

Concrete placers need to be wary of pouring concrete in spring and autumn. They are the seasons of rapid temperature changes and the weather is less settled and windier. A dangerous combination if the client wants an uncracked slab.

On the day of the pour while the concrete is yet to set plastic cracking is the big risk. Plastic cracking is when the surface of the concrete dries rather than sets and rips apart in short jagged cracks. Othertimes the cracks will reflect the reinforcing pattern as the reinforcing acts as a crack inducer. Plastic cracking is driven by evaporation. If its a good day to get washing dry its a risky day for flat concrete. A good day for drying washing means the weather is very good for evaporation. This tends to be low humidity, windy and warm. This combination will dry the surface of your concrete leaving it prone to cracking open like a mud puddle drying in the sun.

Concrete with low bleed is most prone, so avoid super-plasticised concrete placed externally or any low water cement ratio mix. If there is low bleed this leaves the surface dry and prone to plastic cracking.

Your options to reduce the risk are:

- To use a polypropylene or cellulose fibre to hold the plastic concrete together.
- Use an anti-evaporative spray to hold what bleed there is on the surface – this must be reapplied every time you work the surface of the concrete.
- Or to finely mist the concrete to avoid the surface drying – difficult in a wind.

In all cases if the conditions are bad enough these will not be successful to prevent cracking. Theory and the internet will suggest you erect wind breaks. This is virtually impossible to provide any real protection unless your working inside where you can close off doors and other openings with tarps.

If it's hot, dry and windy such as during a Canterbury nor-wester the answer may simply be to hold off pouring.

In Spring and Autumn we also get these beautiful days that remind us of summer. But the nights are cold, particularly when the sky is clear. Over the first night the concrete poured that day has set, so it is stiff, but it has no strength. It may only be a few MPa. It is like a potato crisp, stiff but easily broken. The change in temperature from the warmth of the day to the cold night will cause enough thermally induced shrinkage that this stiff but weak concrete will easily crack.

The only protection is to cut the slab that day to ensure the shrinkage control is in early enough to catch the change in temperature. Waiting to cut within 24 hours leaves you very prone to finding the cracking has already taken place overnight and cutting the slab then is just too late. Using an early age saw will enable you to cut the slab without raveling the sawcut edges.



So while we all enjoy the change to warmer longer days plan how you are going to avoid the risks that come with the season.