

Memo**To: Minnesota City and County Engineers****From: Joel Uring, Pavement Engineer****Date: January 22, 2018****RE: Cold Weather Concrete Placement and Concrete Cylinder Guidelines**

Cold weather concrete placement and handling of concrete test cylinders present many challenges that can affect the long-term performance and durability of the concrete. But, there are things that can be done to help ensure the work performed is the best possible and will result in long lasting concrete. This information was originally presented in a memo by Maria Masten the MnDOT Concrete Engineer issued on October 09, 2017. Some of the items listed below are specification items that should be required of the Contractor other items are discussion points you can have with the Contractor. You can always discuss alternate ways for the Contractor to do things, but, you want to be careful not to direct the Contractor in their operations; otherwise, you accept a certain amount of liability. The following is a list (in no particular order) of things to do and keep an eye on or discuss with the Contractor during cold weather placement of concrete.

COLD WEATHER CONCRETE PLACEMENT:

Review your contract to determine the specific requirements for cold weather concreting.

Below are the requirements for 2521 (Walks):

E.3 Protection Against Cold Weather

If the national weather service forecast for the construction area predicts air temperatures of 36 °F (1° C) or less within the next 24 h and the Contractor wishes to place concrete, submit a cold weather protection plan.

Protect the concrete from damage including freezing due to cold weather. Should any damage result, the Engineer will suspend operations until corrective action is taken and may subject the damaged concrete to 1503 and 1512.

E.3.a Cold Weather Protection Plan

Submit proposed time schedule and plans for cold weather protection of concrete in writing to the Engineer for acceptance that provides provisions for adequately protecting the concrete during placement and curing. Do not place concrete until the Engineer accepts the cold weather protection plans.

Ask your contractors to submit cold weather protection plans and then enforce it. This makes the contractor consider what they are doing and have a plan in place.

These specifications are for concrete paving and general concrete applications – refer to the bridge special provisions for specific details for all bridge applications.

If you do not have these additional requirements in your contract – it doesn't hurt to ask for a plan.

CONCRETE CYLINDER CURING:

Ensure all cylinders (Standard strength and field control) are protected from freezing. The specifications are no different than during any other time of the year, standard strength cylinders must still be cured and maintained in an ambient temperature range from 60-80°F during initial and intermediate curing. At your weekly construction meeting, remind the Contractor about keeping the water from freezing in the moist curing environments.

Contact the MnDOT Concrete Office with any questions:

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