



Form and Forces: Designing Efficient, Expressive Structures

By Edward Allen, Waclaw Zalewski

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Here, in one volume, is all the architect needs to know to participate in the entire process of designing structures. Emphasizing bestselling author Edward Allen's graphical approach, the book enables you to quickly determine the desired form of a building or other structure and easily design it without the need for complex mathematics. This unique text teaches the whole process of structural design for architects, including selection of suitable materials, finding a suitable configuration, finding forces and size members, designing appropriate connections, and proposing a feasible method of erection. Chapters are centered on the design of a whole structure, from conception through construction planning.

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Editorial Review

From the Back Cover

FINDING GOOD FORMS FOR STRUCTURES--A GRAPHICAL APPROACH

In *Form and Forces*, bestselling authors Edward Allen and Wacław Zalewski offer a fresh, new approach to the study of structures for students and practitioners of architecture and structural engineering. Emphasizing graphics rather than mathematics and rote learning, *Form and Forces* teaches statics and strength of materials in the context of a set of projects that involve students in the entire process of designing elegant, long-span structures, from concept generation to detailing and planning for construction.

Readers engage in such projects as a hanging roof for a transportation terminal, a concrete shell roof for a basketball arena, a wood truss roof for a summer camp activities building, cantilevered concrete shells to cover a stadium grandstand, and other fascinating, real-world designs. As they pursue these projects, students learn each fundamental structural design technique as it is needed, in the context in which it is useful, making it easy to remember and employ the principles discussed, including:

- Statics
- Bending and buckling behavior
- Finding form and forces for long-span structures
- Beam and column formulas
- The choice and layout of framing systems

Supplemented by a companion Web site with step-by-step graphic statics tutorials, interactive learning tools, and a special-purpose graphic statics solver program, *Form and Forces* allows every architect and engineer to employ the almost magical power of graphical techniques for generating good form.

Form and Forces equips the reader with simple, powerful tools employed by the great structural designers of the past 150 years—from Eiffel, Gaudí, and Maillart, to Schlaich and Calatrava—so that even beginners can design entire structures that are elegant and exciting.

Companion Web site: www.wiley.com/go/formandforces

About the Author

EDWARD ALLEN has taught for more than thirty years at the Massachusetts Institute of Technology, Yale University, and the University of Oregon. He is the bestselling author of *Fundamentals of Building Construction*, Fifth Edition.

WACŁAW ZALEWSKI is Professor Emeritus of Structural Design at the Massachusetts Institute of Technology.

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Andrea Lampkin:

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