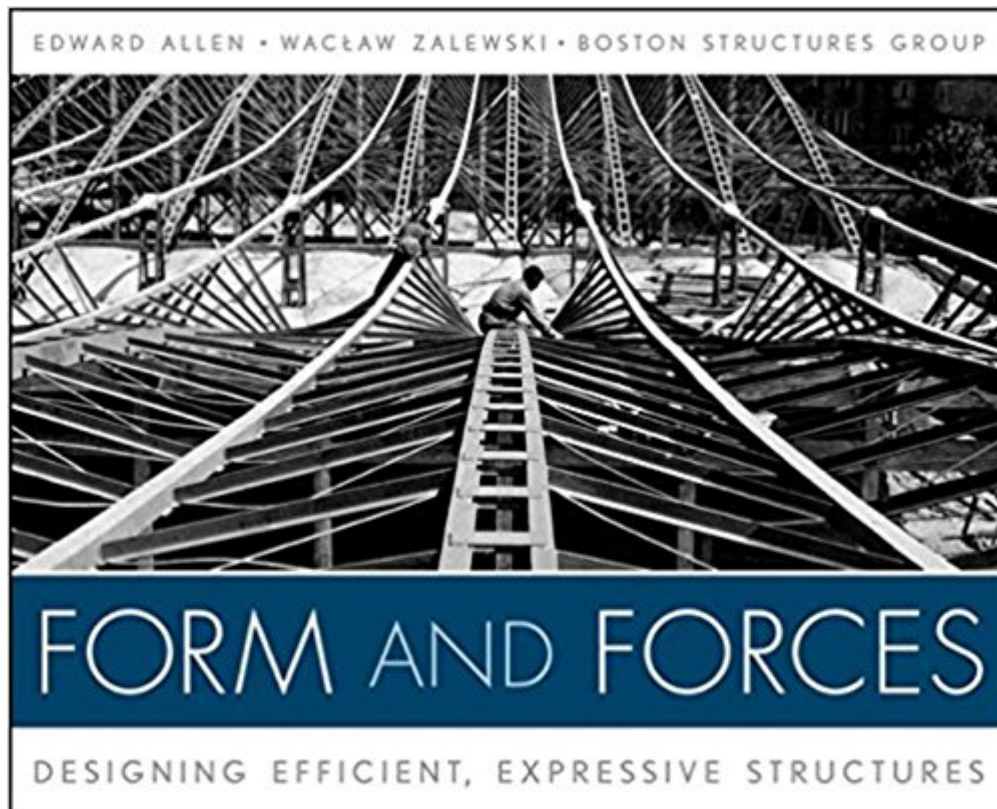




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# Form And Forces: Designing Efficient, Expressive Structures



## Synopsis

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.

## Book Information

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## Customer Reviews

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](http://www.wiley.com/go/formandforces)

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

Ed's review says it all but I thought I'd chime in here. I have spent a considerable amount of time and money researching books that would provide a comprehensive, creative, and intuitive education in structural engineering. Sadly most of the books I found were dry and virtually impossible to creatively apply, or very creative but devoid of any science. I was pretty much set on reading a handful of dry books (with my eyelids taped open if necessary) and supplementing it with a handful of creative books (with constant reference to the dry books) and hope that I could start seeing and thinking properly. One chapter into this book, plus a perusal of the other chapters, was all it took to clear my shelf and focus my efforts on learning from this book and its online companion materials. It has it all, and it explains it all in a way us non-textbook people can both understand and get excited about studying. Yeah that's right - this book will make you WANT to learn structural engineering. This book is for enterprising product designers, architects, or others interested in knowing how forces interact with structures and how creative thought can minimize effort and material while creating a structure that can withstand the forces applied to it. It is long and thorough so do not expect a light treatment. Buy with confidence and use for life.

This book won't make you an architect or a structural engineer, but it opens a lot of doors. Good

teaching approaches abstractions with specific problems, visual hands-on models of the intangibles involved, and clearly explained pragmatic solutions. From the first chapter--designing simple suspension bridges and calculating the loads with a visual representation called a force polygon--Allen takes you through a variety of forms, explaining simply and clearly the practical considerations underlying choice of materials and connectors as well the structures within which they are used. An architect's choice of scissors trusses to support the roof of a church is analyzed and found wanting, and replaced with (of all things) a simpler, less costly, and more effective tension structure using steel chain. The magnificent bubble-like dome over the courtyard of the British Museum is explained in terms of the structural efficiency which makes it so strong, though so light. No number crunching needed--by the end of the book, you should be able to design pretty good commonsense structures by doodling on a napkin.

great book and has some wonderful pictures.

a remarkable, emergent way of understanding and becoming fluent in the way of flow of forces and embodied pressures.

Very clear covering of almost all structural fields

Bought the book for my 16 year old grandson who praised the book greatly, claiming that it was extremely interesting as it showed how different projects were approached.

The book provides basic knowledge about structure in a simple manner. Excellent Quality and reduced price compared to any book store or market price.

When this ebook was put on my kindle the graphs and formula's came out black. As per request of support I redownloaded, and the proble persisted. Also the format doesn't let you konw what page your on compaired to the book, which makes it difficult when the professor says on page... You might want to stick with the book over the ebook.

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