

SECTION 03060 (03 05 10)

CONCRETE MOISTURE VAPOR REDUCTION ADMIXTURE

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\*\* NOTE TO SPECIFIER \*\* ISE Logik Industries, Inc.; concrete moisture vapor reduction admixture.

This section is based on the products of ISE Logik Industries, Inc.

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1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Concrete Moisture Vapor Reduction Admixture (MVRA). Use for new concrete for the following applications:
			1. Slabs on grade.
			2. Elevated slabs.
			3. Roof decks.
			4. Stair treads and landings.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 03300 – Cast-in-Place Concrete.
		2. Section 07260 – Vapor Retarders.
		3. Section 09610 – Water Vapor Emission Control.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. American Concrete Institute (ACI):
			1. ACI 302.2R-06 - Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring.
			2. ACI 305R-10 - Guide to Hot Weather Concreting.
			3. ACI 306R-10 - Guide to Cold Weather Concreting.
		2. ASTM International (ASTM):
			1. ASTM C 494 - Standard Specification for Chemical Admixtures for Concrete.
			2. ASTM D 5084 - Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter.
			3. ASTM E 1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs.
			4. ASTM E 1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.
			5. ASTM F 710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
			6. ASTM F 1869 – Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
			7. ASTM F 2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
		3. National Ready Mix Concrete Association (NRMCA):
			1. NRMCA Certification of Ready Mixed Concrete Production Facilities.
	1. DEFINITIONS
		1. Cementitious Materials: Portland cement alone or in combination with one or more of the following:
			1. Blended hydraulic cement.
			2. Fly ash and other pozzolans.
			3. Ground granulated blast-furnace slag.
			4. Silica fume.
	2. SUBMITTALS
		1. Submit under provisions of Section 01300.
		2. Product Data:
			1. Manufacturer's data sheets on each product to be used.
			2. Preparation instructions and recommendations.
			3. Storage and handling requirements and recommendations.
			4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph if not required.

* + 1. Sustainable Design Submittals:
			1. Environmental Product Declaration:
				1. <https://iselogik.com/wp-content/uploads/2022/11/102.1_EPD_ISE_2022-MVRA-900-2.pdf>
			2. Health Product Declaration: Readily available and published on the HPD Public Repository developed by the HPD Collaborative (HPDC).
				1. <https://hpdrepository.hpd-collaborative.org/Pages/Results.aspx#k=ise%20logik>
			3. Regional materials documentation.
			4. Low-emitting materials documentation.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
		2. Ready Mixed Concrete Manufacturer Qualifications:
			1. Firm experienced in manufacturing ready-mixed concrete products.
			2. Comply with ASTM C94/C94M requirements for production facilities and equipment.
			3. Manufacturer certified per NRMCA certification procedures.
		3. Slab Moisture Testing and Evaluation:
			1. Personnel performing laboratory tests: Certified in conduct of ASTM D 5084 under supervision of licensed geotechnical engineer.
			2. Determination of whether concrete slab is prepared to receive flooring, coatings, or roofing rests with MVRA manufacturer.
			3. Moisture Testing: No further field moisture testing per ASTM F1869 nor ASTM F2170 shall be required prior to installation of flooring, roofing and moisture sensitive adhesives and coatings. The MVRA supplier shall issue warranty prior to start of installation of any such materials.
		4. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
		5. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.
	2. PRE-INSTALLATION CONFERENCE
		1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
	3. DELIVERY, STORAGE, AND HANDLING
		1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
		2. Protect from damage due to weather, excessive temperature, and construction operations.
	4. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
	5. WARRANTY
		1. Manufacturer's Warranty: Provide manufacturer's lifetime warranty against concrete induced moisture vapor failure, providing coverage for:
			1. Repair or removal of failed flooring or roofing.
			2. Placement of topical moisture remediation system.
			3. Replacement of flooring or roofing materials to match original including material and labor.
		2. Provide manufacturer’s adhesion warranty, matching terms of adhesive or primer manufacturer's material adhesion warranty.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: ISE Logik Industries, Inc. which is located at: 5635 Iron Works Road, Theodore, AL 36581; Toll Free Tel: 877-549-4159; Email: concreteanswers@iselogik.com; Web: [www.iselogik.com](http://www.iselogik.com).

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01600.
	1. CONCRETE MOISTURE VAPOR REDUCTION ADMIXTURE (MVRA)
		1. Performance Requirements:
			1. Hydraulic Conductivity: Project specific maximum of 6.0 E-8 cm/s per ASTM D 5084.
			2. Toxicity: None.
			3. Odor: None.
			4. Flammability: None.
			5. Volatile Organic Compound (VOC) Content: 0 grams per liter.
			6. Freeze Temperature: 32 degrees F (0 degrees C).
			7. pH: 11.3.
		2. Basis of Design: MVRA 900; as manufactured by ISE Logik Industries, Inc.
			1. Liquid admixture formulated to react with hydroxide ions produced by cement hydration process, creation additional hydration products within capillary pores, blocking moisture vapor movement through concrete.
			2. Non-toxic.
			3. Volatile organic compound (VOC) free.
	2. ACCESSORIES

\*\* NOTE TO SPECIFIER \*\* Ensure that related sections include a sheet vapor retarder complying with the minimum performance requirements of ASTM E1745, and including manufacturer's recommended seam adhesive or pressure-sensitive seam tape. The vapor retarder is to be installed in direct contact with the underside of the slab. Delete one of two paragraphs below.

* + 1. Sheet Vapor Retarder: Specified in Section 03300.
		2. Sheet Vapor Retarder: Specified in Section 07260.
	1. MIXES
		1. Moisture Vapor Reducing Admixture (MVRA) for new concrete, slabs below grade, slabs on grade, elevated slabs, roof deck, stair treads and landings, and exterior balconies.
		2. Add MVRA 900 to concrete mix in accordance with manufacturer’s instructions.

\*\* NOTE TO SPECIFIER \*\* Mix designs outside of 0.40 to 0.54 w/cm may require adjustment and consultation with MVRA manufacturer prior to their use.

* + 1. Add MVRA at rate of 12 ounces per 100 pounds (355ml per 45 kg) of total cementitious materials.
		2. Replace mix water on one-for-one basis in amount equal to amount of MVRA added.
		3. Add MRVA 900 directly to freshly mixed concrete at end of the batch process with tail water.
		4. Ready-Mixed Concrete:
			1. Measure, batch, mix, and deliver concrete with MVRA 900 in accordance with ASTM C94/C94M.
			2. Furnish batch ticket information showing dosage of MVRA 900.
		5. Site Mixing:
			1. Measure, batch, and mix concrete materials and concrete in accordance with ASTM C94/C94M.
			2. Add MVRA 900 to where it makes direct contact with ready mix, then rotate drum of batch truck on high for at least seven minutes prior to discharge.
		6. Freshening onsite with held back mix water is acceptable if in accordance with ACI guidelines and if amount does not exceed original water to cementitious material ratio.

\*\* NOTE TO SPECIFIER \*\* Delete options not required.

* + - 1. Comply with instructions of Architect.
			2. Comply with instructions of Design/Builder.
			3. Comply with instructions of Structural Engineer.

\*\* NOTE TO SPECIFIER \*\* Use of fibers is acceptable but may compromise the lifetime MVE warranty; fibers can create their own unique routes of moisture vapor emission that the MVRA cannot control if the fibers are improperly incorporated into the mix.

* + 1. Use water reducing admixtures to achieve desired slump.
		2. Use of other admixtures in same batch as MVRA is acceptable if each admixture is added separately.
		3. Do not use shrink reducing admixtures.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly constructed and prepared.
		2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
		3. Protect and repair vapor retarder in accordance with ASTM E1643, ASTM F710, ACI 302.2R-06, and manufacturer's instructions.
	2. INSTALLATION
		1. Install in accordance with manufacturer's instructions, approved submittals and in proper relationship with adjacent construction.
		2. Comply with requirements of Section 03300 for concrete mixing, placing, and curing.
		3. Install, protect and repair sheet vapor retarder in accordance with to ASTM E1643, ASTM F710, ACI 302.2R-06, and manufacturer's instructions.
		4. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306R-10 for cold-weather protection and ACI 305R-10 for hot-weather protection during curing.

\*\* NOTE TO SPECIFIER \*\* Curing compound may require mechanical removal prior to installation of flooring in accordance with ASTM F710. Do not chemically remove.

* + 1. Curing.
			1. Cure concrete slabs to receive moisture sensitive coatings according to ACI 302.2R-06 by one or more of following methods:
				1. Moisture-retaining cover curing.
				2. Self-dissipating curing compound.
				3. Cure and seal curing compound.
			2. Verify curing method in writing with MVRA manufacturer before placement of concrete slabs containing MVRA product.

\*\* NOTE TO SPECIFIER \*\* Below quality control procedure is optional. Delete if not required.

* 1. FIELD QUALITY CONTROL
		1. Project specific quality control process required by MVRA manufacturer necessary to convey concrete moisture vapor emission flooring failure warranty and stand-alone adhesion warranty.
		2. Project team: Upon request, provide batch tickets indicating presence and dosage of MVRA in mix.

END OF SECTION