Book review

Cathodic Protection of Steel in Concrete and Masonry, second edition

P. M. Chess and J. P. Broomfield, CRC Press, Boca Raton, FL, USA, 2013, ISBN 978-0-4153-9503-8, £140.00, 259 pp.

Cathodic Protection of Steel in Concrete and Masonry gives a broad and partly deep view inside cathodic protection (CP) as a repair and rehabilitation method for reinforced concrete structures and steel embedded in masonry. The editors and the contributing authors are experienced specialists in this field, covering consultants and CP designers as well as material suppliers and CP contractors.

The book starts with an introduction to the basics of reinforcement corrosion and specific aspects of corrosion of masonry-clad steel-framed buildings. This is followed by a brief and easy-to-understand description of the CP mechanisms, and the side conditions that have to be assessed in order to decide whether CP is a cost-effective and suitable method for rehabilitation in specific cases as a basis for efficient CP design.

These introductory chapters are followed by four chapters regarding the design of CP systems and covering the main fields of application, namely underground structures such as pipes, tanks and foundations, structures exposed to the atmosphere, and steel structures embedded in masonry. Design issues for CP applications for new reinforced concrete structures (cathodic prevention) are also described. These chapters do not give detailed and straightforward guidelines on how to design CP systems,

but they provide the reader with an understanding of the design process in general and many of the aspects a designer has to take into consideration when designing a CP system. Many of these design aspects are explained in detail by using case studies from the literature or the author's own field experience.

Power supplies and monitoring systems are essential for all impressed current CP systems, and both topics are specifically addressed in two extra chapters. In particular, the chapter on power supplies covers some topics rarely found in the literature on CP of reinforced concrete, such as protection against transients and lightning or galvanic separation of power supplies.

The book ends with short descriptions of some case studies and some considerations regarding the economic aspects of CP for repair and prevention.

This book provides an introduction to the topic that is (with some basic knowledge) easy to understand, and gives a quite detailed view of the complexity of the design process for CP systems for steel in concrete and masonry. The text is supported by many examples from case studies. The book will be of great value not only to civil engineers and consultants in the field of concrete repair who wish to gain insight into CP and its possibilities, but will also show engineers in other fields of CP application the special aspects of CP of steel in concrete and masonry.

Michael Raupach