



## ENGINEERING DEPARTMENT

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## Concrete Preparation Warranty after October 31<sup>st</sup>

**I agree to cure the concrete per MnDOT's Standard Specifications – 2521 Walks, as stated below:**

E.3 Protection Against Cold Weather – If the National Weather Service forecast for the construction area predicts air temperatures of 36°F or less within the next 24 hours and the Contractor wishes to place concrete, submit a cold weather protection Plan.

After the finishing operations have been completed and as soon as the set of the concrete permits, the concrete shall be cured for a minimum period of 72 hours. The curing shall be in accordance with one of the methods prescribed herein. Where side forms are used, the edges shall receive the curing media within 30 minutes after removal of the forms. During cold weather, the Contractor shall protect the concrete from frost damage prior to and throughout the duration of the cure.

After October 31<sup>st</sup> and before April 15<sup>th</sup>, the blanket curing or membrane methods of curing will be required as necessary.

With the blanket method, after being cured the prescribed minimum period of 72 hours, the concrete shall be treated with two applications totaling approximately (1 gallons per 150 square feet) of concrete sealant or curing membrane applied over all concrete surfaces that will remain exposed in the completed work.

The concrete shall be clean and dry when the sealant is applied.

E.1.b Curing Blanket Method - After completion of the finishing operations and without marring the concrete, cover the concrete with curing blankets. Install in a manner that envelops the exposed concrete and prevents loss of water vapor. After the concrete has cured, apply membrane curing compound to the concrete surfaces that will remain exposed in the completed Work.

E.1.a Membrane Curing Method - All surfaces exposed to air at the time of cure shall be coated with membrane curing compound within 1 hour after finishing the concrete surfaces. Membrane Curing Method Before application, agitate the curing compound as received in the shipping container to obtain a homogenous mixture. Protect membrane curing compounds from freezing before application. Handle and apply the membrane curing compound in accordance with the manufacturer's recommendations. The Engineer will only approve airless spraying machines equipped with a recirculating bypass system that provides for continuous agitation of the reservoir Material, separate filters for the hose and nozzle, and multiple or adjustable nozzle system that provides for variable spray patterns. Apply the curing compound with an Engineer approved airless spraying machine in accordance with the following:

- 1) In accordance with 2521.3E.1.a, "Membrane Curing Method," place the membrane curing compound conforming to 3754, "Poly-Alpha Methyl Styrene (AMS) Membrane Curing Compound," or 3755, "Linseed Oil Membrane Curing Compound," within 30 minutes of concrete placement or once the bleed water has dissipated, unless the Engineer directs otherwise. Place the membrane curing compound on the edges within
- 2) 30 minutes after permanent removal of the forms or curing blankets.
- 3) At a minimum rate of 1 gallon per 150 square feet of surface curing area.
- 4) Apply homogeneously to provide a uniform, solid, white, opaque coverage on exposed concrete surfaces (equal to a white sheet of typing paper) at the time of application. Some Department-approved curing compounds may have a base color (i.e. yellow) that cannot comply with the above requirement. In this case, provide a uniform, solid, opaque consistency meeting the intent of the above requirement.
- 5) If the curing compound is damaged during the curing period, immediately repair the damaged area by respraying.

Application shall be such that a uniform coating is obtained. Any areas that, by visual inspection, appear to have received too light a coating shall be resprayed immediately. Also, should the membrane film become damaged at any time within the required curing period, the damaged areas shall be repaired immediately by respraying. Wherever the initial or corrective spraying is such as to result in unsatisfactory curing, the City Engineer may require use of the blanket curing method at no additional cost to the Department.

**I/We, \_\_\_\_\_ do hereby warrant that all labor and materials furnished and work performed in conjunction with this project will be free from defects due to defective materials or workmanship for a period of 2 years from the date of substantial completion.**

**Should any defect develop (spalling/flaking/cracking) during the warranty period due to improper materials, workmanship or arrangement, including adjacent work displaced, shall be made good by the undersigned at no expense to the owner, within 4 months after receiving written notice from the owner or the City of Winona.**

**Address of Property:** \_\_\_\_\_

**Contractor:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_