**ARCHITECTURAL GUIDE SPECIFICATION**

M**aster** F**ormat** S**ection** 096700– Fluid-Applied Flooring

**KEY EPOCON SL – Moisture Vapor Tolerant Epoxy Floor System**

*Note to Specifier: This guide specification has options or notes bordered with brackets or parentheses that require editing. Please consult with Key Resin to confirm which options or notes may be necessary for your specific project.*

# PART 1 GENERAL

## 1.01 SUMMARY

### A. Section Includes:

1. Furnish all labor, materials, tools and equipment as necessary to perform installation of surface applied moisture vapor tolerant epoxy floor system for interior concrete slabs on new and/or existing concrete slabs, as shown on drawings and as specified in this section.

2. Prior to installation of structural floor slab, advise [General Contractor] [Construction Manager], in writing, of all requirements of concrete substrate regarding finish, level tolerance, curing and below substrate vapor barrier; see inspection in Part 3.

3. Locate all flexible joints required. See submittals below.

### B. Related Sections: *{NOTE TO SPECIFIER: DELETE OR ADD NECESSARY SECTIONS}*

1. Cast-in-Place Concrete: Section 03300.

a. Concrete sub-floor to be level (maximum variation not to exceed ¼ inch in 10 feet) and to have a steel troweled finish.

2. Section 096000 Flooring.

3. Section 096200 Specialty Flooring.

4. Section 096700 Fluid-Applied Flooring.

## 1.02 REFERENCE STANDARDS

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

A. ASTM F-1869-04 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

1. ASTM F-2170-02 – Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In Situ Probes.
2. ASTM E-96 - Standard Test Methods for Water Vapor Transmission of Materials.
3. ASTM D-1308 – Alkalinity Resistance.

### **E. ACI 301** – **Specifications for Structural Concrete for Buildings (most recent edition). Committee in Concrete 403 bulletin 59-43, Bond Strength to Concrete.**

## 1.03 DEFINITIONS

A. Moisture Vapor Control System specified under this section is referenced on the drawings as Key Epocon with Urethane Sealer.

## 1.04 SYSTEM DESCRIPTION

A. System shall be a 1/8 inch moisture vapor and alkaline tolerant epoxy surfacing.

## 1.05 SUBMITTALS

A. Samples: Submit 6 by 6 inch cured samples of flooring system indicating thickness. Approved samples will be used during installation for product match.

B. Certified Test: Submit two copies of suppliers/ manufacturers written certification that vapor control system meets or exceeds required properties.

C. Manufacturers Application Instructions: Submit descriptive data and specific recommendations for mixing, application, curing including any precautions of special handling instructions required to comply with the Occupational Safety and Health Act.

D. Shop Drawings: Shop Drawings shall be furnished showing termination details, details at floor material transitions and where adjoining equipment.

1. Locate and provide detailing for flexible joints required for flooring in area of installation.

## 1.06 QUALITY ASSURANCE

A. Materials used in the Moisture Vapor Control System shall be the products of a single manufacturer in business a minimum of 10 years.

B. Installation shall be performed by an applicator with minimum 3 years experience in work of similar nature and scope. Installer must be approved by the manufacturer of the Moisture Vapor Control System. The contractor shall furnish a written statement from the manufacturer that the installer is acceptable.

C. Installer to verify locations of all flexible joints required by the provisions of this Section and by the recommendations of the related floor covering material manufacturers.

1. Joint locations may or may not be shown in drawings.

2. Refer to drawings required under submittals above.

D. Contractor to have proven experience with specified system.

E. Portable mock-up: Prior to starting application of Moisture Vapor Tolerant Epoxy Floor System, provide full scale portable mock-up to establish acceptable quality, durability, and appearance. Mock-up size must not be less than 4 square feet.

1. Acceptable mock-up to be standard of quality for installed work.

2. Unacceptable installed work to be removed and replaced until acceptable. Aesthetically unacceptable but well bonded work may be overlaid or recoated per Manufacturer’s instructions if thickness clearances permit.

F. Qualifications:

1. Installer: Must be acceptable to Architect and Manufacturer.

## 1.07 PROJECT CONDITIONS

A. Maintain the ambient room and the floor temperatures at 55 degrees Fahrenheit, or above, for a period extending from 72 hours before, during and after installation of Moisture Vapor Tolerant Epoxy Floor System. Concrete to receive Moisture Vapor Tolerant Epoxy Floor System shall have cured for at least 5 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 Moisture Vapor Tolerant Epoxy Floor System.

C. Illumination: Apply Moisture Vapor Tolerant Epoxy Floor 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 Moisture Vapor Tolerant Epoxy Floor System is cured and protected.

## 1.08 PROTECTION

A. Protect adjacent surfaces not scheduled to receive the Moisture Vapor Tolerant Epoxy Floor System by masking, or by other means, to maintain these surfaces free of the flooring 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.

## 1.09 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. All materials shall be delivered to project site in original manufacturer's sealed containers including type of material, batch numbers, date of manufacture, and pertinent labels intact and legible.

B. Store materials in dry protected area at a temperature between 60° F to 80° F.

C. Follow all manufacturer's specific instructions and prudent safety practices for storage and handling.

## 1.10 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.

# PART 2 PRODUCTS

## 2.01 MANUFACTURERS

A. Specifications and quality of design standard (basis of design) based on Key Resin Company: Key Epocon SL

 Key Resin Company: 888-943-4532, [www.keyresin.com](http://www.keyresin.com)

B. System description: Moisture vapor tolerant and alkaline resistant, two-component epoxy resin surfacing system, grouted with two component bis-A epoxy Key #502 and sealed with two component Urethane Key #445 with NSA additive.

C. Alternative manufacturers must have as a minimum the standards set forth in this specification and Key Epocon SL data sheet and must be preapproved in accordance with project requirements.

## 2.02 MATERIALS

A. Prime Coat: Key Epocoat primer/scratch coat.

B. Matrix: Key Epocoat bodycoat/aggregate composition.

C. Grout: Key # 502 Epoxy Primer

D. Sealer: Key #445 Matte Finish Urethane with NSA aggregate

## 2.04 MIXING

A. Mix according to Manufacturer’s instructions. Apply Moisture Vapor Tolerant Epoxy Floor System to specified physical properties.

# PART 3 EXECUTION

## 3.01 PREPARATION

A. Obtain Architect's approval of mock-up before installing Moisture Vapor Tolerant Epoxy Floor System; see QUALITY ASSURANCE in **PART 1.**

B. Preparation of Surface:

1. Inspect surfaces to receive Moisture Vapor Tolerant Epoxy Floor System 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 and contaminates detrimental to Moisture Vapor Tolerant Epoxy Floor System, including dirt, oil/hydrocarbon/organic contaminates, grease, metallic shake-on hardeners and surface coatings affecting bond.

2. Notify Architect or Owner in writing prior to commencing work of any conditions deemed unsatisfactory for the installation; installation of Moisture Vapor Tolerant Epoxy Floor System 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; test results must be submitted to manufacturer for record-keeping purposes.

a. Effectively remove concrete laitance by steel shot blasting or diamond grinding. Surface profile must be a minimum CSP-3 profile according to International Concrete Repair Institute Guideline #03732.

b. Testing must be done to measure moisture content and moisture vapor emission rate of the slab for record-keeping purposes. Test report of results must be submitted to manufacturer. 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).

c. Treat cracks in concrete using manufacturer's recommended practice. Rout out crack larger than 1/16” and fill with Key Epocoat material; Reinforce crack with fiberglass cloth. Refer to section 3.02.B.

## 3.02 INSTALLATION

A. Install all floor materials in strict conformance with manufacturer's instructions.

B. Route out all cracks (larger than 1/16” width) and fill with Key Epocoat. Reinforce crack with 18” width fiberglass cloth using Key Epocoat. For random cracking over entire slab, or where severe movement is expected, consult with Key Resin on the optional use of flexible crack isolation membrane.

C. Prime entire surface with Key Epocoat as a scratch coat. Allow to cure.

D. Apply Key Epocoat sand-filled slurry at 15-20 square feet per gallon to achieve a total minimum thickness of 90-100 mils. Allow to cure a minimum of 16 hours at 75 degrees F.

E. Apply Key #502 epoxy primer at coverage rate of 100 - 160 square feet per gallon or as needed to match approved sample. Allow to cure. Apply Key #445 Urethane sealer at coverage rate of 225 sq. ft. square feet per gallon or as needed to match approved sample. Allow to cure.

F. Match finished work to approved sample, uniform in thickness and free from defects detrimental to performance.

G. Integral Cove Base: Where scheduled, provide integral cove base formed from flooring over tile backerboard as specified under 09250 - Gypsum Drywall. Provide cove cap strip at top of base as recommended by flooring manufacturer and trowel material up wall to form smooth, integral transition and base 4-6 inches high unless otherwise indicated or scheduled.

H. Apply temporary protection until Moisture Vapor Tolerant Epoxy Floor System 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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