Utilize this section to specify water vapor emission control for concrete floors.

High moisture vapor content in floors can result in loss of adhesion of the finish flooring materials and damage to the finish materials themselves.

Work of this section is sometimes included in the contract and schedule with a deductive unit price, since the need for vapor emission control cannot be determined until concrete slabs are poured and cured.

**SECTION 09 61 39 – WATER VAPOR EMISSION CONTROL**

1. **GENERAL**
   1. SUBMITTALS
      1. Action Submittals:
         1. Product Data: Manufacturer’s descriptive data and product attributes.
      2. Informational Submittals:
         1. Test Results: Third party substrate testing results.
         2. Certificate of Compliance: Certification that installed products meet specified design and performance requirements.
   2. QUALITY ASSURANCE
      1. Installer Qualifications:
         1. Firm specializing in work of this Section with minimum [2] [\_\_] years’ experience.
         2. Approved by manufacturer.
      2. Perform manufacturers recommended substrate adhesion testing to ASTM D7234.
      3. Water vapor transmission rate tested to ASTM E96/E96M.
      4. Meet requirements of CDPH 01350 low emitting compliance.
      5. Source materials from a single manufacturer.
      6. Concrete Mix Design Requirements:

1. Water to Cement Ratio: Maximum of 0.50.

2. Moisture-Alkali Reducing Admixture: ASTM C618, minimum of 15-percent replacement for Portland cement.

1.4 WARRANTY

1. Manufacturer’s [10] [15] [\_\_] year warranty against material defects and performance.
2. Installer’s 5 year warranty against installation defects.
3. **PRODUCTS**
   1. MANUFACTURERS

A. Contract Documents are based on products by:

* + - 1. Koster America www.kosterusa.com
    1. Substitutions: Refer to Division 01.
  1. MATERIALS
     1. Water Vapor Emission Control:
        1. Type: Two-component, moisture tolerant, water-free, 100 percent solids epoxy meeting ASTM F3010.

Perm ratings require third party testing to verify. Request reports when reviewing other manufacturers.

* + - 1. Perm rating: Maximum 0.05 when tested to ASTM E96.
      2. Adhesion: 500 PSI or 100 percent concrete cohesive failure, tested to ASTM D7234.
      3. Relative Humidity: Tolerant to 100-percent RH exposure when tested to ASTM F2170.
      4. Water Vapor Emission: Tolerant to unlimited water vapor emission rates when tested to ASTM F 1869.
      5. Alkalinity: Unaffected by 14pH exposure when tested to ASTM F710.
    1. Primer: Manufacturer’s recommended non pours primer for securing cast-underlayment.
    2. Cast Underlayment: Manufacturer’s moisture tolerant, calcium aluminate or Portland cement based underlayment.
       1. Compressive strength: Minimum [5,000] [6,000] PSI when tested to ASTM C109.

1. **EXECUTION**
   1. EXAMINATION
      1. Prior to installing finish floor materials on [below-grade] [on-grade] [above-grade] concrete substrates, test surfaces for alkalinity, moisture vapor transmission, and relative humidity.
      2. Testing Concrete Floors:
         1. Perform testing when HVAC system has been balanced and acclimated to working environment of the Owner.
         2. Alkalinity:
            1. Test method: Measure pH according to ASTM F710.
            2. Acceptable results: pH between 8 and 10.
         3. Moisture vapor transmission:
            1. Test method: Perform anhydrous calcium chloride test to ASTM F1869.
            2. Acceptable results: Maximum 5 pounds per 1000 square feet in 24 hours.
         4. Relative humidity:
            1. Test method: Perform relative humidity test using in situ probes to ASTM F2170. Exclude testing on substrates where post-tension concrete has been installed.
            2. Acceptable results: Maximum 75 percent.
      3. When HVAC system is not operational or testing results do not comply with acceptable results specified above, apply water vapor emission control to substrates.
   2. PREPARATION
      1. Mechanically profile surface to ICRI No. 3 profile.
      2. Clean surfaces of debris and contaminates.
   3. INSTALLATION
      1. Install materials in accordance with manufacturer’s instructions.
      2. Prime water vapor emission control surface to secure cast underlayment.

Cast underlayment is installed to flatten and smooth floors for flooring. 1/8-inch thickness is a common application rate for this scope of work.

* + 1. Install cast underlayment to nominal [1/8] [1/4] [\_\_] thickness from wall to wall; feather edge to match adjacent elevations.
  1. FIELD QUALITY CONTROL
     1. Perform required inspection to maintain manufacturer’s warranty.

END OF SECTION