Advisory notice
Plastic shrinkage

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concrete solutions

What is plastic shrinkage?

Plastic shrinkage cracks appear on the surface of a freshly placed concrete slab sometimes during or soon after finishing. These are usually parallel to each other in the order of 1 to 3 feet (300-900mm) apart and only run 1 to 2 inches (25-50mm) in depth; rarely do they intersect with the perimeter of the slab. These cracks rarely impair the strength of the finished slab but nevertheless are unsightly. These can be minimized if appropriate measures are taken prior to and during construction.

Why do plastic shrinkage cracks occur?

These occur when the evaporation of the surface moisture exceeds the rate at which rising "bleed" water can replace it as the surface of the slab dries. If the surface sets before sufficient tensile strength has developed small cracks may develop during setting or even after. This can be resisted by the use of Plastic fibres which will resist any tension when the concrete is weak during initial curing.

High evaporation of water occurs in low humidity, high wind speed and when concrete is warmer than surrounding air. Increased cement content can increase plastic cracking. This is down to two factors: reduced bleeding and higher tensile forces in surface.

How to minimise plastic shrinkage cracks

Prepare ahead of pour, weather check, equipment & materials

Make sure you have enough manpower to finish pour promptly

Dampen the sub grade & forms

Use a vapour barrier between slab and sub grade

Cover slab with dampened Burlap or sheet

Curing agents applied as soon as possible

Windbreaks or shade, during windy or hot weather

Use synthetic fibres to protect against cracking

Cure agent applied as soon as finishing has been completed

Take extra care in Hot or Windy conditions. Prevent excessive surface water evaporation

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