

TECHNICAL FILE

Concrete Repair

OBJECTIVE

To repair the effects of reinforcement corrosion, returning the concrete back to it's existing profile and strength

STRUCTURE

Various, they include car parks, bridges, buildings

OVERVIEW

Reinforced concrete has been a substantial building material for many years, it does however degrade and that degradation can cause slow deterioration of structures built in this material. The most common degradation mechanisms are carbonation and corrosion

Carbonation is a process where by the concrete matrix is being turned from alkaline environment (Circa Ph13) to a point where it becomes acidic (Circa Ph9.5) and at this stage, the embedded steel reinforcement is no longer protected by the mass of concrete around the steel and is now able to corrode.

The second mechanism causes the steel reinforcing to corrode and the cover concrete to be 'spalled' off, exposing the corroding steel. Upto the 1970's, repairs had been affected using epoxy mortar type products, a material with differing expansion coefficients from concrete, ultimately the 'patch repair' failed due to cracking at the bold line. Towards the end of the 1970's a system approach to repair was introduced using polymer modified repair mortars, more ideally suited to the existing concrete. This was the start of a long term repairs as we now know them.

Repairs are affected by cutting away further concrete, around the repair zone, to expose a clean steel, grit blast off the corrosion on the bar, apply a reinforcement primer, apply a bonding primer to the repair site and then rebuild back to the existing profile using the repair mortar.

MAKERS

...makes the difference



Before



During



After

T : 08458 994444
F : 01543 480676
E : enquiries@makers.biz
W : www.makers.biz

Makers Office Building 4,
Shenstone Business Park
Lynn Lane, Shenstone, WS14 0SB

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