

# STONLUX ESD 2/3 MM GUIDE SPEC

**SECTION 096723 - RESINOUS FLOORING**

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This Section uses the term "Architect." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

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**PART I GENERAL**

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Definitions: Resinous flooring includes penetrating and sealing, two-component, insulative epoxy primer, three-component, thixotropic, pigmented epoxy primer, two-component, static dissipative epoxy primer and a three-component, free flowing epoxy formulation including resin, curing agent and conductive elements.

B. Related Work

1. Division 3 Section Cast-in-place Concrete

2. Division 7 Section Fluid Applied Waterproofing

3. Division 7 Section Joint Sealers

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's technical data, installation instructions, and general recommendations for each resinous flooring material required. Include certification indicating compliance of materials with requirements.

B. Samples: Submit, for verification purposes, 4-inch square samples of each type of resinous flooring required, applied to a rigid backing, in color and finish indicated.

1. For initial selection of colors and finishes, submit manufacturer's color charts showing full range of colors and finishes available.

1.04 QUALITY ASSURANCE

A. Single Source Responsibility: Obtain primary resinous flooring materials including primers, resins, hardening agents, finish or sealing coats from a single manufacturer with not less than ten years of successful experience in manufacturing and installing principal materials described in this section. Contractor shall have completed at least five projects of similar size and complexity; Stonhard or approved equal. Provide secondary materials only of type and from source recommended by manufacturer of primary materials.

B. Pre-Installation Conference

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/Installer's Representative

C. ISO 9002: All materials, including primers, resins, curing agents, finish coats, aggregates and sealants are manufactured and tested under an ISO 9002 registered quality system.

1.05 DELIVERY, STORAGE AND HANDLING

A. Material shall be delivered to job site and checked by flooring contractor for completeness and shipping damage prior to job start.

B. 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.

C. Material shall be stored in a dry, enclosed area protected from exposure to moisture. Temperature of storage area shall be maintained between 65 and 85oF/18 and 30oC.

1.06 PROJECT CONDITIONS

A. Concrete substrate shall be properly cured for a minimum of 30 days. A vapor barrier must be present for concrete subfloors on or below grade. Otherwise, an osmotic pressure resistant grout must be installed prior to the resinous flooring.

B. Utilities, including electric, water, heat (air temperature between 65 and 85oF/18 and 30oC) and finished lighting to be supplied by General Contractor.

C. Job area to be free of other trades during, and for a period of 48 hours, after floor installation.

D. Protection of finished floor from damage by subsequent trades shall be the responsibility of the General Contractor.

1.07 WARRANTY

A. Manufacturer shall furnish a single, written warranty covering both material and workmanship for a period of one (1) full year from date of installation. The electrostatic properties of the floor will remain under warranty for a period of five (5) full years from the date of installation.

**PART II PRODUCTS**

2.01 COLORS

A. Colors: As selected by Architect from manufacturer's standard colors.

2.02 EPOXY FLOORING

A. Stonlux ESD as manufactured by Stonhard, Inc., Maple Shade, NJ, is a 2 mm or 3 mm thick system comprised of penetrating and sealing, two-component, insulative epoxy primer, three-component, thixotropic, pigmented epoxy primer, two-component, conductive epoxy primer and a three-component, free flowing epoxy formulation including resin, curing agent and conductive elements.

1. Physical Properties: Provide flooring system in which physical properties of topping including aggregate, when tested in accordance with standards or procedures referenced below, are as follows:

Tensile Strength 2,250 psi

(ASTM D-638)

Flexural Strength 4,200 psi

(ASTM D-790)

Hardness 70-80

(ASTM D-2240/Shore D Durometer)

Indentation Pass

(MIL-D-3134F)

Abrasion Resistance 0.10 gm max. weight loss

(ASTM D-4060, Taber Abrader CS-17 wheel)

Flexural Modulus of Elasticity 3.8 x 105 psi

(ASTM D-790)

Thermal Coefficient of

Linear Expansion 5.3 x 10-5 in/in-oC

(ASTM E-831)

Water Absorption 0.3%

(ASTM C-413)

Cure Rate 48 hours for foot traffic

(at 77oF/25oC) 48 hours for light traffic

48-72 hours for normal operations

2. Static Control Properties: Provide flooring system in which static control properties of topping including aggregate, when tested in accordance with standards or procedures referenced below, are as follows:

Resistance over ATK Primer 2.5 x 104 – 1 x 106 ohms

(ANSI/ESD Association S7.1 - 2005)

(ASTM F150)

Resistance over ATM Primer 1 x 106 – 1 x 109 ohms

(ANSI/ESD Association S7.1 - 2005)

(ASTM F150)

Static Charge Decay (Seconds) 0.02

MIL-B-81705C

Federal Test Method Standard 101C, Method 4046.

(Time needed to dissipate 5,000 volts)

Body Voltage Generation (Volts) <100 Volts @ 25% Rh

2.03 JOINT SEALANT MATERIALS

A. Type produced by manufacturer of resinous flooring system for type of service and joint condition indicated.

**PART III EXECUTION**

3.01 PREPARATION

A. Substrate: Concrete preparation shall be by mechanical means and include use of a shot blast machine for removal of bond inhibiting materials such as curing compounds or laitance.

3.02 APPLICATION

A. General: Apply each component of resinous flooring system in compliance with manufacturer's directions to produce a uniform monolithic wearing surface of thickness indicated, uninterrupted except at divider strips, sawn joints or other types of joints (if any), indicated or required.

B. Primer: Mix and apply the first two primers over a properly prepared substrate with strict adherence to manufacturer's installation procedures and coverage rates.

C. Primer: Examine the wet-on-wet primer application for flaws. Any voids must be filled with quick set epoxy. Mix and apply conducting primer with strict adherence to manufacturer's installation procedures and coverage rates.

D. Grounding: Set ground plates in primer immediately after it is applied. They should be placed in close proximity to the grounding device (outlet, structural steel, conduit ordinance ground, etc.) There should be one ground per 1,000 sq.ft/93 sq.m or two per area less than 1,000 sq.ft/93 sq.m. The ground plates will be adhered to the substrate using the wet, conductive primer. Once the primer is tack free, it must be tested for proper conductivity (0.1 - 0.9 megohms) prior to base installation.

E. Base: Mix base material according to manufacturer's recommended procedures. Uniformly spread mixed material over previously primed and sealed substrate using manufacturer's specially designed rake. Roll material using manufacturer's specially designed roller. Strict adherence to manufacturer's installation procedures and coverage rates is required.

3.03 ELECTRICAL TESTING

A. The purpose of these tests is to insure the quality and consistency of the electrical properties of the flooring system. Testing will utilize the following:

1. All test equipment must be labeled with a recent calibration date by a standards lab. Date must be within the last 12 months.

2. All electrical tests will be made in accordance with ASTM F-150, ANSI ESD Assoc. S7.1 -2005.

3. All electrical test results will be recorded on a Static Control Flooring Report.

B. Electrical testing: Prior to performing tests prepare a diagram of the entire area. Divide diagram into 1,000 sq.ft. grids. Number or letter the grids to give discrete identity to each 1,000 sq.ft. area. Prepare a static control flooring report summary for the entire area. (Average measurements for each 1,000 sq.ft. area will be recorded on this form) Prepare area diagrams for each 1,000 sq.ft. area. (All measurements will be recorded on this diagram.) Label each diagram with its corresponding grid location.

C. Overlayment testing: After the flooring system has cured a minimum of 48 hours the floor must be conditioned using a megohmeter (high range ohm meter) at 1,000 volts along with two 20" long squeegee type probes placed 2 inches apart. After being conditioned, measure surface resistance using ASTM & ESD test equipment and procedures. A minimum of 10 measurements must be taken for every 1,000 sq.ft. area. Record all results on the test reports. Any areas not within these specifications must be re-tested to evaluate the size of the affected area. Out of spec areas must be reconditioned and re-tested.

3.04 FIELD QUALITY CONTROL

A. The right is reserved to invoke the following material testing procedure at any time, and any number of times during period of flooring application.

B. The Owner will engage service of an independent testing laboratory to sample materials being used on the job site. Samples of material will be taken, identified and sealed, and certified in presence of Contractor.

C. Testing laboratory will perform tests for any of characteristics specified, using applicable testing procedures referenced herein, or if none referenced, in manufacturer's product data.

D. If test results show materials being used do not comply with specified requirements, Contractor may be directed by Owner to stop work; remove non-complying materials; pay for testing; reapply flooring materials to properly prepared surfaces which had previously been coated with unacceptable materials.

3.05 CURING, PROTECTION AND CLEANING

A. Cure resinous flooring materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process. Close area of application for a minimum of 48 hours.

B. 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. General Contractor is responsible for protection and cleaning of surfaces after final coats.

C. Cleaning: 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

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