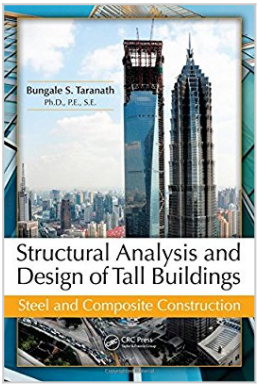

Structural Analysis and Design of Tall Buildings: Steel and Composite Construction

By Bungale S. Taranath

Structural Analysis and Design of Tall Buildings: Steel and Composite Construction By Bungale S. Taranath

As software skills rise to the forefront of design concerns, the art of structural conceptualization is often minimized. Structural engineering, however, requires the marriage of artistic and intuitive designs with mathematical accuracy and detail. Computer analysis works to solidify and extend the creative idea or concept that might have started out as a sketch on the back of an envelope.

From Sketches on the Back of an Envelope to Elegant, Economical Buildings?The Art of Structural Conceptualization

Bridging the gap between the conceptual approach and computer analysis, **Structural Analysis and Design of Tall Buildings: Steel and Composite Construction** integrates the design aspects of steel and composite buildings in one volume. Using conceptual thinking and basic strength of material concepts as foundations, the book shows engineers how to use imperfect information to estimate the answer to larger and more complex design problems by breaking them down into more manageable pieces.

Written by an accomplished structural engineer, this book discusses the behavior and design of lateral load-resisting systems; the gravity design of steel and composite floors and columns; and methods for determining wind loads. It also examines the behavior and design of buildings subject to inelastic cyclic deformation during large earthquakes?with an emphasis on visual and descriptive analysis?as well as the anatomy of seismic provisions and the rehabilitation of seismically vulnerable steel buildings.

Intuitive Techniques for Construction and Design

The book covers a range of special topics, including performance-based design and human tolerance for the wind-induced dynamic motions of tall buildings. It

also presents preliminary analysis techniques, graphical approaches for determining wind and seismic loads, and graphical aids for estimating unit-quantity of structural steel. The final chapter deals with the art of connection design.

Forty case studies?from New York’s Empire State Building to Kuala Lumpur’s Petronas Towers?highlight the aspects of conceptualization that are key in the design of tall and ultra-tall buildings. A comprehensive design reference, this book guides engineers to visualize, conceptualize, and realize structural systems for tall buildings that are elegant and economical.

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Structural Analysis and Design of Tall Buildings: Steel and Composite Construction By Bungale S. Taranath Bibliography

- Sales Rank: #1441852 in Books
- Brand: Brand: CRC Press
- Published on: 2011-10-18
- Original language: English
- Number of items: 1
- Dimensions: 10.00" h x 1.50" w x 7.01" l, 3.20 pounds
- Binding: Hardcover
- 722 pages

Editorial Review

Review

Dr. Taranath has produced a serious state-of-the-art book on tall steel and composite structures. As with his phenomenally successful text *Reinforced Concrete Design of Tall Buildings*, this new book should be titled "all you ever wanted to know about steel structures including composite". ... His text is truly a magnificent effort by a highly intelligent engineer with a purpose of teaching all he has accumulated in his illustrious career of designing and teaching. This book is not a thin publication or a die-fast text; it is truly a labor of love. ... Taranath strives to zero in on the most economical system that simultaneously satisfies the owners' cost concerns and the architects' dreams. ... This book is a must for any serious engineer who truly wants to understand the gestalt of steel and composite tall building design.

?From the Foreword by Vincent J. DeSimone, Chairman, DeSimone Consulting Engineers

[Dr. Taranath's] intentional reliance on intuitive concepts rather than a rigorous analytical approach helps to facilitate an understanding of the many complex ideas involved in tall building design. ... I'm sure the reader will agree that getting back to basics using intuition and conceptualization is the best way to present this subject matter; and Dr. Taranath has done an outstanding job of accomplishing that goal in this comprehensive tall building design guide. He has a perspicuous writing style with a flair for lucidity rather than obscurity, and on occasion even highlights it with some engineering humor. ... I am confident that all kinds of engineers, from students to young graduates, from seasoned practitioners to academics, will appreciate Dr. Taranath's conceptual approach to the subject with no need for rigor. The rigor comes later, after the conceptual ideas have coalesced.

?From the ICC Foreword by John R. Henry, PE, Principal Staff Engineer, International Code Council

About the Author

Dr. Bungale S. Taranath, PhD, PE, SE, is a corporate consultant to DeSimone Consulting Engineers, a consulting firm, with offices in New York, Miami, San Francisco, New Haven, Las Vegas, Hong Kong, and Abu Dhabi. He has extensive experience in the design of concrete, steel, and composite tall buildings and has served as principal-in-charge for many notable high-rise buildings.

Dr. Taranath is a member of the American Society of Civil Engineers and the Concrete Institute, and a registered structural and professional engineer in several states. He has conducted research into the behavior of tall buildings and shear wall structures and is the author of a number of published papers on torsion analysis and multistory construction projects.

He has published four books: *Structural Analysis and Design of Tall Buildings: Steel and Composite Construction*; *Steel, Concrete, and Composite Design of Tall Buildings*; *Wind and Earthquake Resistant Buildings: Structural Analysis and Design*; and *Reinforced Concrete Design of Tall Buildings*. Three of his books were translated into Chinese and Korean and are widely referenced throughout Asia.

Dr. Taranath has conducted seminars on tall-building design in the United States, China, Hong Kong, Singapore, Mexico, India, and England. Dr. Taranath’s passion for tall buildings has never waned. Today, his greatest joy is sharing that enthusiasm with owners, architects, and fellow structural engineers to develop imaginative solutions for seemingly impossible structures.

Users Review

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