



Cold Weather Concrete Guide

Special care must be taken when placing concrete in cold weather. If early age concrete is allowed to cool below freezing point it can be damaged and rendered unfit for use. It should also be understood that even in cooler temperatures above freezing strength will develop at a much slower rate.

Using Concrete in Cold Weathers

When using concrete two different temperatures should be taken into consideration. These are ambient air temperatures and actual concrete temperatures, its important not to confuse the two.

If freshly placed concrete is exposed to temperatures of 0C and declining the water in the mix can freeze and expand causing cracks and potential spooling. This would make the concrete useless and unsafe.

Thermal blankets should be used to hold the concrete temperature above 5C+ for a minimum of 24 hours. Allowing the concrete to achieve a minimum strength of 2 N/mm².

The severity of weather determines the procedures that need to be put in place. For the purposes of concrete placement this can be divided into two separate categories.

Ambient temperatures below 5C but no frost

When the air temperature is low but does not drop below 0C there is no danger that the concrete can be permanently damaged, however it will take more time to gain compressive strength. Its important that formwork striking times are considered and not removed to early. Its impossible to guess when formwork should be struck due to different cement contents, mixes and ambient air temperatures. If needed this process can be helped along by using a higher cement content mix designs or with additions like accelerators to speed the hydration process up.

frost Overnight and Daytime

Concrete must be 5C or above, there will be occasions where the supplier can't achieve this and a decision must be made whereby the customer takes responsibility for the concrete and aftercare or cancels the concrete pour. Protection should be in the forms of frost blankets and insulated formwork or erect temporary covers and increase ambient temperatures with space heaters.

Prior to concrete placement please ensure that Sub – Bases, Formwork, Reinforcement and placing equipment are free from Ice and Snow.