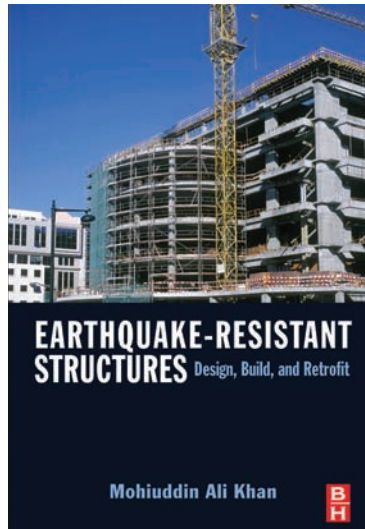


Review



Despite the author's demonstrable understanding and experience in the field, Nirupa Perera feels ultimately let down by the lack of clarity surrounding some key concepts.

Earthquake-Resistant Structures: Design, Build and Retrofit



Author: Mohiuddin Ali Khan

Publisher: Butterworth-Heinemann (Elsevier)

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According to the author of this book, there are as many as 500 000 earthquakes every year, although only about 40 000 can be felt. Some cause damage and, from time to time, a small number will cause considerable loss of life and misery for many thousands of people.

The world's population continues to grow, as does the proportion of people inhabiting urban areas. In 2008 the United Nations claimed that over half the world's population was to be found in urban conurbations. Of these, several of the largest have grown in areas of high seismic risk. Moreover, even settlements remote from areas of high seismicity can remain vulnerable to earthquakes with epicentres far away. For example, on Boxing Day in 2004, Sri Lanka (which doesn't have a recorded history of high seismicity) was devastated by a tsunami originating over 1500km away in Sumatra. Finding ways of living with the threat of such natural disasters and coping with their aftermath presents considerable challenges. Ali Khan's book explores these themes and attempts to provide guidance for designing structures to resist the effects of earthquakes.

The book is set out in three parts. Part one is an introduction to 'Seismology and Seismic

Engineering'; part two deals with 'Earthquake Disasters' and part three covers 'Structural Design and Retrofit'.

Parts one and two are the most interesting. There is a broad range of material presented, including observations drawn from a number of case studies, many of which appear to be based on first-hand experience. These are used to illustrate topics of importance both in design and post-earthquake reconstruction. Unfortunately, what the material lacks is clarity – both in structure and presentation.

This ambiguity is most glaring in the 'Structural Design and Retrofit' section. The chapters are episodic and loosely related. Fundamental principles are inadequately explained and important concepts are introduced with only a cursory discussion

of their significance. Anyone looking for an explanation of key concepts behind seismic resistance design and their theoretical and empirical underpinnings will be disappointed.

Overall, the poor organisation and presentation of the content makes this a frustrating book to follow, which is a pity. The author has a wide-ranging career spanning research and design and has sat on expert committees and taken part in field studies. He clearly has much to offer on the subject. Indeed the work does contain a lot of information and acts as a pointer to topics for further study, supported by a useful bibliography. However, I feel it falls short of the publisher's claim of providing structural engineers 'with the latest techniques for the design, construction and retrofit of structures in high risk earthquake zones'.



Nirupa Perera BSc (Hons), CEng, FStructE

Nirupa Perera joined Michael Barclay Partnership LLP in 1984 and has been a principal since 1989. He has been in practice for over 36 years, and has worked on the structural design of buildings for the performing arts; museums; art galleries; teaching and research; offices and retail developments; housing and leisure – several of which have received awards and commendations.