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NEW BOOKS

The proceedings of a recently concluded **International Conference on Corrosion Protection of Steel in Concrete** are now available from the Conference Secretariat of the University of Sheffield, Department of Mechanical and Process Engineering, Sheffield, S1 3JD, U.K. The two-volume, hard cover set, containing 128 reports (over 1,500 pages) grouped under six conference themes, is handsomely produced.

The papers in the first volume covers two themes: (1) studies on in situ reinforcement corrosion, and (2) testing for corrosion and service life prediction. The in situ corrosion studies contain useful information from several case histories. There are also two excellent review papers: one by Broomfield on electrochemical corrosion measurement methods, and the other by Rodriguez et al. on assessment of structural performance of corrosion-damaged elements. Jones et al. authored an excellent report showing the limitations of service-life prediction methods, such as the dependence of chloride diffusion rate on the presence of sulfates and carbonates in concrete.

The papers in the second volume, covering four themes, are in the general area of corrosion protection. The largest number of papers are in the area of corrosion protection by the use of chemical and mineral admixtures in concrete. Although most of the information presented is not new, it is confirmed that permeability of concrete, depth of carbonation, and steel corrosion rates are significantly reduced by the application of superplasticizers and mineral admixtures, such as fly ash, granulated blast-furnace slag, natural pozzolans, and silica fume. Also reported are the results of studies on the use of corrosion inhibitors, such as alkanolamines, amino-carboxylates, and calcium nitrite.

Corrosion protection through the use of coatings and membranes is discussed in several reports including a review paper by Fluekiger et al. The authors found no correlation between laboratory and in situ tests. The authors also found that, with an increase in cyclic humidity, coatings can be detrimental by varying the chloride levels at the steel surface. However, Tanikawa and Swamy reported positive results from the use of an acrylic rubber-based coating. Many reports discuss the results of studies on corrosion protection provided by the use of coated and or non-metallic reinforcement. Most of the papers discuss performance of epoxy-coated steel. Also, there is an excellent report by Short et al. on the performance of various zinc alloys, such as Zn-Ni and Zn-Co.

The last group of papers deal with cathodic protection by chloride removal and realkalisation of concrete in structures already suffering from chloride corrosion damage. Theoretical and practical considerations are discussed in a review paper by Das and the mechanism of realkalisation is discussed by Banfill.

As corrosion of reinforcing steel is a worldwide serious problem, requiring heavy expenditure for repair and replacement of structures, the wealth of information contained in this publication should prove useful to both researchers and field engineers concerned with the issue. Dr. Swamy has done an outstanding job as the editor of the volume. According to him, only a limited number of copies were presented and a few are still available at a cost of £ 100 (British Pounds).

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