

Book review

Earthquake risk reduction. D. Dowrick. Chichester: John Wiley & Sons, 2003. 506 pp. ISBN 0 471 49688 X. £75/€112.50 (hard cover)

Earthquake risk reduction is the latest stage in the evolution of the book that originally appeared in 1977 under the heading *Earthquake resistant design*, and which has become a standard reference for practising engineers and students of engineering alike. The second edition of that book, published in 1987, provided considerably more detail than the first edition on a number of topics, including the nature of earthquake ground motion and the seismic design of structures. David Dowrick was right, however, to present his latest book under a new title rather than as a third edition of *Earthquake resistant design*, because a significant proportion of the material has been updated, and the scope of the volume has been substantially increased.

Three chapters in *Earthquake risk reduction* are entirely new additions: Earthquake vulnerability of the built environment, Earthquake risk modelling, and Retrofitting. The text has also been significantly updated and expanded in other areas, particularly the treatment of earthquake ground motion, seismic hazard assessment, and the seismic response of soils, structures and soil–structure systems. Updated guidelines on the seismic design of foundations and soil-retaining structures constitute a separate chapter in the new book.

The one criticism that can be made of the book—which should perhaps be directed at the publishers—is that an occasionally distracting number of typographical errors have found their way into it. Another small shortcoming is the inappropriate use of the adjective ‘aseismic’ (which means ‘in the absence of earthquakes’) for design, behaviour and analysis in situations where earthquakes are a primary consideration. However, these very minor flaws fade into insignificance when one considers the singular achievement that

the book represents. David Dowrick has produced a book that can really be considered comprehensive in its coverage of the technical aspects of earthquake engineering, from plate tectonics and earthquake generation, the dynamic response of soils, foundations and structures, through to the assessment of seismic risk, and measures that can be applied for its reduction. The book also addresses the vitally important economic issues associated with earthquake losses and risk reduction measures. There are handbooks on earthquake engineering and seismic design that come close in the breadth of their scope, but invariably these contain chapters written by various authors. Dr Dowrick, however, is unique in having been able to produce such a comprehensive book alone. One of the benefits of this fact is extensive and effective cross-referencing, which is generally missing from multi-authored volumes. Inevitably, such broad coverage comes at the expense of depth of coverage of some topics, but this does not detract from the great value of this excellent book.

Earthquake risk reduction is a wonderful introduction to the multidisciplinary spectrum of earthquake engineering, and is to be recommended as a valuable resource for all engineers who may need to address seismic design issues at some stage in their careers. The price of the book may put it out of the reach of many students, but it is to be hoped that university libraries will make it available. The book achieves a commendable balance between providing a great deal of valuable practical guidance and yet not becoming a ‘recipe book’ for simple solutions to seismic problems; indeed the text clearly demonstrates that these rarely exist. The book has a significant, although by no means exclusive, bias towards New Zealand, reflecting the author’s experience, but this is actually a welcome change from the focus on the USA so often encountered in books in this field.

–J. J. Bommer