**096700 – Fluid-Applied Flooring**

KEYGLAS VINYL ESTER

FIBERGLASS REINFORCED LINING SYSTEM 100-125 MILS

PART 1 - GENERAL

**1.01 SUMMARY**

Furnish all necessary materials, labor and equipment required to prepare substrate and install Vinyl Ester Lining System.

**1.02 RELATED WORK**

All drawings and general provisions of contract including General and Special Conditions.

**1.03 QUALITY ASSURANCE**

A. Manufacturer's Qualifications

1. Obtain primary Vinyl Ester Lining System materials including primers, resins, hardening agents, specially blended aggregates, and finish coats from a single manufacturer providing materials of the type specified in this section. Provide unblended aggregates, solvents and other secondary materials from a source recommended by the manufacturer of primary materials.

2. The Vinyl Ester Lining System manufacturer shall provide a representative who will advise the applicator on the proper techniques of mixing and applying the Vinyl Ester Lining System.

3. Installer to verify locations of all joints requiring a soft sealant and/or joint filler material. Follow recommendations of material manufacture for treatment of all joints, expansion joints, and cracks.

4. Installer must be acceptable to manufacturer.

B. Applicator Qualifications

Installation shall be performed by an applicator with not less than three years of satisfactory experience in the application of the type of system as specified in this section and shall be approved by the manufacturer of the Vinyl Ester Lining System.

**1.04 WARRANTY**

A. Contractor to guarantee work under this Section to be free from defects of material and installation for the duration of the warranty period. Defects occurring during warranty period shall be repaired, in a manner satisfactory to the Owner and the Architect, at no additional cost to the Owner.

1. Warranty Period: One (1) Year.

B. Not included are damage due to blistering or loss of adhesion due to moisture vapor transmission through the slab, Acts of God or other elements beyond the scope of protection of this system.

C. In case of a warranty claim, the owner will notify the manufacturer and applicator in writing within 30 days of the first appearance of any problems which are covered under this warranty and will provide free access to the area during normal working hours. Property protection is also the owner's responsibility. Remedy is limited to direct repair of the Epoxy Coating System.

**1.05 SUBMITTALS**

A. Product Data

Submit manufacturer's specifications on specific products of the Epoxy Coating System and an overall system description, with installation instructions. Manufacturer's standard color charts shall also be submitted. Furnish three (3) sets of this information.

B. The applicator shall submit a 6"X6" system sample for verification purposes and finish texture approval and color.

**1.06 MATERIAL DELIVERY, HANDLING AND STORAGE**

A. Primary system materials shall be delivered in the manufacturer's undamaged, unopened containers. Each container shall be clearly marked with the following:

1. Product name

2. Manufacturer's name

3. Component designation (A or B, etc.)

4. Mixing ratio of component mixture

B. Provide equipment and personnel to handle the materials by methods which prevent damage.

C. The applicator shall promptly inspect all direct job site deliveries to assure that quantities are correct and that materials comply with requirements and are not damaged.

D. Store materials in accordance with manufacturer's instructions, with seals and labels intact and legible. Maintain temperatures within the required range. Do not use materials that have been stored for a longer period of time than the manufacturer's maximum recommended shelf life.

**1.07 PROJECT CONDITIONS**

A. Maintain the ambient room and the floor temperatures at 60 degrees Fahrenheit, or above, for a period extending from 72 hours before, during and after floor installation. Concrete to receive surfacing shall have cured for at least 28 days and shall have been free of water for at least 7 days.

B. Dew Point: Substrate temperature must be minimum of 5 degrees above dew point prior to, during or up to 24 hours after application of flooring system.

C. Illumination: Apply flooring system only where a minimum of 30 footcandles exist when measured 3 feet from surface.

D. Advise other trades of fixtures and fittings not to be installed until flooring is cured and protected.

**1.08 PROTECTION**

A. Protect adjacent surfaces not scheduled to receive the lining by masking, or by other means, to maintain these surfaces free of the lining material.

B. Provide adequate ventilation and fire protection at all mixing and placing operations. Prohibit smoking or use of spark or flame producing devices within 50 feet of any mixing or placing operation.

C. Provide polyethylene or rubber gloves or protective creams for all workmen engaged in applying products containing epoxy.

**PART 2 - PRODUCTS**

**2.01 MATERIALS**

A. System Overview

1. The lining system shall be **Key Glas Vinyl Ester Fiberglass Reinforced Lining System** using **Key Vinyl Ester Primer**, **Key Vinyl Ester Binder/Coating**, **Key Fiberglass Cloth** or **Key Chopped Strand Mat**. This system shall be applied over a clean, properly prepared substrate.

2. Prior to system application, all joints and cracks are to be treated with flexible polysulfide joint filler (supplied by others) and paste-grade or pourable vinyl ester crack filler respectively as described in the execution section.

3. The finished lining system shall be a minimum 100-125 mils in thickness, dense and nonporous.

B. The rigid vinyl ester to be used for crack treatment shall be Key Vinyl Ester Binder/Coating or another epoxy approved by Manufacturer. Paste grade formulation is created at jobsite by installer using treated fume silica. The flexible polysulfide to be used for joint filler shall be supplied by others.

**PART 3 - EXECUTION**

## 3.01 PREPARATION

A. Obtain Architect's approval of mock-up before installing flooring; see QUALITY ASSURANCE in **PART 1.**

B. Preparation of Surface:

1. Inspect surfaces to receive lining and verify that condition is smooth and free from conditions that will adversely affect execution, permanence, or quality of work.

a. Remove all projections, all debris detrimental to flooring system, and dirt, oil contaminates, grease, and surface coatings affecting bond.

2. Notify Architect in writing prior to commencing work of any conditions deemed unsatisfactory for the installation; installation of flooring materials is understood as acceptance of the substrate as satisfactory.

3. Concrete: The General Contractor shall be responsible for hiring an independent testing service to test for moisture content and moisture vapor emission rate; install no flooring over concrete until the concrete has been cured and is sufficiently dry to achieve permanent bond with flooring as determined by material manufacturer's recommended bond and moisture tests.

a. Effectively remove concrete laitance by steel shot blasting, grinding, abrasive grit blasting, or other method approved by system manufacturer. No “cure and seal” or other cure agents leaving a surface residue or silicate hardeners shall be used.

b. Concrete slab shall have an efficient puncture-resistant reinforced moisture vapor barrier 10 mils thick minimum directly under the concrete slab (for slab on grade). Do not use vapor barrier manufactured with recycled material. Testing must be done to verify that the moisture vapor emission rate of the slab does not exceed that as recommended by the manufacturer at time of installation of the flooring or at any future date. Moisture vapor emission and moisture content testing must conform with the requirements of ASTM F-1869-11 (Calcium Chloride Test) and ASTM F-2170-11 (Relative Humidity Probe Test). If any individual test result shows excessive levels of moisture content or vapor emission rate, apply manufacturer’s recommended moisture vapor emission control system based on the highest reading.

B. Cracks larger than 1/16” shall be routed and filled with Key Vinyl Ester Binder/Coating (mixed with approved filler to desired consistency by installer) or other materials approved by Manufacturer and reinforced with minimum 12” wide fiberglass cloth/mat. Paste grade formulation is created at jobsite by installer using treated fume silica, silica flour, or fine sand.

**3.02 APPLICATION**

A. General

Apply each component of the Vinyl Ester Lining System in compliance with manufacturer's installation instructions including mixing and application methods, recoat windows, cure times and environmental restrictions. The system is to be applied directly over all non-moving cracks that have been treated as previously described. Material applied over moving cracks, expansion joint filler, or control joint filler is subject to cracking due to movement in the joint.

B. Cracks and Non-Expansion Joints

1. Cracks less than 1/16" wide after surface preparation shall be filled with neat, rigid Key Vinyl Ester Binder/Coating or Key Vinyl Ester Primer, mixed and applied as recommended by the manufacturer's printed instructions. All treated cracks are to be sanded prior to applying primer. Joints shall be routed and filled with flexible polysulfide joint filler supplied by others.

2. Those cracks larger than 1/16" wide shall be routed and filled with rigid Key Vinyl Ester Binder/Coating or Key Vinyl Ester Primer mixed with recommended filler and applied as recommended by the manufacturer.

C. Vinyl Ester Primer

Apply vinyl ester primer by squeegee and back roll at the rate of 160-200 square feet per gallon to thoroughly wet surface.

D. Lining Application

1. Apply mortar base application using Key Vinyl Ester Binder/Coating and vertical grade filler. Trowel apply at 20-25 sq ft per gallon batch or a minimum of 60 mils. Smooth surface from bug holes, trowel marks, and other irregularities as needed using Vinyl Ester Saturant applied with a roller. Allow to cure. Sand/grind if needed to remove significant irregularities before proceeding with next step.

1. Apply Key Vinyl Ester Binder/Coating at approximately 100 sq ft per gallon (15-16 mils).
2. Immediately apply 1.5 oz Fiberglass Chopped Strand Mat (or 5.7 oz Fiberglass Cloth) into wet resin and smooth with roller to embed and saturate glass with resin. Roll additional Key Vinyl Ester Binder/Coating until glass mat is completely saturated. Allow to cure. Sand/grind if needed to remove significant irregularities before proceeding with next step. Air pockets under fiberglass mat/cloth should be sliced and repaired before proceeding with next step.

4. Apply 2 coats of Key Vinyl Ester Binder/Coating over saturated mat at approximately 100 sq ft per gallon on each coat. Allow first coat to cure before applying second coat.

E. Obtain engineer's approval of the system just after completion of the final coat, prior to completion of curing.

**3.03 CURING AND PROTECTION**

A. Cure Vinyl Ester Lining System materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of the application and prior to completion of the curing process.

B. Apply temporary protection until floor is fully cured. The General Contractor shall protect the finished system from the time that the sub-contractor completes the work.

**END OF SECTION**

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