

Book reviews

Prestressed Concrete : Theory and Design

by R. H. Evans and E. W. Bennett

Published by Chapman and Hall, London. 1st edition, 1958. pp. 294. Price 60s.

Books on prestressed concrete have been appearing very frequently over the past few years and, no doubt, will continue to do so for many years to come owing to the very great interest in and use of this material. This particular book is welcome in that it concerns itself primarily with the basic principles and does not include lengthy descriptions of the various practical methods available for prestressing which, as the authors say, are readily available elsewhere.

The book is divided into three sections. Section 1 deals with the analysis of simply supported beams. In this section the fundamental properties of prestressed concrete are considered and the different conceptions involved in this method of construction, as compared with normal reinforced concrete, are amply discussed. The materials of prestressed concrete, both the concrete and the high-tensile steel, are discussed at considerable length and this particular chapter covers much of the research work carried out at the University of Leeds. Some of the points discussed in this section, in particular with regard to the flexural strength, the transmission length, and the anchorage stresses in prestressed concrete beams, are controversial and the authors have naturally given their opinions. However, many references are given which will enable the reader to draw his own conclusions.

Having discussed the principles in considerable detail, the authors deal with the design of simply supported beams in the second section of the book. This has been admirably presented and will be easily understood by both students and graduates working in this field. Many tables of the section properties are included in the Appendix, and these are particularly useful from the design point of view. It should be mentioned that the design method put forward is based upon the logical consideration of the ultimate

load, and working load, and properties of the material, so that the unit is derived to satisfy all the requisite conditions. There are numerous examples of the design methods put forward and, as with the rest of the information in this section, these are admirably clear.

The final section deals with what are termed special applications of prestressed concrete and includes composite construction, statically indeterminate structures, reservoirs, tanks and shell roofs, etc. Naturally the authors could not cover such a wide range of subjects exhaustively but there is, in general, sufficient information given to enable the designer to appreciate the problem and also the means by which it can be tackled. The chapter on the analysis of statically indeterminate structures is of value in that it presents a relatively straightforward method of determining the secondary moments caused by the prestressing cables and further gives a table enabling these secondary moments to be determined easily and accurately in a design office.

Although many aspects of the book, particularly on subjects such as those mentioned above, are open to controversy, the authors can be congratulated on having produced a book logical in form and easily understood. It is a valuable contribution to the literature on prestressed concrete and should be especially valuable to students approaching the subject for the first time.

Prestressed Concrete : Theory and Practice

by P. B. Morice and E. H. Cooley

Published by Sir Isaac Pitman and Sons Ltd, London. 1st edition, 1958. pp. viii & 394. Price 57s. 6d.

The problem facing authors of books on prestressed concrete is a considerable one in that, within a relatively short time, the application of this material has expanded to cover the whole field of civil and structural engineering. Associated with this has been an extensive programme of research and development.