SMOOTH

SECTION 096713 - ELASTOMERIC LIQUID FLOORING

PART 1 – GENERAL

1. RELATED DOCUMENTS

 A. Drawings and general provisions of Contract, including General and Supplementary

Conditions and Division 1 Specification Sections, apply to this Section.

1.2. SUMMARY

 A. Definitions: Elastomeric liquid flooring includes penetrating and sealing, two-

component polymeric primer, free flowing polymer formulation including resin, curing agent and finely graded aggregate and powder.

 B. Related Work:

 1. Division 3 Section Case-in-place Concrete

 2. Division 7 Section Fluid Applied Waterproofing

 3. Division 7 Section Joint Sealers

1.3 SUBMITTALS

 A. Product Data: Submit manufacturer’s technical data, installation instructions and

general recommendations for each resinous flooring material required. Include Health Product Declarations (HPD’s) and certifications indicating compliance of materials with requirements.

 B. Samples: Submit, for verification purposes, 4.25-inch square samples of each type of

elastomeric liquid flooring required, applied to a rigid backing, in color, finish, and top coat indicated.

C. Product Schedule: Use resinous flooring designations indicated in Part 2 and room

designations indicated on drawings in product schedule.

D. Maintenance and Cleaning Data: For resinous flooring to include in maintenance

manual.

1.4 QUALITY ASSURANCE

 A. Single Source Responsibility: Obtain primary, elastomeric liquid flooring materials

including primers, resins, hardening agents, finish or sealing coats from a single manufacturer with not less than ten (10) 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; Liquid Elements or approved equal. Provide secondary materials only of type and from source recommended by manufacturer of primary materials.

B. 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 acceptable to resinous flooring manufacturer.

1. Contractor shall have completed at least ten (10) projects of similar size and complexity.

C. 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

 D. Manufacturer Field Technical Service Representatives: Field Technical Service

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.

 E. ISO 9001-2008: All materials, including primers, resins, curing agents, finish coats,

aggregates and sealants are manufactured and tested under an ISO 9001 registered quality system.

1.5 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 onsite mixing errors. No onsite weighing or volumetric measurements allowed.

 C. Store components protected from exposure to harmful weather conditions and in a

temperature controlled area as recommended by manufacturer. Do not allow product to freeze.

 D. Deliver products to areas to receive moisture treatment at least 48 hours prior to

application to allow them to acclimate to the space.

1.6 ENVIRONMENTAL 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 85°F/18 and

30°C) and finished lighting to be supplied by General Contractor.

 C. Job area to be free of other trades during the installation and for a period of 24 hours

after floor installation.

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

responsibility of the General Contractor.

E. Protection: precautions shall be taken to avoid damage or contamination of any

surfaces near the work zone.

F. Do not install product in this section until one (1) week after building is enclosed and

weatherproof, wet work in space is completed and nominally dry, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

1.7 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.

PART 2 – PRODUCTS

2.1 RESINOUS FLOORING

 A. Available Products: Subject to compliance with requirements, products that may be

incorporated into the work.

 B. Acceptable Manufactures:

 1. Liquid Elements (678-498-2945) (manufactured by The Stonhard Group) Basis of

design.

C. Products: Subject to compliance with requirements:

 1. Liquid Elements, Smooth.

D. System Characteristics:

 1. Color and Pattern: Select from Liquid Elements standards.

 2. Wearing Surface: Medium

 3. Overall System Thickness: 2mm, 1mm

E. System Components: Manufacturer’s standard components that are compatible with

each other and as follows:

1. Primer Coat:

 a. Material Basis: Stondri MVT epoxy primer.

 b. Resin: epoxy.

 c. Formulation Description: two (2) component, high solids, moisture suppressant.

 d. Application Method: rubber squeegee back roll.

 e. Number of Coats: one (1) (15 mils).

2. Base System:

 a. Material Basis: smooth mono. a. Material Basis: smooth duo, two (2) color blend.

 b. Resilient aromatic polyurethane. b. Resilient aromatic polyurethane.

 c. Type: pigmented. c. Type: pigmented.

 d. Finish: standard. d. Finish: standard.

 e. Number of Coats: one (1). e. Number of Coats: one (1).

3. Topcoat:

 Matte: Satin:

 a. Material Basis: waterbased aliphatic a. Material Basis: aliphatic polyurethane/

 polyurethane. polyurea.

 b. Type: clear. b. Type: clear with polymer microsphere.

 c. Finish: matte. c. Finish: satin.

 d. Number of Coats: two (2). d. Number of Coats: one (1).

 Gloss Micro Texture:

 a. Material Basis: aliphatic polyurethane/polyurea.

 b. Type: clear with texture 1.

 c. Finish: Gloss.

 d. Number of Coats: one (1).

2.2 EPOXY FLOORING

 A. Smooth Liquid Elements (678-498-2945) (manufactured by The Stonhard Group).

 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 800 psi

(ASTM D-638)

Hardness…… 95-100

(ASTM D-2240/Shore A Durometer)

Scratch Resistance 17% reduction after 100 cycles

(F-1679/Soft Scrub)

Impact Resistance 50 in-lb

(D-2794)

Indentation Resistance 32% Indentation/0% Residual Indentation

(F-1914)

Static Load Limit >250 psi

(F-970)

VOC Content 1 g/L

(ASTM D-2369 Method E)

Noise Reduction (2mm version only)

(ASTM E492-09/E989-06) 11C 34dB-35dB

(ASTM E90-09/E413-10 STC 49dB-50dB

Cure Rate Allow 24 hours for foot traffic

(at 77°F/25°C) 48-72 hours for normal operations

2.3 ACCESSORY MATERIALS

 A. Patching and Fill Material: Resinous products of or approved by resinous flooring

manufacturer and recommended by manufacturer for application indicated.

 B. Joint Sealant: Type produced by manufacturer of elastomeric liquid flooring system for

type of service and joint condition indicated. Allowances should be included for Stonflex MP7 joint fill material.

 C. Glides and felt pads should be used on all table and chair legs, recommended diameter

is 1-¼” or greater.

PART 3 - EXECUTION

3.1 PREPARATION

 A. General: Prepare and clean substrates according to resinous flooring manufacturer’s

written instructions for substrate indicated. Provide clean, dry, and neutral Ph 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. Mechanically prepare substrates as follows:

 a. Shot-blast surfaces with an apparatus that abrades the concrete surface,

contains the dispensed shot within the apparatus, and re-circulates the shot by vacuum pickup. Obtain a CSP3 profile.

b. Comply with ASTM C 811 requirements, unless manufacturer’s written

instructions are more stringent.

2. Repair damaged and deteriorated concrete according to resinous flooring

manufacturer’s written recommendations.

3. Verify that concrete substrates are dry.

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 85 percent.

b. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with

application only after substrates have maximum moisture-vapor-emission rate of 2-3 lb of water/1000 sq. ft. of slab in 24 hours.

c. Perform additional moisture tests recommended by manufacturer. Proceed

 with application only after substrates pass testing.

4. Verify that concrete substrates have neutral Ph and that resinous flooring will

adhere to them. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.

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.

E. Treat control joints and other non-moving substrate cracks to prevent cracks from

reflecting through resinous flooring according to manufacturer’s written recommendations.

F. Substrate: Must be a super flat and level floor, FFFL 50 (<1/8” per 10’ for flatness and

<1/8” per 1’ for level).

3.2 APPLICATION

 A. General: Apply each component of elastomeric liquid flooring system in compliance

with manufacturer’s direction 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 primer over properly prepared substrate with strict adherence to

manufacturer’s installation procedures and coverage rates.

 C. 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 squeegee. Roll material using manufacturer’s specially designed roller. Strict adherence to manufacturer’s installation procedures and coverage rates is imperative.

 D. Sealant: Mix and apply topcoat material over base with strict adherence to

manufacturer’s installation procedures and coverage rates.

3.3 TRANSITIONS

 A. Traditional “L” transitions are not recommended for use with self levelers, due to the

inherent difficulty with obtaining a flush transition with a self leveling material. Where a flush transition is desired, please contact your local Liquid Elements representative.

 B. A “T” style transition is recommended when adjoining a similar height surface.

3.4 JOINTS AND CRACKS

 A. Treat control joints to bridge potential cracks and to maintain monolithic protection.

 B. 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.

 C. 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.

3.5 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.

3.6 CURING, PROTECTION AND CLEANING

 A. Cure elastomeric liquid 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 24 hours.

 B. Protect elastomeric liquid 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 elastomeric liquid flooring just prior

to final inspection. Use cleaning materials and procedures recommended by elastomeric liquid flooring manufacturer.

END OF SECTION 096713