

Book review

BREAKWATERS AND CLOSURE DAMS.

K. d'Angremond and F. C. van Roode. Spon, London, 2004.
ISBN 0 415 33256 7, £39.99, 371 pp.

This book comprises a republishing of course notes originally prepared by the authors for civil engineering students at Delft University of Technology. The book provides an excellent introductory textbook on the subject, not making any assumptions about prior knowledge. It has a good balance of basic theory, explanations of the design process and descriptions of construction constraints and requirements. Useful historical background and positioning is provided at the start of the book, something which even seasoned experts would do well do consider from time to time.

The book brings together two quite different types of structures: breakwaters for wave protection and closure dams. For the latter, the focus is on the initial rock bund structures which are used to form an estuary closure. The two types of structure enable coverage of both wave- and current-dominated situations and, although estuary closures are becoming less and less common under environmental pressures, an understanding and comparison of both situations is quite instructive. The authors' own logic for covering both topics in one book is that it enables common treatment of the functional requirements for the structures, the loadings on the structures and their probabilities, and the failure modes and their limit states. A particularly important emphasis, given the requirements of the Construction (Design and Management) Regulations, is the way that both final performance and performance during key stages of construction is addressed.

Although the book is mainly focused on rock structures, monolithic structures are also discussed briefly. For example, it contains a useful explanation for the student of the important practical and theoretical aspect of the design of caissons for both permanent and float-out conditions.

The body of the book explains practical and theoretical concepts thoroughly, but manages to avoid the temptation to overload students with mathematics. This is consistent with the main purpose of the book, namely to develop an understanding of the design process for these structures.

The ten appendices provide useful backup to the main text. For example, Appendix 10 (misleadingly mistitled 'Example of the determination of the design storm') very helpfully describes the entire process of sizing armour stone for a breakwater based on a probabilistic understanding of both loading and response.

On a detailed read there are, of course, some points where an explanation is missing or could be improved. For example in Chapter 5, spectral density is introduced but the concept is not explained and the geotechnical text on stress-strain and Mohr-Coulomb diagrams is weak. There are also annoying typing mistakes in places which could be misleading to the student, such as 'moment' instead of 'momentum' on page 63. More effort could also have been put into converting the book into a public text rather than just a republishing of university notes. For example, one wonders which 'examination' the reader is expected to pass having read the final review, Chapter 17!

However, in conclusion, the book gains my endorsement as a useful text for civil engineering students. It would also form a very useful introduction to the subject for those moving into these areas of civil engineering for the first time. It is a good read and, with some of the more numerical material relegated to appendices useful to the designer, would also be useful to someone engaging experts in this area for the first time.

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