

PREFACE

The durability of concrete structures has always been one of the most critical issues in structural engineering discipline and has received widespread attention and importance from the engineering community around the world. Concrete structures are widely used in industrial, civil, road and bridge construction, water conservancy infrastructure, offshore and onshore construction, and numerous other fields. Material aging resulting in structural damage would generally happen during the service life of these structures even under most benign conditions and cause degradation of structural performance, affecting their safe use. In many cases it would reduce the service life of the structure. Studying the durability of concrete structures is thus of prime importance for safe service of structures to avoid accidents, reduce economic losses and avoid loss of life.

This book, "Durability of concrete structures" provides a comprehensive description of all the relevant topics in the field. It dwells on the latest results from the relevant research carried out on the subject at home as well as internationally, the relevant standards and the norms of practice on durability issues in China. It further draws from the practical experience of many years of teaching and combines the theoretical basis and the principles with engineering practice, systematic and advanced. The book initially focuses on the basic concepts, theories, principles, methods of analysis and design, and their applications in building durability in the design of concrete structures.

A main feature of the manuscript is that this is one of the few professional textbooks in English, about durability of concrete structures in China. It is a timely effort and caters to the urgent needs of internationalization of domestic universities.

The significant characteristics of this book are mainly reflected in the following aspects:

1. Introduction of the historical evolution of relevant standard specifications, identification of the classic contents while highlighting innovation that resulted in the most current standard specifications.
2. The relevant engineering cases are discussed in the light of the classical theoretical background, the latest standards and important research results. This synthesis of various aspects of the subject matter allows a reader to connect the theoretical knowledge with practical field problems.
3. The book is comprehensive in the sense that it discusses material properties, mechanisms of deterioration, available test methods to evaluate material and structural health, methods to assess durability of various structures and building durability in the structural design. It systematically introduces these topics, guiding readers from fundamental insights to intricate details, ensuring a smooth transition for a comprehensive understanding.

The contents are arranged in a systematic manner. Thus, it can be used as a textbook for undergraduate as well as postgraduate students of civil engineering and related majors. It is also a

valuable resource for continuous and adult education, scientific researchers and related engineering and technical personnel.

I sincerely congratulate Professor Feng Hu and China Construction Industry Publishing House on publishing this book and believe that the book will play a major role in promoting research and teaching of durability of concrete structures and implementing the principles outlined in the book for producing more durable structures.

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