

Cold Weather Requirements

1. The concrete placed in walls using CONFORM® shall be protected from cold weather in accordance with the requirements of CAN/CSA A23.1 or ACI 318 and as herein specified.
2. **Protection Against Early Frost Damage:** Effective means shall be provided for maintaining the temperature of the concrete in place between a minimum of 10°C (50°F) and a maximum of 30°C (86°F) for a minimum period of 3 days or until sufficient hydration has occurred to protect the concrete from frost damage.
3. **Protection for Structural Safety:** If, subsequent to the above period of protection, the ambient conditions are not likely to be favourable for continuous strength development, the protection period shall be extended until the concrete has achieved sufficient strength for structural safety.
4. **Protection for Strength and Durability:** When subsequent ambient conditions are not conducive to continued curing and strength development, the protection period shall be extended until a total period of 7 days at temperatures above 10°C (50°F) has been attained.
5. **Job Site Preparations:** When concrete is to be placed in cold weather, all materials and equipment needed for adequate protection and curing of the concrete shall be on hand and ready to use before actual concrete placing is started.
6. **Concrete Temperature:** When the air temperature is at or below 5°C (40°F) or when there is a probability of its falling to that limit within 24 hours of placing (as forecast by the nearest official meteorological office), the temperature of the concrete as placed shall be between 10°C (50°F) and 30°C (86°F).
7. **Placing:** All snow and ice shall be removed before depositing concrete on any surface. All forms, surfaces and reinforcing steel with which the concrete is or is calculated to come in contact with, shall be heated to a temperature of not less than 5°C (40°F) and shall not lower the temperature of the concrete in place below 10°C (50°F). **CALCIUM CHLORIDE AND DE-ICING CHEMICALS SHALL NOT BE USED.**
8. **Cold Weather Protection:** Protection shall be provided for newly placed concrete by means of suitable enclosures, coverings and/or adequate insulation as follows:
 - i) For temperatures from 0°C to +5°C (32°F to 40°F) - Suitable covering plus adequate insulation.
 - ii) For temperatures below 0°C (32°F) - Suitable enclosure plus supplementary heat or adequate insulation.
9. **Heating of Enclosures:** At the time of placing and during curing, concrete surfaces shall be protected by formwork or an impermeable membrane from direct exposure to combustion gases of heaters.
10. **Protection by Insulation:** The amount of insulation required to properly cure concrete in cold weather shall be determined on the basis of the expected air temperatures and wind velocity (wind chill factor), the size and shape of the concrete structure, and the amount of cement in the mix.
11. **Protection of Corners and Edges:** The extremities of a concrete member are the most vulnerable locations in cold weather and more protection or supplementary heat must be provided, as necessary.
12. **Cooling After Protection:** To avoid cracking of the concrete due to sudden temperature change near the end of the curing period, the protection shall not be completely removed until the concrete has cooled to the temperature differential given in CSA Standard CAN/CSA-A23.1.
13. **Monitoring of Protection:** The protection and supplementary heating must be applied continuously and must be reviewed and monitored on an ongoing basis to ensure that it is secured in place and functioning properly. Weather conditions of high winds may disturb the insulation and enclosure. Extremes in temperature may require additional supplementary heat.