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Book Review

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Book review

Construction Materials: Their Nature and Behaviour, 5th edn

M. Soutsos and P. Domone (eds). CRC Press, Boca Raton, FL, USA, 2017, ISBN 978-1498741101, £110.00 (hardback), 864 pp.

This book is exceptional in both coverage and content. Being the 5th edition, it has stood the test of time. The editors (two) and contributors (six) are to be congratulated in producing a book that will be used by students of civil and structural engineering as well as established practitioners in the construction sector.

Contained in its 864 pages is a wealth of information ranging from the micro through macro to mega. The book is logically structured in ten parts (each could be a book in its own right). Each part is split into chapters and each chapter deals with a specific material.

The ten parts cover fundamentals, metals and alloys, concrete, polymers, fibre composites, glass, timber, masonry, bitumen and concluding with materials selection and sustainability.

Part I is an excellent introduction to materials basics from an atomic level to the macro/mechanical. Each part concludes with questions to aid a student's understanding of the subject. This is a welcome contribution.

Part II deals with metals and alloys and concerns chemical as well as physical interactions.

Part III covers concrete and its constituents, including admixtures and additions, as well as mechanical properties of concrete.

Part IV on polymers is compact but on target, presenting an engineering approach without too much chemistry!

Part V deals with fibre composites comprising glass, carbon, polymers, aramids, natural/steel and asbestos. These are dealt with in detail along with function, manufacture and recycling.

Part VI deals with glass manufacture its properties and applications.

Part VII concerns timber, which is fascinating both chemically and physically. Wood is different to many construction materials, being interactive with its environment due to its organic nature.

Part VIII covers masonry in its various forms. As with concrete, the long-term visual performance can be a problem and masonry is often the external envelope of a building and as a result can be subject to an aggressive environment.

Part IX deals with bituminous materials – another organic material like wood but very different.

Part X is a departure from the other nine parts in that it is concerned with selection and sustainability. The materials dealt with in the other parts of the book are covered from this point of view.

As well as the welcome inclusion of question lists at the end of each part, there are also references and suggested further reading.

The book has an extensive subject index.

Peter C. Hewlett