



## Structural Design from First Principles (Paperback)

By Michael Byfield

Taylor Francis Inc, United States, 2018. Paperback. Condition: New. Language: English . Brand New Book. This enlightening textbook for undergraduates on civil engineering degree courses explains structural design from its mechanical principles, showing the speed and simplicity of effective design from first principles. This text presents good approximate solutions to complex design problems, such as Wembley-Arch type structures, the design of thin-walled structures, and long-span box girder bridges. Other more code-based textbooks concentrate on relatively simple member design, and avoid some of the most interesting design problems because code compliant solutions are complex. Yet these problems can be addressed by relatively manageable techniques. The methods outlined here enable quick, early stage, ball-park design solutions to be considered, and are also useful for checking finite element analysis solutions to complex problems. The conventions used in the book are in accordance with the Eurocodes, especially where they provide convenient solutions that can be easily understood by students. Many of the topics, such as composite beam design, are straight applications of Eurocodes, but with the underlying theory fully explained. The techniques are illustrated through a series of worked examples which develop in complexity, with the more advanced questions forming extended exam type questions....



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