

Corrosion in Reinforced Concrete: Failure, Evaluation, Prevention and Rehabilitation

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Reinforcement corrosion is one of the major deteriorations of reinforced concrete structures. It starts with the destruction of reinforcement's protection film by chloride and the reduction of alkalinity of concrete. With sufficient amount of moisture and oxygen, this is followed by the electrochemical reaction of the reinforcement corrosion. The reinforcement corrosion results in the reduction of cross-section area, impairing safety and the durability of structures. This paper reports the influences of reinforcement corrosion on structural behavior of concrete structures. Method for assessing the probability of corrosion of reinforcing steel bar before the damage is evident on the surface of concrete structure is also discussed. Finally, methods for prevention and rehabilitation of the reinforced concrete structures are explained and discussed.