

Book reviews

The fundamental principles of reinforced concrete design

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Published by Messrs. Blackie & Son, Limited. 1951. Price 20s. pp. 176.

The education of a civil engineer has three main stages: comfort in the use of mathematics and mechanics; understanding of the basic nature of structures and materials; and the application and refinement of the fundamental principles in actual practice. The final edifice is reliable only if the foundations are sound.

In his book on the fundamental principles of reinforced concrete design Professor Marshall has chosen to deal more particularly with the second phase. At the same time the reader is enabled to explore any question in which he is particularly interested by the inclusion of extensive bibliographies at the end of each chapter or division of the subject.

Beginning with a commendably brief outline of the manufacture of cement and the behaviour of concrete under stress, the derivation of the usual design formulae is given, together with a sufficient number of examples to indicate the effect of the different variables.

Following chapters deal with the simpler means of analysing the distribution of moments in continuous structures and the arrangement of reinforcement in a number of practical examples.

In the final chapters, the plastic theory and the basic principles of prestressed concrete design are outlined in sufficient detail to enable the reader to understand both what is meant and the possibilities inherent in such developments.

First report on prestressed concrete

Published by The Institution of Structural Engineers. September 1951. Price 3s. 6d. pp. 32.

At the Congress on prestressed concrete held in Belgium in September, one of the resolutions agreed was that any tentative regulations for prestressed concrete should be sufficiently elastic to allow engineers to apply the most recent scientific knowledge available wherever justified.

This is the principle borne in mind by those responsible for the production of the First Report on Prestressed Concrete of The Institution of Structural Engineers, which takes the form of recommendations rather than dogma. First of these is as to notation, which is simple, short and illustrated diagrammatically—having in mind that unusual letters and double suffixes are difficult to reproduce and easily misread if written.

Second there is a section devoted to materials, which will no doubt be extended as British Standard Specifications become available.

Lastly the general considerations to be taken into account in the design of a section are outlined, with an indication of the modifications involved when considering post-tensioned and pre-tensioned systems, while a second Appendix indicates the distinction between sections which are intended to yield gradually or suddenly under ultimate load.

As noted, this is a First Report, and deals primarily with the design for working loads, and gives information as generally agreed by members of the Committee. It provides a basis for consideration by engineers when drawing up designs and specifications, without attempting to introduce lengthy formulae. It suggests limits for creep and shrinkage, but at the same time indicates the desirability and need for further tests on such matters.

It is, as is said, a First Report, and must be judged as such.