Advice and tips for curing concrete

Freshly placed concrete must be protected during its early life from the detrimental effects of both high and low temperatures, drying winds, dry air, and frost. In order to achieve the optimal strength and durability of any concrete, due care and attention must be given during the curing process.

The main reasons for curing are:

- To assist the strength development.
- Improve the durability.
- Achieve the best possible surface finish.
- And in some cases, curing can also help to reduce the effects of thermal contraction.

Effective curing helps prevent water evaporating too quickly from a concrete surface. When an insulated curing method is adopted, it can help to control damaging internal temperature differentials in large masses of concrete and help to maintain an adequate temperature within the curing concrete during cold and/or frosty weather.

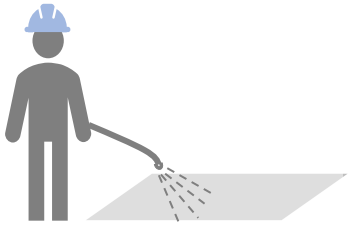
Six potential benefits of proper curing include:

1. Reduction of surface erosion
2. Increased wear resistance
3. Increased frost resistance
4. Improved life span
5. Reduction in cracking
6. Increased resistance to thermal shrinkage

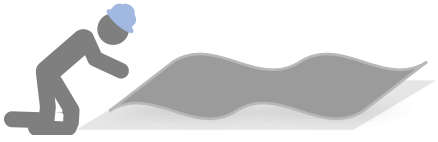
Horizontal surfaces

Early curing of slabs is vital to minimise the risk of plastic shrinkage cracking, especially in conditions where high temperatures are seen in combination with strong drying winds.

The two most commonly used solutions for horizontal (flat) surfaces such as slabs, bases, roadways, paving etc are:



- A proprietary spray on membrane (The timing of the application is critical – It must be applied as soon as the surface of the concrete has lost its sheen.)



- Impervious sheeting laid in close contact with the surface of the concrete.

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Vertical surfaces

In the UK as a rule, temperature conditions are such that formwork left in place for a couple of days should be sufficient to protect the young concrete from loss of moisture by evaporation. In very cold conditions, leaving the formwork in place for longer would be recommended.

Other methods available

Water is the most effective and cheapest curing medium, but it is seldom used because of the practical problems associated with supply, containment, and ultimate disposal. Other alternatives are wet hessian or sand – Both these methods can be used but neither should be allowed to fully dry out. Covering with polythene can assist in stopping the loss of moisture when using these types of curing.

To summarise

- Do not allow the surface of the concrete to dry out too quickly.
- Protect fresh concrete from the effects of the weather, sun, wind, and frost.
- If you can, cover the concrete with some type of protective membrane.
- If you have any questions, please do not hesitate to ask.