

## Fact sheet regarding concrete and sealing

### How Concrete is Formed

Concretes are mixtures of many components. Portland and other cements combine with water to form a paste which surrounds and adheres to sand, stone fillers & sometimes added synthetic fibers

The paste hardens by a chemical process and with the sand, forms a hard permanent mass.

When the mixture is placed the larger particles tend to settle to the bottom of the mass.

The settling leaves a rich weaker cement paste layer near the surface.

When the concrete is placed, the aggregates tend to settle to the bottom of the mass. Pressure from this action forces the liquids to the surface



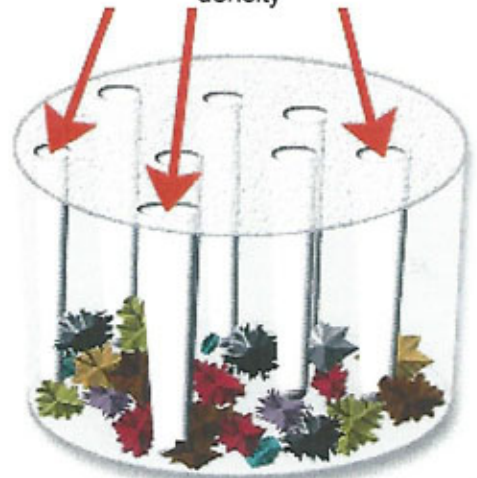
### Formation of "Bleed Channels"

Excess water, more than necessary for the mix to hydrate, is added to provide workability. During the hardening action, the excess water is forced to the surface.

The bonds left by the migrating water become pores or very small capillaries and the larger voids or capillaries are known as "bleed channels". The bleed channels permit the excess water to escape upwards to the surface.

These bleed channels then become permanent entries for the infiltration of contaminants **from all directions**.

In this magnified illustration, "bleed channels" begin to form as the excess liquid from the mass is forced upward by the downward pressure of the aggregates. Left untreated, these channels become permanent voids, attracting damaging mavericks & reducing overall strength and density



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