



Structural Stability of Steel: Concepts and Applications for Structural Engineers

By Theodore V. Galambos, Andrea E. Surovek

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Practical guide to structural stability theory for the design of safe steel structures

Not only does this book provide readers with a solid foundation in structural stability theory, it also offers them a practical, working knowledge of how this theory translates into design specifications for safe steel structures. Structural Stability of Steel features detailed discussions of the elastic and inelastic stability of steel columns, beams, beam-columns, and frames alongside numerous worked examples. For each type of structural member or system, the authors set forth recommended design rules with clear explanations of how they were derived.

Following an introduction to the principles of stability theory, the book covers:

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Stability of axially loaded planar elastic systems

*

Tangent-modulus, reduced-modulus, and maximum strength theories

*

Elastic and inelastic stability limits of planar beam-columns

*

Elastic and inelastic instability of planar frames

*

Out-of-plane, lateral-torsional buckling of beams, columns, and beam-columns

The final two chapters focus on the application of stability theory to the practical design of steel structures, with special emphasis on examples based on the 2005 Specification for Structural Steel Buildings of the American Institute of Steel Construction. Problem sets at the end of each chapter enable readers to put their newfound knowledge into practice by solving actual instability problems.

With its clear logical progression from theory to design implementation, this book is an ideal textbook for upper-level undergraduates and graduate students in structural engineering. Practicing engineers should also turn to this book for expert assistance in investigating and solving a myriad of stability problems.

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Editorial Review

From the Back Cover

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About the Author

Theodore V. Galambos, PE, PhD, is Professor Emeritus at the University of Minnesota and a member of the Executive Committee for the Structural Stability Research Council. He is also the editor of *Guide to Stability Design Criteria for Metal Structures, Fifth Edition* (Wiley). Among his many accolades are the AISC T.R. Higgins Lectureship Award, ASCE Ernest E. Howard Award, ASCE OPAL Award, and SSRC Lynn S. Beedle Award.

Andrea E. Surovek, PE, PhD, is Assistant Professor at the South Dakota School of Mines and Technology. Recipient of the 2001 SSRC Vinnakota Award, Dr. Surovek is a member of the SSRC and Chair of their Frame Stability Committee. She also serves as the Chair of the ASCE Committee on Compression and Flexural Members.

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