

Freeze Resistant Concrete

Steps to success

- Adhere to ACI 306 Cold-weather concreting guide.
- Monitor & record the concrete temperature
 - Track ambient and wind chill temperatures.
 - If wind chill is predicted to be below 15°F **Do Not Use**
 - Ambient temperatures must remain at or above 20°F until concrete reaches initial set and acrylic cure and seal is applied.
- Have enough laborers on the job to prepare, place, and finish concrete. Concrete will set quickly, and may get away from crews with inadequate staffing.
- Remove all frost from forms and sub grade.
- Travel time from concrete plant to point of placement must be 30 minutes or less.
- Ready Mix truck should be completely discharged within 1 hour of batching.
- Concrete should be a minimum of 4 inches thick.
- The slump of the concrete at time of placement must be no higher than 6 inches. Expect to lose slump on the way to the job. Consider batching at up to 2" above desired slump. **Do not add water after batching** as this may cause rapid temperature loss.
- Exterior concrete must contain 6% air.
- The minimum cement content must be 564 pounds per cubic yard.
- No pozzolans or other chemical admixtures should be added to the mix.
- During placing and finishing care must be taken to prevent additional moisture from collecting on the surface of the concrete. Wind barriers should be utilized to prevent rapid evaporation and minimize loss of the heat.
- The temperature of the concrete needs to be at least 70°F and not more than 75°F to prevent excessive drying. Protect concrete from additional moisture and early drying by applying an acrylic Cure & Seal.
- Apply **CS 25** with a short nap roller immediately after finishing (if **Bear Coat CS 25** is not available use a solvent based cure and seal that meets ASTM C-309 with a solid content of 20% - 30%.)
- Delay service of freeze resistant concrete for 7 days.



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Refer to the chart below to select proper dosing of **NitroCast® K** or **OptiFlo® Plus**.

NitroCast® K or OptiFlo® Plus FREEZE-RESISTANT CONCRETE DOSAGE RATE CHART

CONCRETE TEMPERATURE				
AMBIENT TEMP	40 - 49°F	50 - 59°F	60 - 69°F	70°F +
20 - 25°F	85	80	75	65
26 - 30°F	80	75	70	60
31 - 35°F	75	70	65	55
36 - 40°F	70	65	60	50
41°F	65	60	55	45

All dosages are in oz./cwt.

When using the dosage chart, choose the proper dosage rate by using the predicted low temperature up to 8 hours after placement.

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