

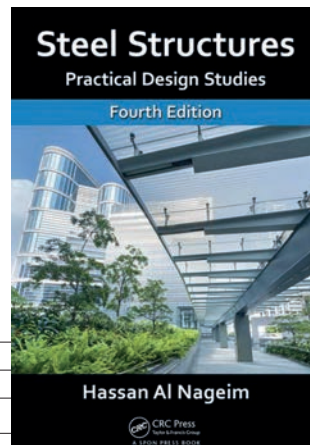
# Review



**Alastair Hughes** is disappointed by this new edition of a book that contains much wisdom but which would have benefited from both more thorough updating and a good editor to be useful in the design office.

## Steel Structures: Practical Design Studies (4th ed.)

**Author:** Hassan Al Nageim  
**Publisher:** CRC Press  
**Price:** £49.99 (paperback or e-book)  
**ISBN:** 978-1-48226-355-8



There must be a sizeable market for undergraduate textbooks on structural steel design, to judge by the number of contenders on the shelves. This one has been around for some time and may be familiar to many. It is coy about its age but seems to have originated in 1981 (before BS 5950) under the authorship of the late Tom MacGinley (who is no longer credited, except on the back cover). The updated (fourth) edition is credited to Hassan Al Nageim, Professor at Liverpool John Moores University.

The result is a textbook which flits rather uncomfortably between BS 5950 and BS EN 1993-1-1 (Eurocode 3). Even if this divided loyalty could be said to reflect the current state of professional practice in the UK, it is asking a lot of the student, who is recommended to 'understand both codes and choose the most appropriate and safe approach to the particular practical case concerned'. A tall order.

While any textbook that has been selling for over 35 years must be accorded respect, an objective review must judge it by today's standards. This text shows its age, and the updating has not been as thorough as one might wish.

Chapter 7, concerned with multistorey buildings, is a case in point. It is potentially the most interesting chapter in the book, because it compares simple, continuous

elastic, continuous plastic and semi-continuous designs for the same four-storey braced frame. Unfortunately, the semi-continuous plastic exercise fails to exploit the advantages of this option, which allows the designer a choice of smaller and/or lighter beams, together with connections that are only marginally more costly than simple ones. Instead, an elaborate haunched detail is proposed which looks little different from that for the continuous design (and is actually slightly deeper!). The assessment of design moments for the interior columns could also be done in a much simpler way.

The chapter must have come from an earlier edition, because its calculations and comparisons are largely based on BS 5950. The term 'semi-rigid' (which implies classification by stiffness and should really be reserved for elastic design) is used as if it were synonymous with semi-continuous. BS EN 1993-1-8 has helped to straighten out our thinking in this respect, but its influence is not fully felt here. Connection design generally is in a time warp, with old-style seating cleat/web cleat details proposed for the simple connections, and without much rationale to the provision of stiffeners, backing plates, etc. in the moment connections.

The EC3 comparison (in Chapter 8) is disappointing. It is merely a repeat verification

of the members and connections of the simply connected frame, with no further consideration given to any degree of continuity. It refers to Fe 430, takes  $\gamma_{M1} = 1.05$  and fails to reduce  $f_y$  to 265MPa with thickness above 16mm. This is at odds with present-day BS EN 1993-1-1, suggesting that this chapter too was imported from the previous edition without updating. Incidentally, the bracing system itself is excluded, so columns resist gravity action alone and BS EN 1990's  $\gamma$ - and  $\psi$ -factors do not get an airing.

It may not be reasonable to expect an educational textbook to cover everything, but the Eurocodes, their National Annexes and the way they interact produce an abundance of traps for the unwary student (or author) and highlighting them would have enhanced the examples.

On a more mundane level, there are too many misprints in the text. Some are obvious, even mildly amusing (hunch, slenderness ration, Merchant-Ranking), but how many others lurk in the numberwork? References to product literature include suppliers who have suffered name changes or worse. A good editor could have been invaluable.

All design guidance publications fight a losing battle to be up to date, but this one leaves rather a lot to be desired if it were to be useful in the design office.

An entirely negative review would be unfair. There is much wisdom in this book, and its advice must once have been thoroughly up to date. However, it cannot be recommended to students now entering the profession who wish to master the design standards of the future without going through the transitional agonies that their predecessors have suffered.

### Alastair Hughes MA, MStructE, MICE

Retired Member Alastair Hughes trained at Cambridge University and entered the profession with little prior exposure to code-related design. Over many years with Arup, he contributed to the design of numerous steel structures. Subsequently, he has worked with SCI to prepare design guidance for Eurocode users.