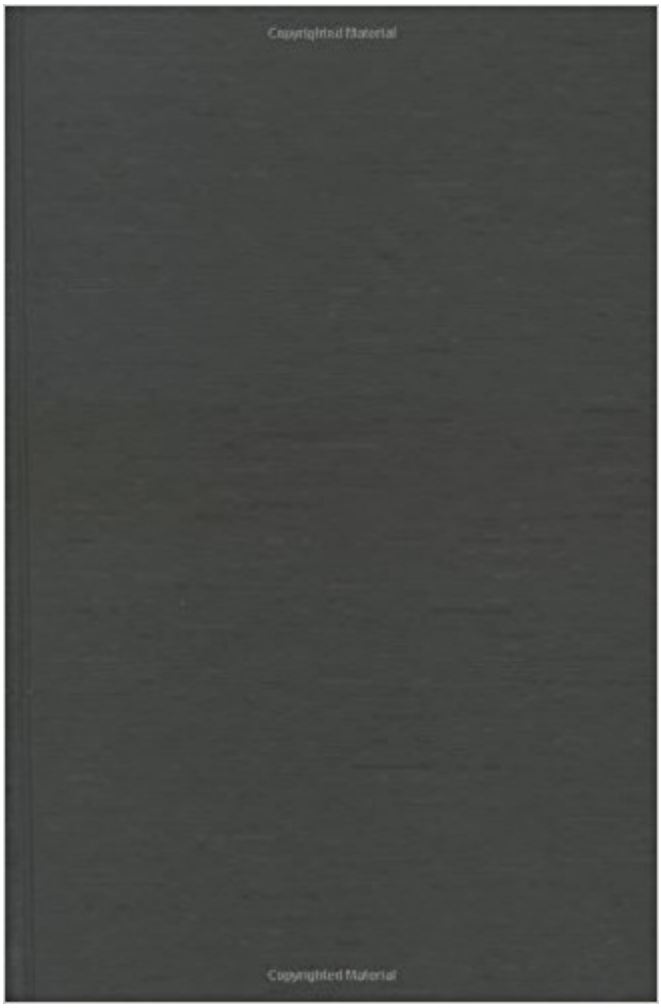
Seismic Design And Retrofit Of Bridges



Synopsis

Because of their structural simplicity, bridges tend to be particularly vulnerable to damage and even collapse when subjected to earthquakes or other forms of seismic activity. Recent earthquakes, such as the ones in Kobe, Japan, and Oakland, California, have led to a heightened awareness of seismic risk and have revolutionized bridge design and retrofit philosophies. In Seismic Design and Retrofit of Bridges, three of the world's top authorities on the subject have collaborated to produce the most exhaustive reference on seismic bridge design currently available. Following a detailed examination of the seismic effects of actual earthquakes on local area bridges, the authors demonstrate design strategies that will make these and similar structures optimally resistant to the damaging effects of future seismic disturbances. Relying heavily on worldwide research associated with recent quakes, Seismic Design and Retrofit of Bridges begins with an in-depth treatment of seismic design philosophy as it applies to bridges. The authors then describe the various geotechnical considerations specific to bridge design, such as soil-structure interaction and traveling wave effects. Subsequent chapters cover conceptual and actual design of various bridge superstructures, and modeling and analysis of these structures. As the basis for their design strategies, the authors' focus is on the widely accepted capacity design approach, in which particularly vulnerable locations of potentially inelastic flexural deformation are identified and strengthened to accommodate a greater degree of stress. The text illustrates how accurate application of the capacity design philosophy to the design of new bridges results in structures that can be expected to survive most earthquakes with only minor, repairable damage. Because the majority of today's bridges were built before the capacity design approach was understood, the authors also devote several chapters to the seismic assessment of existing bridges, with the aim of designing and implementing retrofit measures to protect them against the damaging effects of future earthquakes. These retrofitting techniques, though not considered appropriate in the design of new bridges, are given considerable emphasis, since they currently offer the best solution for the preservation of these vital and often historically valued thoroughfares. Practical and applications-oriented, Seismic Design and Retrofit of Bridges is enhanced with over 300 photos and line drawings to illustrate key concepts and detailed design procedures. As the only text currently available on the vital topic of seismic bridge design, it provides an indispensable reference for civil, structural, and geotechnical engineers, as well as students in related engineering courses. A state-of-the-art text on earthquake-proof design and retrofit of bridges Seismic Design and Retrofit of Bridges fills the urgent need for a comprehensive and up-to-date text on seismic-ally resistant bridge design. The authors, all recognized leaders in the field, systematically cover all aspects of

bridge design related to seismic resistance for both new and existing bridges. * A complete overview of current design philosophy for bridges, with related seismic and geotechnical considerations * Coverage of conceptual design constraints and their relationship to current design alternatives * Modeling and analysis of bridge structures * An exhaustive look at common building materials and their response to seismic activity * A hands-on approach to the capacity design process * Use of isolation and dissipation devices in bridge design * Important coverage of seismic assessment and retrofit design of existing bridges

Book Information

Hardcover: 704 pages

Publisher: Wiley-Interscience; 1 edition (March 29, 1996)

Language: English

ISBN-10: 047157998X

ISBN-13: 978-0471579984

Product Dimensions: 6.4 x 1.5 x 9.4 inches

Shipping Weight: 2.6 pounds (View shipping rates and policies)

Average Customer Review: 4.7 out of 5 stars 4 customer reviews

Best Sellers Rank: #1,548,253 in Books (See Top 100 in Books) #76 inÂ Books > Engineering & Transportation > Engineering > Civil & Environmental > Seismic Design #76 inÂ Books > Science & Math > Earth Sciences > Geology > Volcanology #232 inÂ Books > Science & Math > Earth Sciences > Seismology

Customer Reviews

For this lavishly illustrated book, the world's leading authorities have collaborated to produce the most extensive reference available devoted solely to this topic. Using an applications-oriented approach, the authors examine the seismic response of bridges in detail and provide design strategies that make the structure as insensitive as possible to the unknown characteristics of the input seismic excitation. Includes the latest research on bridge substructures.

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retrofit design of existing bridges

A classic book that is a must for structural engineers. I found the joint design section very useful. I dont think any other text books discusses this aspect of the design. Most of AASHTO joint design borrows graphics from this book.

One of the best book about bridges. We'll explained and with worked example. Maybe it is not full updated to the last code

Professor Priestley is No. 1 in the world when it comes to seismic design and retrofit of bridges. This book is a result of his extensive research conducted for Caltrans with Prof. Seible on bridge retrofit and their seismic behavior. The book is excellent reference for researchers and design engineers. The chapter about base isolations is very informative. Although I know that this is not his area, I wish he would elaborate more in chapter 3: seismicity and geotechnical considerations

This book offers a comprehensive reference on seismic bridge design, condensing the results of three decades of experimental and theoretical research conducted in the United States, especially at University of California, San Diego. The book covers the topic of design of new structures as well as the assessment and retrofitting of already existent bridges, offering easy to use analytical and design methodologies.

Seismic Design and Retrofit of Bridges Seismic Evaluation and Retrofit of Existing Buildings: ASCE/SEI 41-13 (Standard) (Asce Standard) ASD/LRFD Wind and Seismic: Special Design Provisions for Wind and Seismic with Commentary (2008) Seismic Design and Assessment of Bridges: Inelastic Methods of Analysis and Case Studies (Geotechnical, Geological and Earthquake Engineering) Seismic Principles Practice Exams for the California Civil Seismic Exam Seismic Loads: Guide to the Seismic Load Provisions of ASCE 7 - 10 Seismic Interpretation of Contractional Fault-Related Folds: An AAPG Seismic Atlas (AAPG Studies in Geology) Design and Retrofit of Wastewater Treatment Plants for Biological Nutritient Removal, Volume V Trailersteading: How to Find, Buy, Retrofit, and Live Large in a Mobile Home Green Roof Retrofit: Building Urban Resilience (Innovation in the Built Environment) 2006 International Building Code Structural/Seismic Design Manual, Volume 2: Building Design Examples for Light-frame, Tilt-up and Masonry Seismic Design of Building Structures: A Professional's Introduction to Earthquake Forces and Design Details, 8th

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