



COLD WEATHER CONCRETE

“If the temperature of fresh concrete is 55 F, or greater – and if the concrete is maintained at a temperature of 55 F. or higher – you’re on your way to trouble-free, winter concreting.”

The protection of fresh concrete has two goals:

- Prevention from freezing
- Attainment of early strength

Prepare materials:

The internal heat of the concrete mix can be raised by heating the materials, using extra or special cements, or by the addition of accelerators.

Change the Environment:

Protection of fresh concrete is most commonly done by:

- Using enclosures and moist heat.
- Applying insulating blankets.
- Leaving forms in place.





Concrete can be successfully placed in cold weather.

Just follow these guidelines.

1. Plan in advance. Have equipment and materials ready before cold weather arrives. Provide heaters, insulating materials, and enclosures.
2. Use air-entrained concrete.
3. Don't place concrete on frozen subbase. Be sure that all ice, snow and frost are removed from surfaces the concrete will touch.
4. For durability, the fresh concrete should be kept at the temperature of 55 F. or higher for thin sections. Consider using high-early strength concrete.
5. Cure concrete to prevent loss of moisture. When heated enclosures are used, provide extra moisture by sprinkler or use live steam for heating. Vent salamanders and other fuel-burning heaters.
6. Do not use "antifreeze" compounds in an attempt to lower the freezing point of concrete.
7. Leave forms in place as long as the job schedules permit. Reshoring is necessary until concrete reaches required design strength.
8. Keep job condition records. Record, at least twice daily: weather conditions, temperatures of the air around the concrete, and the concrete surface.
9. If concrete is to cure below 60 F. water reducers or retarders may prolong the set.
10. The use of calcium chloride or admixtures containing soluble chlorides is not recommended under certain conditions:
 - a. In concrete containing aluminum or prestressing strand because of corrosion.
 - b. Where discoloration of trowelled surfaces cannot be tolerated.
 - c. Where galvanized steel will remain in permanent contact with the concrete.
 - d. In concrete subjected to alkali-aggregate reaction or exposed to soils or water containing sulfates.
11. Be especially careful in protecting cylinders for strength tests.
12. Concrete placed in late fall or winter should not be exposed to salts applied as deicers or salts which drip from parked vehicles.

