
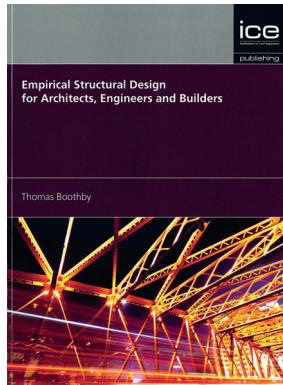


Review

 **Owen Brooker** finds this to be a useful book for anyone wanting to produce preliminary structural sizes, although its value to UK professionals is reduced by a focus on the USA.

Empirical Structural Design for Architects, Engineers and Builders

Author: Thomas Boothby
Publisher: ICE Publishing
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For a structural engineer, a book that purports to simplify structural design to some empirical rules will raise some questions – in particular, should a publication of this type be marketed as appropriate for non-engineers such as architects and builders?

One view is that structural design should be left to the structural engineer, whose views should be sought as early as possible in the development of a project. An alternative view might be that other building professionals would benefit from being informed about the structural requirements and have some idea of the sizes for typical structural elements. This book is written specifically for the non-engineer and it does clearly explain, in simple terms, the structural arrangements for a large range of building types, covering the four main structural materials.

There would not appear to be an intention to remove the requirement for a professional structural engineer on a project, as Chapter 1 notes the book is not a substitute for engaging an engineer. There is also a section on 'when to consult an engineer' in the final chapter.

The publication is laid out by member type, and as well as walls, beams, etc. includes guidance for stability systems, trusses and connections. For each member type

there is a description of how it works as a structural element, and for each appropriate material discussion on the factors that are important, along with some tables giving guidance on determining suitable initial sizes. Often tables with available sizes are given alongside explanatory diagrams and photographs.

Within the text there are short examples of how to apply the simple rules and then, at the end of each chapter, there are some exercises; although there do not appear to be any suggested solutions to the exercises.

Overall, the content does match the blurb on the back cover: it reduces preliminary design to simple rules that are easy to use and look up. Therefore, it should be a useful book for anyone wanting to produce preliminary structural sizes for a range of building types.

However, it has serious flaw – it is slanted heavily towards the US market. The author is Professor of Architectural Engineering at The Pennsylvania State University. The building types discussed, the terminology, the majority of the tables for elements sizes, photographs and drawings are all for the US market. An attempt has been made to make the content appropriate for the UK market by quoting metric sizes and by providing the examples twice, once for the USA and the other the UK.

It might be considered that providing information in metric sizes would be appropriate, and some attempt has been made to verify that the information is appropriate for the UK. Unfortunately, the two markets would appear to be quite different and the following are a sample of the examples of the problems areas.

- There is a table of preferred options by building type and material, but this does not reflect the typical solutions adopted in the UK.
- The most widely used concrete block size in the UK is 440mm × 100mm × 215mm and yet this is missing from the list of UK 'CMUs' (concrete masonry units).
- Steel sections intended for use as columns are referred to as 'W-shape' and these are not defined in the glossary. After looking this up, it appears 'W' is not the shape after all but refers to 'wide' flanged.
- It is stated that the most common timber width is 38mm, which might be true for timber trusses, but for floor joists 50mm is the preferred size.
- The minimum dimension for a concrete column is given as 450mm. This may have been stated in an older version of the US concrete standard, but in the UK for most buildings this would be considered to be a large column, not a minimum size.

The publication's objective is to make building industry professionals able to converse intelligently in decisions about determining the building structure, and generally it meets this objective for those working in the US market.

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