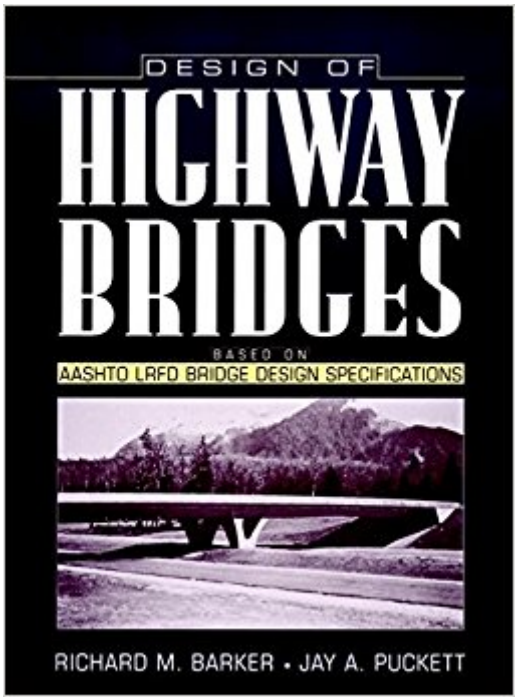
Design Of Highway Bridges: Based On AASHTO LRFD, Bridge Design Specifications



Synopsis

An up-to-date introduction to the theory and principles of highway bridge design Design of Highway Bridges offers detailed coverage of engineering basics for the design of short- and medium-span bridges. Based on the new American Association of State Highway and Transportation Officials (AASHTO) LRFD Bridge Design Specifications, this comprehensive text is an excellent engineering resource. The book contains: * A historical overview of bridge engineering * Information on key bridge types, selection principles, and aesthetic issues * An in-depth examination of design considerations-including limit states, load and resistance factors, and substructure design * Separate chapters on concrete, steel, and timber structures * System analysis procedures for gravity and lateral loads, plus influence functions and girder-line analysis * Sample problems covering different bridge systems * Selected references for further study, and more Bridges are the lynchpin of the transportation network. They are expensive to build, and how well their design handles the parameters of strength, durability, capacity, and safety can determine the viability of the entire system. Design of Highway Bridges provides a complete introduction to this important area of engineering, with comprehensive coverage of the theory, specifications, and procedures for the design of short- and medium-span bridges. Beginning with an overview of bridge engineering history, the book examines key bridge types, selection principles, and aesthetic considerations. Design issues are then discussed in detail, from limit states and loads to resistance factors and substructure design. Up-to-date with the latest American Association of State Highway and Transportation Officials (AASHTO) LRFD Bridge Design Specifications and current system analysis techniques, the text features discrete coverage of concrete, steel, and timber structures. Selected sample problems and references are included to reinforce the concepts presented and give the material a real-world edge. Whether you are aiming to gain quick familiarity with the new AASHTO guidelines or are seeking broader guidance on highway bridge design, this ready reference puts the information you need right at your fingertips.

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Customer Reviews

The main thrust is to provide students with a meaningful introduction to the design of short and medium span bridges. This is accomplished by describing fundamental theory and behavior, development of design specifications and procedures for design. Concrete, steel, and timber structures are also covered along with current techniques and design approaches recommended by the American Association of State Highway and Transportation Officials draft specifications. Contains a copious amount of examples to facilitate understanding.

Bridges are the lynchpin of the transportation network. They are expensive to build, and how well their design handles the parameters of strength, durability, capacity, and safety can determine the viability of the entire system. Design of Highway Bridges provides a complete introduction to this important area of engineering, with comprehensive coverage of the theory, specifications, and procedures for the design of short- and medium-span bridges. Beginning with an overview of bridge engineering history, the book examines key bridge types, selection principles, and aesthetic considerations. Design issues are then discussed in detail, from limit states and loads to resistance factors and substructure design. Up-to-date with the latest American Association of State Highway and Transportation Officials [AASHTO] LRFD Bridge Design Specifications and current system analysis techniques, the text features discrete coverage of concrete, steel, and timber structures. Selected sample problems and references are included to reinforce the concepts presented and give the material a real-world edge. Whether you are aiming to gain quick familiarity with the new AASHTO guidelines or are seeking broader guidance on highway bridge design, this ready reference puts the information you need right at your fingertips.

I am a bridge designer with three years of design experience. I purchased this textbook for Dr. Barker’s (author’s) bridge design graduate course in college. This textbook, unlike so many others on the subject of bridge design, delves into the real nuts-and-bolts calculations of structural

engineering. The most in-depth sections are loads, analysis, steel bridges, and concrete bridges. The two examples in the steel and concrete sections are thorough treatments. No subject is simply glossed over in this book. This entire text seems to have been written with the goal of answering common questions from both designers and students. From why various code requirements came to be, to exactly the meaning of obscure variables, most everything in the 1st to 2nd Ed. of the LRFD code was addressed. My only complaint about the text is that there are several mistakes in the calculations (particularly in the lengthly examples). However, most of these appear to have been corrected in subsequent printings.This book is a great desk reference for bridge designers. I cannot specifically recommend it as a study guide for the PE/SE, since those exams do not use the AASHTO LRFD specifications yet. However, for designing by the AASHTO LRFD, this book can be considered the commentary that space did not allow.As a side note, the hardback book is a nicely bound edition. The sketches, tables, and diagrams are all clear, as well as the notations used (superscripts, subscripts, Greek, etc.).

This book offers the bridge engineer a complete guide to the new LRFD specs in metric units. It is a great tool for both the new engineer, or the skeptical veteran, leery of LRFD. It offers a brief US bridge history in its introduction, and discusses aesthetics in the beginning: where it belongs. Next the development of LRFD and its advantages over ASD is discussed and should be read (and reread) carefully by the skeptics (excellent chapter). Influence lines follow, then system design, and finally concrete and steel bridge design and examples. This book is well suited to supplement the ASSHTO code or stand alone. Also, it is truly metric, no soft conversion at all. The book is quite long, however; it does command your undivided attention if it to be learned from. I highly recommend this book.

Our office found this to be the best, and most comprehensive reference on the new LRFD Specification available. The design examples set this book apart from other references. They are as complete as any we have found. While our interest sprang from our need to learn the LRFD specification, we found that the book is a valuable tool for bridge engineering in general. Most of the designers in our office at KDOT and many of the consulting firms who work with us have a copy of this book.

I am a bridge designer and in the final semester of my Masters degree. I recently purchased this book based on the recommendation of my former mentor. It is a quality book with good insite.My

only complaint, and it is a big one, is that the examples are written in SI units. For applications in the US, this makes it very difficult to reference for quick design issues. Other than that, it's a quality book.

As a Bridge Engineer trying to figure out the new LRFD Code, I found this book to be a necessity. It is comprehensive in applying the code to actual designs. The design examples are thorough, and the logic can be followed. In all, I would recommend this book to anyone trying to learn all the provisions of the new LRFD Code.