



## **Membrane Structures**

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**Tensile Surface Structures: A Practical Guide to Cable and Membrane Construction**, by Dipl.-Ing. Dr. Michael Seidel, Wilhelm Ernst & Sohn, Rotherstr. 21, 10245-Berlin, Germany, 2009. 250pp., illust., price € 139.00. ISBN 978-3-433-02922-0.

This book is a landmark text.

The author, from the *Institut für Architektur und Entwerfen Technische Universität Wien, Austria*, brings together all the accumulated knowledge of the membrane industry into a single book, in a systematic overview of all the processes required to produce a membrane structure; with a particular emphasis on the materials used to form the structural elements and how their properties influence the design, together with an exhaustive description of the subsequent construction techniques.

It is not a text on how to use finite element software for form-finding or patterning; or how to size a catenary cable or strut.

Topics covered under Materials include:

Wire ropes - construction, corrosion protection, end fittings

Fabric - types, weaving, coatings, properties, behaviour, patterning, fabrication, seams

Details - edge details, corner details

Topics covered under Construction include:

Construction management, scheduling, modeling erection procedures, detailing for erection

Cranes and lifting devices, tensioning devices, scaffolding and temporary platforms

Erection procedures, construction, lifting of the various elements

Tensioning, control of the forces, measurement of membrane prestress and force in ropes.

Projects (1989-2007), include the usual summary (of mainly European projects) with photographs.

The major strength of this book is its very comprehensive section on the construction of membrane structures and this is where it advances the design industry's knowledge base over earlier texts. We have all designed structures that have had to be modified because of constructability issues.

A limitation of the book, for international readers, is its European-centred view. Anyone reading this book could be forgiven for thinking that membrane structures reside primarily in Europe. For the 2002 World Cup in Korea, ten landmark stadiums were designed and constructed by pooling the resources of the world's fabric industry. Some of these were even done out of Europe...

Nevertheless, the end result is a truly remarkable book; which will be of major interest not only to architects and to all engineers involved in the design and construction of membrane structures, but also as course material for students of lightweight structures. I predict that future editions will be expanded to include more international projects and in doing so, will become the definitive textbook on membrane structures.

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