Book review

Design of Durable Concrete Structures

Stuart Matthews, 1st edn. IHS BRE Press, Garston, Watford, UK, 2014, ISBN 978-1-84806-175-0, £95, 389 pp.

Concrete has been the most extensively used construction material for more than 2000 years. Due to its versatility and forgiving nature, and the availability of its constituent material, it is being used in almost all parts of the world, irrespective of the availability of labour in the country. Any structure that finds its place in the built environment essentially becomes an asset for its owner, whether it is a poor man's house or a nuclear power plant of a rich country, making durability a major concern.

Technical developments have led to the creation of a family of concrete types having very different properties. However, a trend of abuse, rather than use, of this fascinating material, ranging from workmanship, design and construction errors, poor construction specifications, wrong or inappropriate selection of materials, to malpractice and negligence, is also being witnessed. These issues, coupled with the fast-growing aggressiveness of environmental factors, are liable to disrupt the service-life performance of concrete due to durability problems.

The book in hand addresses the important aspects of the durability of concrete structures from all possible angles, ranging from the importance, associated phenomena, causes and mechanism of deterioration or damage, and monitoring and assessment of concrete, to measures for reducing effects, mitigating strategies and the improvement of durability for its through-life performance.

The author, Stuart Matthews, is currently the chief engineer construction of BRE, the principal author of *fib* Bulletins 53 and 62, BRE Report 511 and BRE Digests 366, 510 and 526. He is also a main contributor to the CONREPNET Project Report EP77 and *fib* Bulletin 44, and has been involved in many other engaging research assignments and technical

papers. *Design of Durable Concrete Structures* derives its strength from the vast experience of the author in the subject area and his familiarity with the existing literature, and he has beautifully knitted the various aspects in a logical structured fashion. The book may be considered as an updated and significantly extended version of volume 3, chapter 5 of the second edition of the *fib Structural Concrete Textbook*, which would not have been possible without the input of this learned author.

This glossy, hardcover book contains 19 logically sequenced, nicely structured chapters, each of which amply explains a relevant area, and addresses almost all the aspects that one would like to know about. The book is studded with 119 figures, 54 tables, 14 colour plates and almost 590 relevant references. The list of 85 references for further reading is a valuable source for developing insight into the subject, and the four appendices presenting examples of plans supporting execution management add to the value of the book.

The book aims to help the reader understand both the complexity associated with the durability of concrete and its effect on the long-term performance of structures, and the interaction of concrete structures with their environment.

The book, therefore, will be equally beneficial to designers, engineers and professionals involved in the assessment, maintenance, monitoring, repair and strengthening of concrete structures. The book would also be of immense value for the teaching fraternity and students pursuing courses in concrete technology and/or the design of concrete structures, and should be readily accepted by concrete specialists worldwide.

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