

Pouring Concrete During Cold Weather

By: Log Home Builders Association



Sometimes, out of necessity or eagerness, you may start working on the foundation of your log home in the middle of winter. Pouring concrete during cold weather can be a little tricky, because pouring concrete in freezing temperatures can cause serious problems. If you really want to pour concrete in winter there are some easy precautions you can take in order to help ensure that you'll end up with a rock solid foundation.

First off, let's talk about what can happen if you pour concrete in cold weather without taking any precautions. Concrete cures through a chemical process that both creates and requires heat. If it cools too rapidly, due to cold weather, it can be seriously weakened (not desirable). You can also end up with fractures in your foundation caused by water freezing within the concrete, or can have spalling problems.

Generally the kind of cold weather that can negatively impact freshly poured concrete is 3 consecutive days of 40 F or below (average temp). Even if the temp is bouncing between the 40's and 50's you might still have problems. Effective communication with your concrete supplier, and checking your local weather report, should give you the definitive answer as to whether or not you'll need to take extra precautions against cold weather at the time of your pour.

If you do end up needing to pour concrete in cold weather, then there are several different precautions you may want to take:

- 1) There are 'anti-freeze like' admixtures that can be effective at stopping the water within concrete from freezing. Such an admixture will extend the temperature range in which concrete can effectively cure.*
- 2) Air-entrainment admixtures also help concrete deal with low temperatures by trapping tiny air bubbles within the mix, which in theory gives the freezing water someplace to gather without damaging your foundation.*
- 3) A load of concrete can also be heated prior to leaving the yard. Starting out at a higher temp means it'll stay warmer longer and can resist the cooling action of the cold weather long enough to form a good, solid set.*

4) You can also request a mix of concrete that has extra cement added to it. That can help the mix quickly develop the strength needed to handle freezing temperatures.

5) Order a 'drier' mix of concrete. Since there will be less moisture within the mix that can freeze, the freezing effects of the temperatures will have less of an effect.

6) Use insulating blankets or insulated boxes to cover your foundation or pier blocks. This will help trap in the heat of the concrete preventing it from cooling too quickly. You can also use a 'heated box' of some sort if the weather is really cold.

When pouring in cold weather your concrete supplier will likely recommend one or more of the above precautions. Pay attention to what the supplier recommends, because after all they are the one who will be most familiar with what works best in your area – at the time of year your doing your pour.

While waiting for spring or summer may make the construction process easier, working on your foundation in winter is sometimes possible provided you take appropriate steps. Be sure to talk with your concrete supplier about what precautions to take.

For additional information you can check out the following resources:

http://www.askthebuilder.com/104_Cold_Weather_Concrete_Installation.shtml

<http://www.pathnet.org/sp.asp?id=14138>

<http://www.bobvila.com/BVTV/HomeAgain/Video-0815-03-0.html>

<http://www.flboa.com/pdf/jan-06/Cold-Weather-Concrete.pdf>