

Enhance the Bond Strength Between Concrete and Coated Reinforcement Steel Bars

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Corrosion of steel bars embedded in reinforced concrete structures reduces the service life and durability of structures causing early failure of structures, which costs significantly for inspection and maintenance of deteriorating structures. Hence, monitoring of reinforcement corrosion is significant for preventing premature failure of structures. Coated rebar is usually used in reinforced concrete structures. However, coated bars reduce friction and thus the bond strength with the concrete.

The basic idea behind this project was improving the bond strength between concrete and coated re-bars.

Anticorrosive red ($Zn_3(PO_4)_2$) coating was selected among the available anticorrosive coating in industry by using pull-out test result. Bondability of anticorrosive red was improved by adding various percentage of $CaCO_3$. The pull-out test was used for analyzing the bond strength and salt spray bath method was used for analyzing the corrosion rate. Anticorrosive red with 15% $CaCO_3$ addition gives the optimum bond strength and corrosion resistance to the reinforcement steel bars.

Key words: Reinforcement, Anticorrosive, Pull-out,