

# Principles of Structural Design: Wood, Steel, and Concrete, Second Edition

By Ram S. Gupta



**Principles of Structural Design: Wood, Steel, and Concrete, Second Edition** By Ram S. Gupta

A structural design book with a code-connected focus, **Principles of Structural Design: Wood, Steel, and Concrete, Second Edition** introduces the principles and practices of structural design. This book covers the section properties, design values, reference tables, and other design aids required to accomplish complete structural designs in accordance with the codes.

#### What's New in This Edition:

- Reflects all the latest revised codes and standards
- The text material has been thoroughly reviewed and expanded, including a new chapter on concrete design
- Suitable for combined design coursework in wood, steel, and concrete
- Includes all essential material?the section properties, design values, reference tables, and other design aids required to accomplish complete structural designs according to the codes
- This book uses the LRFD basis of design for all structures

This updated edition has been expanded into 17 chapters and is divided into four parts. The first section of the book explains load and resistance factor design, and explores a unified approach to design. The second section covers wood design and specifically examines wood structures. It highlights sawn lumber, glued laminated timber, and structural composite/veneer lumber. The third section examines steel structures. It addresses the AISC 2010 revisions to the sectional properties of certain structural elements, as well as changes in the procedure to design the slip-critical connection. The final section includes a chapter on T beams and introduces doubly reinforced beams.

Principles of Structural Design: Wood, Steel, and Concrete, Second Edition was designed to be used for joint coursework in wood, steel, and concrete design.

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#### Review

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- —Caesar Abi Shdid, Ph.D., P.E., Lebanese American University, Beirut, Lebanon
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- -Dr. Peggi L. Clouston, University of Massachusetts, Amherst, USA
- "... a comprehensive book covering design criteria, computation of loads, and design of structural members and connections using steel, concrete, and wood. When tied with structural analysis and modeling tools, the book provides the reader with a path for understanding and designing structural systems."
- -- Prof. S. D. Rajan, Arizona State University, Phoenix, USA

#### About the Author

Ram S. Gupta earned a master's in engineering from the Indian Institute of Technology (IIT), Roorkee, India, and a PhD from Polytechnic University, New York. He is a registered professional engineer in Rhode Island and Massachusetts, and is currently working as a professor of engineering at Roger Williams University (RWU), Bristol, Rhode Island. Dr. Gupta is president of Delta Engineers Inc., a Rhode Island-based consulting company. Besides contributing to a very large number of research papers, Dr. Gupta has authored three books including **Principles of Structural Design: Wood, Steel, and Concrete** (Taylor & Francis Group, Boca Raton, FL, 2010).

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