

SECTION 03390

CONCRETE CURING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Curing practices for poured-in-place Portland cement concrete.

1.02 REFERENCES

A. Concrete Mockups: Section 03300

B. Concrete Finishing: Section 03360

1.03 SUBMITTALS

A. Product Data

1.04 QUALITY ASSURANCE

A. ACI Publication ACI 301, "Specification for Structural Concrete."

PART 2 - PRODUCTS

2.01 CURING MATERIALS

Evaporation retarder below temporarily reduces moisture loss from concrete surfaces awaiting finishing in hot, dry, and windy conditions. Evaporation retarders are not curing compounds.

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

1. Product: Provide **Lambco Skin; Lambert Corporation.**

Select curing aids and materials from paras below, retaining optional materials if applicable.

B. Absorptive Cover: Burlap cloth weighing approximately 9 oz./sq. yd. (300 g/sq. m) dry.

C. Moisture-Retaining Cover: Polyethylene film or white burlap-polyethylene sheet.

Select curing compounds from the types listed in the 3 categories listed below. Contact your Lambert Representative for selection assistance.

Below is a waterborne curing compound, considered a "straight cure". It is only a temporary membrane for curing, and will break down under exposure to UV light and abrasion. It is usually recommended for exterior applications.

D. Clear Water-based Membrane-Forming Curing Compound: ASTM C-309, Type 1, Class B.

1. Product: Provide **Glazecote 20; Lambert Corporation.**

The next two products below are "cure-and-seal" compounds. They are long-lasting products for curing and protection of finished concrete surfaces. It is usually recommended for interior applications. The first is a solvent-borne product, the next a water-borne product.

E. Clear Solvent-Based Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.

1. Product: Provide **LaCrystal Clear Seal 1315; Lambert Corporation.**

F. Clear Waterbased Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.

1. Product: Provide **Glazecote 20; Lambert Corporation.**

The two products listed below are clear, nonyellowing, membrane-forming cure-and-seals meeting newer ASTM C-1315 requirements. The first is a solvent-borne product, the next a water-borne product.

G. Clear, Solvent-Based, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

1. Product: Provide **UV Super Seal; Lambert Corporation.**

H. Clear, Water-based, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

1. Product: Provide **UV Safe Seal; Lambert Corporation.**

PART 3 - EXECUTION

3.01 CONCRETE CURING

A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

1. Moist cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.

2. Cure concrete surfaces to receive floor coverings with a curing compound that the manufacturer recommends for use with floor coverings.

If evaporation rate in para below is exceeded, ACI 305R states that plastic shrinkage cracking is probable.

- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sf. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing by one or a combination of the following methods:
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces, by one or a combination of the following methods:

Select curing method(s) from subparas below. Delete options or restrict use of curing method(s) to specific locations or types of surfaces if required.

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

Curing and sealing compound below is usually for floors and slabs and may act as a permanent surface finish.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.02 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.
 1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
 2. Apply to concrete that is at least ten days old.
 3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing. Rinse with water; remove excess material until surface is dry. Apply a second coat in a similar manner if surface is rough or porous.

The following paragraph can be used to improve appearance of an exposed concrete floor. It should be applied just prior to project closeout.

- B. Sealer Coat: Just prior to project end, uniformly apply a sealer coat of cure-and-seal compound to floor slabs that have no other finish flooring. Apply to concrete surfaces by power spray or roller.

END OF SECTION