

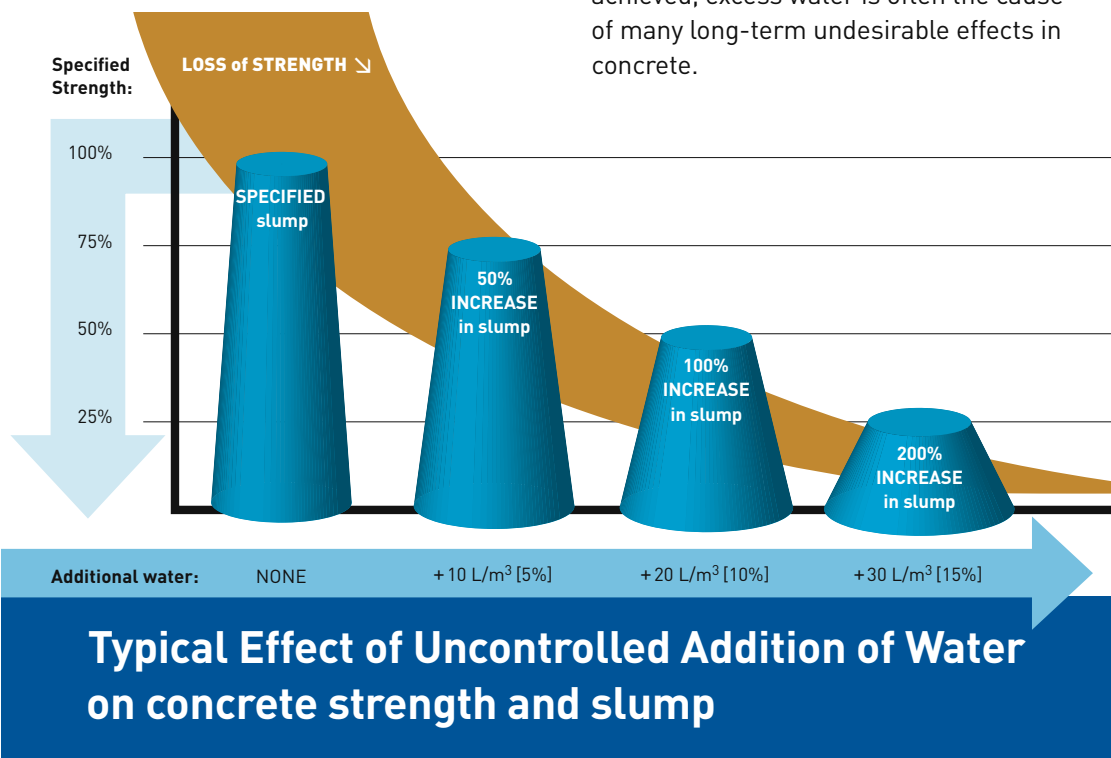
## Beware of excess water

It is important that when ordering pre-mixed concrete the specified slump is appropriate for the method of placing, the size and shape of the members, and the amount of reinforcement. This will aid the supplier in providing a concrete mix with the potential to be easily placed and compacted and in the process reduce the temptation to add water to make the concrete more workable.

Equally important is that everything is ready on site for the concrete to be placed as soon as it is delivered. Any delay can lead to the temptation to add water to restore the concrete's visual workability.

**The uncontrolled addition of water on site effectively changes the mix design and should not be permitted under any circumstances.**

Whilst the short-term objective may be achieved, excess water is often the cause of many long-term undesirable effects in concrete.



Leading Knowledge - Sharing Information

## **THE UNCONTROLLED ADDITION OF WATER can have an effect on any or all of the following:**

### **STRENGTH**

The concrete's ultimate compressive strength may fall short of that specified for the project. As can be seen from the diagram, following the addition of 20 litres of excess water per cubic metre of concrete, the final strength achieved may be as low as half of the specified strength.

### **CRACKING**

The concrete will be much more susceptible to early-age and drying shrinkage cracking. The resulting extent and size of cracks may well be unacceptable for both visual and structural reasons.

### **DELAMINATION**

Concrete that is finished when too wet can, under some weather conditions, dry at the surface and delaminate from the underlying wet concrete.

### **ABRASION / SURFACE DUSTING**

The surface of the concrete will have a reduced resistance to abrasion under traffic (even pedestrian traffic) will be weak, leading to potential 'dusting' of the surface and eventually to exposure of the coarse aggregate.

### **DURABILITY**

The poor protection provided by the weak concrete (and the cracking mentioned above) may greatly increase the risk of corrosion of any reinforcement, and may contribute to the premature failure of the element.

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