class 1 per ASTM E-648.

Thermal Coefficient of Linear Expansion: 1.4x10-5 in./in. °F per ASTM C-531

10. Water Absorption: < 0.2% per ASTM C 413.

11. VOC Content: per ASTM D-2369, Method E.

Stoncrete EFX Base; 4 g/l

Stoncrete Groutcoat: 52 g/l

Stoncoat CE4: 34 g/l

Stonseal CF7: 50 g/l

Stonseal SK6: 85 g/l

12. Cure Rate @ 75°F/25°C24: hours for normal operations.

* + - 1. ACCESSORY MATERIALS
         1. Patching, Leveling, and Fill Material: Resinous product of or approved by resinous flooring manufacturer and recommended by the manufacturer for application indicated.
         2. Joint Sealant: Type recommended or produced by resinous flooring manufacturer for type of service and joint condition indicated. Allowances should be included for Stonflex MP7 joint fill material.

1. EXECUTION
   * + 1. PREPARATION
          1. General: Prepare and clean substrates according to the resinous flooring manufacturer's written instructions for the substrate indicated. Provide a clean, and dry substrate for resinous flooring application.
          2. 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.

Mechanically prepare substrates as follows:

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 or Diamond grind with a dust-free system.

Repair damaged and deteriorated concrete according to the resinous flooring manufacturer's written recommendations.

Verify that concrete substrates meet the following requirements.

Perform in situ probe test, ASTM F 2170. Proceed with the application only after substrates do not exceed a maximum potential equilibrium relative humidity of 85 percent.

Perform an anhydrous calcium chloride test, ASTM F 1869. Proceed with the application only after substrates have a maximum moisture-vapor-emission rate of 6 lb of water/1000 sq. ft. of the slab in 24 hours.

* + - * 1. Use patching and fill material to fill holes and depressions in substrates according to the manufacturer's written instructions.
        2. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to the manufacturer's written recommendations. Allowances should be included for Stonflex MP7 joint fill material, and CT5 concrete crack treatment.
      1. APPLICATION
         1. General: Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.

Coordinate application of components to provide optimum adhesion of resinous flooring system to the substrate, and optimum inter-coat adhesion.

Cure resinous flooring components according to the manufacturer's written instructions. Prevent contamination during application and curing processes.

At substrate expansion and isolation joints, provide joint in resinous flooring to comply with resinous flooring manufacturer's written recommendations.

Apply joint sealant to comply with the manufacturer's written recommendations.

* + - * 1. Apply primer where required by the resinous system, over the prepared substrate at the manufacturer's recommended spreading rate.
        2. Integral Cove Base: Stonclad GS mortar, apply cove base mix to wall surfaces before applying the flooring. Apply according to manufacturer's written instructions and details including those for taping, mixing, priming, troweling, sanding, of cove base. Round internal and external corners.

Integral Cove Base: <TBD> inches high.

* + - * 1. Apply metal trowel single mortar coat in thickness indicated for flooring system. Hand or power trowel and grout to fill voids. When cured, sand to remove trowel marks and roughness.
        2. Apply topcoat(s) in the number of coats indicated for the flooring system and at spreading rates recommended in writing by the manufacturer.
      1. TERMINATIONS
         1. Chase edges to “lock” the flooring system into the concrete substrate along lines of termination.
         2. Penetration Treatment: Lap and seal the resinous system onto the perimeter of the penetrating item by bridging over compatible elastomer at the interface to compensate for possible movement.
         3. Trenches: Continue the flooring system into trenches to maintain monolithic protection. Treat cold joints to assure bridging of potential cracks.
         4. Treat floor drains by chasing the flooring system to lock in place at the point of termination.
      2. JOINTS AND CRACKS
         1. Treat control joints to bridge potential cracks and to maintain monolithic protection.
         2. Treat cold joints and construction joints and to maintain monolithic protection on horizontal and vertical surfaces as well as horizontal and vertical interfaces.
         3. Vertical and horizontal contraction and expansion joints are treated by installing a backer rod and compatible sealant after the coating installation is completed. Provide sealant type recommended by the manufacturer for traffic conditions and chemical exposures to be encountered.
      3. FIELD QUALITY CONTROL
         1. Material Sampling: Owner may at any time and any numbers of times during resinous flooring application require material samples for testing for compliance with requirements.

The Owner will engage an independent testing agency to take samples of materials being used. Material samples will be taken, identified, sealed, and certified in the presence of the Contractor.

An independent testing agency will test samples for compliance with requirements, using applicable referenced testing procedures or, if not referenced, using testing procedures listed in the manufacturer's product data.

If test results show that applied materials do not comply with specified requirements, pay for testing, remove non-complying materials, prepare surfaces coated with unacceptable materials, and reapply flooring materials to comply with requirements.

* + - 1. CLEANING, PROTECTING, AND CURING
         1. Cure resinous flooring materials in compliance with the manufacturer's directions, taking care to prevent contamination during stages of application and before completion of the curing process. Close area of application for a minimum of 24 hours.
         2. Protect resinous flooring materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with the manufacturer's recommendations for protective materials and method of application. General Contractor is responsible for protection.
         3. Cleaning: Remove the temporary covering and clean resinous flooring just before the final inspection. Use cleaning materials and procedures recommended by the resinous flooring manufacturer. The General Contractor is responsible for cleaning before the inspection.

END OF SECTION 096723