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

**PART 1 – GENERAL**

**1.01 SECTION INCLUDES**

A. Day of pour penetrating moisture vapor emission control system for new 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 07 26 00: Vapor Retarders
3. Section 09 62 00: Specialty Flooring
4. Section 09 64 00: Wood Flooring
5. Section 09 65 00: Resilient Flooring
6. Section 09 68 00: Carpeting

B. Reference Standards – Use current versions

1. ASTM F1869 - *Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride*
2. ASTM F2170 - *Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes*
3. ASTM F710 - *Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring*
4. ACI 302.1R-15 - *Guide to Concrete Floor and Slab Construction*

**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. 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.

**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 allowed to freeze.

**1.07   PROJECT/SITE CONDITIONS**

A. Spray-apply penetrating moisture control system to the concrete slabs as soon as final finishing operations are complete and the concrete has hardened sufficiently to sustain foot traffic without damage.

B. Ensure no moisture has accumulated on the surface of the concrete prior to application.

C. Apply moisture control system when ambient temperature is above 22°F and slab temperature is above 34°F.

**1.08   SCHEDULING**

A. The moisture control system manufacturer’s instructions must allow installation on the day of the pour, or as soon as weather conditions permit, prior to addition of any topical compounds.

B. Coordinate acclimatization of spaces and scheduling of tests to comply with requirements of the floor finish sections and the floor finish manufacturers’ requirements.

**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 or alkalinity.

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. Penetrating moisture control system shall be applied the day of the concrete pour or as soon as weather permits, prior to any other chemical treatments for concrete slabs either on grade, below grade or above-grade.

B. Product to have at least a 5-year documented history in controlling moisture vapor emission from damaging floor covering, compatible with all floor finish materials.

**PART 3 – EXECUTION**

**3.01 PREPARATION**

A. Mix, place, and finish concrete in accordance with the guidelines set out by “ACI” committee 302 report, “Guide to Concrete Floor and Slab Construction” (ACI 302.1R-15).

B. Concrete shall have a designed water to cement ratio of .50 or less.

C. In preparation for installation of floor coverings, contractors must not burnish, polish, or mirror finish the concrete slab during final finishing operations. A burnished slab surface may act as a bondbreaker and render the slab incompatible with flooring adhesive products.

D. Apply any curing compounds or bond breaker products for casting panels following installation of penetrating moisture control system.

**3.02 INSTALLATION**

A. Spray-apply penetrating moisture control system to the concrete slabs as soon as final finishing operations are complete and the concrete has hardened sufficiently to sustain foot traffic without damage. Inclement weather such as rain, snow, cold, wind, or job-site conditions such as concrete not exposed to direct sunlight will affect the rate of concrete hydration and delay application of the moisture control system until a more suitable application time permits as directed by manufacturer.

B. Spray-apply penetrating moisture control system by spraying product at the rate of 200 square feet per gallon using a clean industrial concrete sprayer provided by manufacturer. Broom product evenly over the substrate until product has completely penetrated the surface.

C. If within two (2) hours after initial application areas are subjected to heavy rainfall and puddling occurs, reapply product to these areas as soon as weather condition permits. Allow additional cure time prior to flooring system placement.

**3.03 TESTING**

A. Allow sufficient time for the concrete the cure and hydrate prior to testing in accordance with the flooring manufacturer requirements.

1. If ASTM F1869 testing is performed, the surface shall be lightly sanded or cleaned to remove construction debris. The concrete surface shall not be ground.

2. If ASTM F2170 testing is performed, the in situ probe holes will be filled with manufacturer’s recommended polyurea filler or moisture resistant patch.

B. In the absence of any flooring manufacturer testing recommendations or requirements, perform calcium chloride testing in accordance with ASTM F1869 and ASTM F710.

C. Prior to moisture testing the building shall be enclosed and the HVAC system operational at least 48 hours prior to testing. The HVAC system must be left on during the duration of testing. The moisture test report shall detail climate conditions in accordance with ASTM F710, including minimum and maximum temperature parameters, as well as minimum and maximum ambient humidity parameters.

D. Submit moisture testing report to the Architect, Owner, General Contractor, and moisture control system Manufacturer.

**END SECTION 09 05 61.13**