Book review

WIND LOADING OF STRUCTURES (SECOND EDITION)

J. D. Holmes. Taylor and Francis, 2007. ISBN 0 41540 946 2, £95-00, 393 pp.

There are not very many resources on the subject of wind engineering: only a handful of prized books typically adorn the shelves of wind consultants. This is probably because it is very challenging adequately to describe the components that make up wind engineering, such as meteorology, aerodynamics and structural dynamics, each of which is a field of its own.

It is therefore very encouraging to see a new publication by one of the prominent experts in wind engineering. The book has a good pedigree—it is the second edition of what is already a popular choice among wind engineers. The title *Wind Loading of Structures* is somewhat ambitious considering that wind effects play a role in the design of a wide range of structures (e.g. buildings, bridges, masts, towers) and components (e.g. cladding elements, ventilation systems, cable supports). As with the first edition, however, this revised edition of the book provides a good overview of wind effects for the main types of structures in the built environment.

The first chapter may be a real eye-opener for beginners to the subject, as it includes interesting statistics about wind-induced damage (e.g. 70% of total insured losses in the US are created by wind storms). Wind engineers will also find the sub-sections on wind-blown debris interesting, as this is an area where Dr Holmes has been concentrating his recent research. After a

brief description of the statistical nature of winds in section 2, sections 3 and 4 lay the foundations for the rest of the book, describing the fundamental boundary-layer wind characteristics and bluff-body aerodynamics. Many of the tables in wind codes are generally based on the theory described in these sections. The subsequent sections concentrate on wind effects for particular types of structures, such as buildings, large roofs, masts, bridges and transmission lines. Finally there is a section on well-known wind codes around the world, although—as the author also mentions—this section will become outdated as the codes develop in the near future.

The use of computational fluid dynamics (CFD) in wind engineering has been one of the intensely debated topics in recent years and it would have been nice to see a more comprehensive discussion on this. The sections on dampers could also have been expanded, as the industry is increasingly adopting such advanced tools for controlling wind effects. Finally, the effective use of wind tunnels for form optimisation and the use of aerodynamic measures for controlling wind response probably deserve a sub-section.

Overall the book is geared towards describing the fundamentals of wind engineering rather than delving into finer details. Any wind expert will testify that several thick volumes would be needed to cover wind engineering in detail, but Dr Holmes shows that one volume can go a long way after all.

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