**SECTION 09 05 61.13 - MOISTURE VAPOR EMISSION CONTROL**

**PART 1 – GENERAL**

**1.01 SECTION INCLUDES**

A. Moisture vapor emission control system for new and existing concrete slabs to receive finished floor coverings or coatings.

**1.02  RELATED DOCUMENTS**

A. Division 00 – Procurement and Contracting Requirements, and Division 01 – General Requirements, are hereby made a part of this Section.

**1.03 RELATED SECTIONS**

A. Coordinate work of this Section with work of other Sections to properly execute the work requirements and maintain satisfactory progress of work in other Sections.

1. Section 03 30 00: Cast-In Place Concrete.
2. Section 09 62 00: Specialty Flooring.
3. Section 09 64 00: Wood Flooring.
4. Section 09 65 00: Resilient Flooring.
5. Section 09 68 00: Carpeting.

B. Reference Standards – Use current versions

1. ASTM F3010 - *Standard Practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Covering*
2. ASTM F710 - *Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring*

**1.04   SUBMITTALS**

A. See Section 01 3300 – SUBMITTAL PROCEDURES, for submittal procedures.

B. Product data: manufacturer’s data sheets on each product being used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation and application methods.
4. Manufacturer’s certification that moisture vapor control product meets requirements of current version of ASTM F3010.
5. Independent test reports supporting product manufacturer’s certificate of conformance to ASTM F3010.
6. 15-Year Warranty information.

**1.05 QUALITY ASSURANCE**

A. Manufacturer’s Representative: Manufacturer’s Representative to train and supervise or have previously trained and supervised the applicator in the installation of the moisture control system, ensuring the installation conforms to manufacturer’s Fifteen (15) Year Warranty requirements.

B. Applicator to submit Installation Record(s) and Installation photo documentation to Manufacturer for approval upon completion of installation for issuance of Manufacturer’s Fifteen (15) Year Warranty.

C. Provide Manufacturer’s standard Fifteen (15) Year Warranty at no additional cost.

D. Installer/Applicator Qualifications: Trained and certified as approved and competent by moisture vapor control manufacturer.

* 1. Provide Contractor with written verification of manufacturer certification.
	2. Installer/Applicators shall have the ability to perform entire installation, including evaluation, testing, preparation, and application.
	3. Provide standard installation warranty for workmanship.

**1.06 DELIVERY, STORAGE AND HANDLING**

A. Store products in an approved ventilated dry area; protect from dampness, freezing, and direct sunlight. Product shall not be stored in areas with temperatures in excess of 90°F or below 50°F unless permitted by manufacturer’s instructions.

**1.07   PROJECT/SITE CONDITIONS**

A. Apply moisture control system to surfaces that are protected from precipitation. Do not apply when moisture is accumulated on the surface of the concrete or if precipitation is anticipated before the moisture control coating or cementitious topping has cured.

B. Apply moisture control system when temperature is above 50°F and below 90°F.

C. Prevent damage to moisture control system from climate, spills/leaks/topical moisture, and construction traffic during and after installation.

**1.08   SCHEDULING**

A. The moisture control system manufacturer’s instructions must allow installation as early as 10 days after concrete placement.

**1.09   WARRANTY**

A. Manufacturer shall provide written warranty for their system installed on below grade, on grade, or above grade concrete slab treated with the product according to manufacturer's instruction. The manufacturer shall warrant the floor finish against failure due to negative-side moisture migration or moisture-born contaminates such as alkalinity for a period of fifteen (15) years from the date of original installation. The warranty shall cover both labor and materials necessary to repair or replace the floor finish if repairs cannot be made.

B. Manufacturer to provide moisture control system warranty against failure of its system, workmanship, delamination, and other deterioration of floor finish installed over vapor emission control system due to moisture vapor emission up to 25 pounds before treatment and reduce down to compliant levels after treatment from the substrate.

C. Moisture control system warranty shall not have exclusions due to moisture vapor emission increase after system installation.

**PART 2 – PRODUCTS**

**2.01 MANUFACTURER REQUIREMENTS**

A. Moisture control system shall be rated at 0.10 net perms (grains h-1 ft-2 in Hg-1) or less when tested at a thickness of 12 mils in accordance with ASTM F3010.

**2.02 MATERIALS**

A. Moisture control system to be applied in one coat with a 4 - 5 hour cure time, 0 g/L VOC, and consist of a two-part epoxy resin coating.

1. Install moisture control system over manufacturer’s polyurea joint and crack filler.
2. Any backer rod and accessory materials.

B. Provide primer and cement topping over moisture control system:

1. Manufacturer-approved epoxy primer.
2. Manufacturer-approved cementitious skim material compatible with finish flooring adhesives.
3. Manufacturer-approved self-leveling underlayment compatible with finish flooring adhesives.

**PART 3 – EXECUTION**

**3.01 PREPARATION**

1. Prepare concrete surfaces in accordance with moisture control manufacturer’s instructions and recommendations. Remove any existing floor finishes including floor coverings, coatings, paint, and adhesives.

B. Provide a concrete floor slab free of contaminants and deleterious materials that can inhibit bond to the moisture control coating or develop deleterious reactions after the concrete floor slab is sealed. Concrete substrates must be structurally sound, solid, and meet industry standards as defined in ACI Committee 201 Report “Guide to Durable Concrete.” Surfaces must be free of moisture-sensitive patching and leveling materials, adhesives, coatings, curing compounds, concrete sealers, efflorescence, dust, grease, oils and any other materials or contaminants that can act as bond breakers.

C. Abrasive surface preparation: Shot blasting or grinding is the preferred method.

1. Shot blast or grind floors to ICRI CSP2 or CSP3. Shot blast or grind as close as possible to walls, doorways, casework, and other permanently installed objects. Remove residual steel shot.
2. Grind perimeter of rooms and areas inaccessible to larger equipment using dry diamond media with vacuum dust extraction. Grind to ICRI CSP2 or CSP3. Do not smooth polish.

D. Clean surfaces thoroughly prior to application. Remove residual dust and debris by vacuum and dry sweeping. Remove all foreign matter such as dust, adhesives, leveling compounds, paint, dirt, floor hardeners, bond breakers, oil, grease, curing agents, form release agents, efflorescence, laitance, shot blast beads, etc.

E. Cut, open, clean, and repair cracks, control joints, and voids in accordance with manufacturer’s recommendations. Using the manufacturer’s recommended polyurea crack and joint filler, fill all cracks and control joints. After curing, grind surface flush with surrounding concrete.

**3.02 APPLICATION**

A. The moisture control coating is packaged and pre-measured at proper mixing ratios to help ease installation.

B. Pour Part B into Part A pail, scraping sides and bottom of pail to ensure all product is used. Mix for three minutes using a low speed drill motor less than 300 rpm and a Jiffy-type mixing blade to minimize air entrainment.

C. After mixing, apply material to the concrete surface by pouring material out in a ribbon. Empty can completely, scraping the sides to ensure all product is utilized.

D. Spread moisture control coating using manufacturer’s recommended squeegee, pulling material over substrate while covering surface evenly. Back-roll with a 3/8-in. or 1/4-in. nap epoxy-rated, non-linting roller. Do not allow puddles in low spots, cracks and divots. Brush out excess material.

E. Spread a single coating on ICRI CSP2 or CSP3 concrete surface at 100 sq ft/gal.

F. Moisture control coatings must be installed at a minimum layer thickness of at least 16 mils. Check coating application with a wet film gauge to ensure uniform thickness is achieved.

G. Allow coating to cure the minimum length of time specified for the product.

**3.03 CEMENTITIOUS UNDERLAYMENT**

A. After installation of the moisture control coating, install the non-porous epoxy primer by backrolling, following manufacturers requirements for curing.

B. Install the cementitious skim coats or cementitious self-leveling cementitious underlayment. Mix according to manufacturer’s instructions to maintain the required water to cement ratio.

C. Allow the skim or underlayment to cure and dry according to manufacturer’s instructions prior to installation of floor coverings.

**END SECTION 09 05 61.13**