

Cold Weather and Concrete

What is cold weather?

The American Concrete Institute (ACI) define cold weather as a period of **3 or more consecutive days** where the average daily air temperature is:

o **Less than 40° Fahrenheit**

o **Less than 50° Fahrenheit for more than half of any 24-hour period.**

NOTE The average daily air temperature is derived from the average of the highest and lowest temperatures occurring during a 24-hour period (midnight to midnight).

What type of concrete work should be avoided during periods of cold weather?

In general, all concrete flatwork should be avoided when the temperature is less than 40° Fahrenheit. Concrete flatwork includes (but is not limited to), driveways, sidewalks, and patios that are placed at grade level with a thickness of less than 12 inches.

Why should I avoid pouring concrete during cold weather?

The concrete curing process is directly responsible for determining the overall strength and durability of a concrete pour. As the air temperature decreases, the rate of hydration also decreases, which subsequently reduces the rate at which concrete hardens. Other types of cold weather impacts may include:

Permanent damage due to early freezing of concrete (prior to hardening)

Slower setting and slower strength gains

Reduced durability

Increased risk of cracking, flaking, and other surface imperfections due to sudden temperature changes

How can I minimize the negative impacts of cold weather?

Although concrete flatwork should be avoided during periods of cold weather, it is still possible for concrete to cure properly if the right precautionary measures are followed.

Some of these measures include:

Removing snow, ice and frost from the subgrade and all surfaces that will be in contact with the concrete.

Planning ahead. Have heaters, enclosures, and protective materials (i.e. heat blankets) on-hand during the pour.

Heating the water and aggregates, and handling the concrete with minimum delay.

Using admixtures and air-entrained concrete if possible.

Avoid overheating the concrete.

What if pouring concrete during cold weather is my only option?

If the proposed concrete work cannot be postponed until warmer weather arrives, the owner of the property or builder must sign the waiver below:

As the owner, property manager, builder or developer of the property listed on the attached contract, I have read the contents of the "Cold Weather and Concrete" handout, and understand the implications of pouring concrete during periods of cold weather. I will work with the contractor(s) listed on the attached contract to ensure that all cold weather precautions are followed and agree to hold the concrete contractor and ready-mix supplier harmless in the event of failure of the concrete due to cold weather placement.

Address of Construction:

Property Owner Name (Please Print):

Property Owner Signature: _____

Date: _____

Contractor Name (Include Business Name):

Contractor Signature: _____

Date: _____