Design procedures for cathodic protection systems for R.C.C. members

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Abstract:

In the present work a step-by-step procedure for design of cathodic protection systems has been proposed for corroding rebars embedded in concrete. Using the proposed procedure, a sacrificial anode system and an impressed current system have been designed. Cathodic protection systems so designed have been applied to corroded rebars in laboratory cast concrete beams. Calcium Chloride was admixed in the concrete used for casting the beams to induce corrosion of rebar. The electrochemical indicators of corrosion, namely, half-cell potential or corrosion potential, E_{corr}, Stern-Geary constant, B, and corrosion current density, I_{corr}, were measured before application of the cathodic protection systems. The designed cathodic protection systems have been applied to the above rebars to demonstrate the applicability of the proposed procedures.