

July 1, 2018

Concrete Placement in Cold and Hot Weather

Delete Subsection 702.4.2.8.1 and 702.4.2.8.2 in their entirety and replace with the following:

702.4.2.8.1 Concreting in Cold Weather

Do not place concrete when the air temperature measured at the location of the concreting operation is below 35°F as determined by the RCE unless authorized by the RCE.

When concreting in cold weather above 35°F or with RCE authorization below 35°F, make available and implement measures utilizing suitable equipment and materials as necessary to protect the uncured concrete when air temperatures are anticipated to drop below 50°F at any time within 96 hours following concrete placement. Implemented measures shall maintain the air temperature surrounding the concrete between 50°F and 100°F. Place Hi-Lo thermometers on the concrete surface at locations directed by the RCE. Monitor concrete temperatures for a period of 4 days after the concrete is placed. Additional monitoring locations may be added by the contractor if deemed appropriate to ensure concrete protection.

Prior to placing concrete in cold weather, have a contingency plan and provisions in place to quickly and adequately address sudden temperature changes below those forecasted during the curing period. Check concrete temperatures before leaving for the day to determine if additional protection measures are needed when overnight temperatures are forecasted to drop below 35°F.

Implemented measures to protect concrete placed during cold weather may include but are not limited to the following:

- A. Curing blankets conforming to the requirements found in Subsection 702.3.4. If used, curing blankets are to remain in place for a minimum of 4 days.
- B. Heating equipment such as stoves, salamanders, or steam equipment deemed necessary to protect the concrete. Dry heat may be used provided a system to maintain adequate moisture is used to maintain the concrete in a wet condition during the curing period.
- C. Windbreaks or heated enclosures.

Before placing concrete, remove all ice and frost from all materials and surfaces in contact with the concrete.

Do not implement alternate measures to those listed above without prior approval by the RCE.

Recommendations provided in ACI 306R, Guide to Cold Weather Concreting may be used to meet the requirements of this subsection with RCE approval.

The contractor retains the responsibility for maintaining the temperature of the air surrounding the curing concrete within specified limits and for placing concrete that meets the requirements of the plan, specifications, and special provisions.

702.4.2.8.2 Concreting in Hot Weather

When concreting in hot weather, the contractor is required to implement measures to prevent a reduction in concrete workability, losses from cement hydration, evaporation, drying, or elevated concrete temperatures. Implement measures to maintain the temperature of concrete below 90°F when measured at the point of discharge from the delivery unit, with the exceptions of Class 2500 concrete and mass concrete pours. Cool steel forms and reinforcing steel exceeding 120°F prior to concrete placement.

Implemented measures to protect concrete placed during hot weather may include but are not limited to the following:

- A. Scheduling work so that the concrete can be placed with the least possible delay.
- B. Scheduling work so that the concrete can be placed during a cooler part of the day.
- C. Reducing loss of water through absorption by pre-wetting the sub-grade or forms just prior to concrete placement so that they will not absorb water from mix.
- D. Spraying forms and reinforcing steel with cool fresh water just before placement of concrete.
- E. Erecting windbreakers to prevent wind from drying exposed concrete surfaces while they are being finished.
- F. Using water-curing methods to provide evaporative cooling.
- G. Screed and float concrete as it is placed, and start curing procedures immediately.
- H. Applying liquid curing compound in accordance with Subsection 702.2.2.11 to all exposed surfaces as finishing is completed.

Do not allow the concrete temperature for Class 2500 concrete to exceed 95°F at discharge. Do not allow mass concrete mix temperature measured at discharge into the forms to exceed 80°F.

Do not implement alternate measures to those listed above without prior approval by the RCE.

Recommendations provided in ACI 305R, Guide to Hot Weather Concreting may be used to meet the requirements of this subsection with RCE approval.

The contractor retains the responsibility for placing concrete that meets the requirements of the plan, specifications, and special provisions.