Steel-concrete composite structures: stability and strength

Editor: R. Narayanan

London and New York, Elsevier Applied Science Publishers Ltd, 1988. 221 × 141 mm. pp. 347. Typeset, illustrated, hardback. ISBN 1 85166 134 4. Price £52.00.

What an interesting book. The format is a familiar one, each chapter essentially being an extended paper by an internationally renowned expert in a particular area, a series of state-of-the-art reports.

Professor Johnson's introductory chapter, which he heads a preview, is exactly that. He highlights some of the discrepancies between the various chapters and explains the reasons for them. He is at some pains to indicate that these differences are the reason why engineers should not use different codes of practice for designing different parts of a structure. The codes are inconsistent between one another, but on the whole consistent and safe within themselves.

His intention seems to me to be to provide a depth of understanding of the factors tackled in the various chapters. Although engineering is an international activity, Johnson points out that, as distinct from scientific understanding, it depends on understanding the behaviour of manufactured items and there may be marked differences between those items manufactured in different nations and, particularly, continents.

So where is the value of the book? It presents an over-all picture of stability and strength in composite structures but is certainly not a design guide to be picked up by junior engineers. Provided that the inconsistencies are understood, the chapters would provide a useful background to new researchers working on particular topics in any country in the world. They would also provide a depth of background to the codes of practice for those engineers blessed with both the desire and the time to acquire such understanding. In any case, I would recommend that the first chapter be read first, even if not in full and I would be keen to place some of content in front of my own undergraduate students. Johnson himself suggests that each of his main sections might best be read as an introduction to the chapter to which it refers.

What then of the content of the bulk of the book? The nature of the text necessarily forces the choice of

topics to be related to the authors available. There is not, nor could there be, any continuity or flow between the chapters. Some chapters deal with quite narrow problems, such as 'the behaviour and design of composite beams with web openings', or 'composite girders with deformable shear connections'; others are rather broader, such as 'the design of composite bridges using steel plate girders' and a separate chapter on 'the design of composite box girder bridges'. (The remaining chapters deal with composite floors and columns, and steel frames with concrete infill.) One apparent misfit is the final chapter on ferro-cement structures and structural elements, and I am tempted to ask how anyone beginning a search for information on that topic might expect to be lead quickly to this state-of-the-art review. Certainly not from the title of the book.

I am not familiar with the names of all the authors. Those I do know are well respected and writing of areas they understand. It is reasonable to assume the rest are of a similar calibre.

The presentation is better than many low circulation texts which tend to be typewritten. The text is uniformly good. The diagrams are very variable; some appear to have lost definition in the reproduction process but all are legible.

This, then, is not a popular text book, but a volume produced for a very limited market. For those who need it, it will not seem expensive at £52 but it will certainly not be bought on impulsive from a bookshop's shelf. The format is one which I am sure has value because it allows the authors rather more leeway in terms of space than a typical refereed journal. They can thus range a little more widely over their subject and dot i's and cross t's where they think it is necessary.

W. J. HARVEY

(Bill Harvey is Associate Director of the Wolfson Bridge Research Unit in the Department of Civil Engineering, at the University of Dundee.)