

Standard Specifications for Highway Bridges

17th Edition – 2002



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PREFACE
to
Seventeenth Edition

Major changes and revisions to this edition are as follows:

1. The Interim Specifications of 1997, 1998, 1999, 2000, 2001, 2002 and 2003 have been adopted and are included.
2. The commentaries from 1996 through 2000 are provided and have been cross-referenced with each other, where appropriate.
3. In 1997, Section 15, "TFE Bearing Surface," Division I, was replaced by Section 14, "Bearings."
4. In 1997, Section 19, "Pot Bearings," Division I, was replaced by Section 14, "Bearings."
5. In 1997, Section 20, "Disc Bearings," Division I, was replaced by Section 14, "Bearings."
6. In 2002, Section 16, "Steel Tunnel Liner Plates," Division I, became Section 15.
7. In 2002, Section 17, "Soil-Reinforced Concrete Structure Interaction Systems," Division I, became Section 16.
8. In 2002, Section 18, "Soil-Thermoplastic Pipe Interaction Systems," Division I, became Section 17.
9. A new companion CD-ROM with advance search features is included with each book.
10. The Federal Highway Administration and the States have established a goal that the LRFD standards be used on all new bridge designs after 2007; only edits related to technical errors in the seventeenth edition will be made hereafter. These Standard Specifications are applicable to new structure designs prior to 2007 and for the maintenance and rehabilitation of existing structures.

INTRODUCTION

The compilation of these specifications began in 1921 with the organization of the Committee on Bridges and Structures of the American Association of State Highway Officials. During the period from 1921, until printed in 1931, the specifications were gradually developed, and as the several divisions were approved from time to time, they were made available in mimeographed form for use of the State Highway Departments and other organizations. A complete specification was available in 1926 and it was revised in 1928. Though not in printed form, the specifications were valuable to the bridge engineering profession during the period of development.

The first edition of the Standard Specifications was published in 1931, and it was followed by the 1935, 1941, 1944, 1949, 1953, 1957, 1961, 1965, 1969, 1973, 1977, 1983, 1989, 1992, and 1996 revised editions. The present seventeenth edition constitutes a revision of the 1996 specifications, including those changes adopted since the publication of the sixteenth edition and those through 2002.

In the past, Interim Specifications were usually published in the middle of the calendar year, and a revised edition of this book was generally published every 4 years. However, since the Federal Highway Administration and the States have established a goal that the LRFD standards be used on all new bridge designs after 2007, only edits related to technical errors in the seventeenth edition will be made hereafter. These Standard Specifications are applicable to new structure designs prior to 2007 and for the maintenance and rehabilitation of existing structures. Future revisions will have the same status as standards of the American Association of State Highway and Transportation Officials (AASHTO) and are approved by at least two-thirds of the Subcommittee on Bridges and Structures. These revisions are voted on by the Association Member Departments prior to the publication of a new edition of this book, and if approved by at least two-thirds of the members, they are included in a new edition as standards of the Association. Members of the Association are the 50 State Highway or Transportation Departments, the District of Columbia, and Puerto Rico. Each member has one vote. The U.S. Department of Transportation is a nonvoting member.

Future revisions will be displayed on AASHTO's website via a link from the title's book code listing, HB-17, in the Bookstore of www.transportation.org. An e-mail notification will also be sent to previous purchasers notifying them that a revision is available for download. Please check the site periodically to ensure that you have the most up-to-date and accurate information.

The *Standard Specifications for Highway Bridges* are intended to serve as a standard or guide for the preparation of State specifications and for reference by bridge engineers.

Primarily, the specifications set forth minimum requirements which are consistent with current practice, and certain modifications may be necessary to suit local conditions. They apply to ordinary highway bridges and supplemental specifications may be required for unusual types and for bridges with spans longer than 500 feet.

Specifications of the American Society for Testing and Materials (ASTM), the American Welding Society, the American Wood Preservers Association, and the National Forest Products Association are referred to, or are recognized. Numerous research bulletins are noted for references.

The American Association of State Highway and Transportation Officials wishes to express its sincere appreciation to the above organizations, as well as to those universities and representatives of industry whose research efforts and consultations have been most helpful in continual improvement of these specifications.

Extensive references have been made to the *Standard Specifications for Transportation Materials and Methods of Sampling and Testing* also published by AASHTO, including equivalent ASTM specifications which have been reproduced in the Association's Standard Specifications by permission of the American Society for Testing and Materials.

Attention is also directed to the following publications prepared and published by the Bridge Subcommittee:

- AASHTO Guide for Commonly Recognized (CoRe) Structural Elements*—1998 Edition
- AASHTO Guide Specifications for Horizontally Curved Steel Girder Highway Bridges with Design Examples for I-Girder and Box-Girder Bridges*—2002 Edition
- AASHTO Guide Specifications-Thermal Effects in Concrete Bridge Superstructures*—1989 Edition
- AASHTO LRFD Bridge Construction Specifications*—1998 Edition
- AASHTO LRFD Bridge Design Specifications, 2nd Edition, SI*—1998 Edition
- AASHTO LRFD Bridge Design Specifications, 2nd Edition, US*—1998 Edition
- AASHTO LRFD Movable Highway Bridge Design Specifications, 1st Edition*—2001 Edition
- AASHTO/AWS-D1.5M/D1.5:2001 An American National Standard: Bridge Welding Code and its Commentary*—2002 Edition
- Bridge Data Exchange (BDX) Technical Data Guide*—1995 Edition
- Construction Handbook for Bridge Temporary Works*—1995 Edition
- Guide Design Specifications for Bridge Temporary Works*—1995 Edition
- Guide for Painting Steel Structures*—1997 Edition
- Guide Specifications and Commentary for Vessel Collision Design of Highway Bridges*—1991 Edition
- Guide Specifications for Alternative Load Factor Design Procedures for Steel Beam Bridges Using Braced Compact Sections*—1991 Edition
- Guide Specifications for Aluminum Highway Bridges*—1991 Edition
- Guide Specifications for Design and Construction of Segmental Concrete Bridges, 2nd Edition*—1999 Edition
- Guide Specifications for Design of Pedestrian Bridges*, 1997 Edition
- Guide Specifications for Distribution of Loads for Highway Bridges*—1994 Edition
- Guide Specifications for Fatigue Evaluation of Existing Steel Bridges*—1990 Edition
- Guide Specifications for Highway Bridge Fabrication with HPS070W Steel*—2000 Edition
- Guide Specifications for Seismic Isolation Design, 2nd Edition*—1999 Edition
- Guide Specifications for Strength Design of Truss Bridges (Load Factor Design)*—1985 Edition
- Guide Specifications for Strength Evaluation of Existing Steel and Concrete Bridges*—1989 Edition
- Guide Specifications for Structural Design of Sound Barriers*—1989 Edition
- Guide Specification for the Design of Stress-Laminated Wood Decks*—1991 Edition
- Guidelines for Bridge Management Systems*—1993 Edition
- Manual for Condition Evaluation of Bridges*—2000 Edition

Movable Bridge Inspection, Evaluation and Maintenance Manual—1998 Edition
Standard Specifications for Movable Highway Bridges—1988 Edition
Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 4th Edition—2001 Edition

Additional bridges and structures publications prepared and published by other AASHTO committees and task forces are as follows:

Guide Specifications for Cathodic Protection of Concrete Bridge Decks—1994 Edition
Guide Specifications for Polymer Concrete Bridge Deck Overlays—1995 Edition
Guide Specifications for Shotcrete Repair of Highway Bridges—1998 Edition
Inspectors' Guide for Shotcrete Repair of Bridges—1999 Edition
Manual for Corrosion Protection of Concrete Components in Bridges—1992 Edition
Two Parts: Guide Specifications for Concrete Overlay Pavements and Bridge Decks—1990 Edition
AASHTO Maintenance Manual: The Maintenance and Management of Roadways and Bridges—1999 Edition

The following have served as chairmen of the Committee since its inception in 1921: Messrs, E.F. Kelley, who pioneered the work of the Committee, Albin L. Gemeny, R. B. McMinn, Raymond Archiband, G. S. Paxson, E. M. Johnson, Ward Goodman, Charles Matlock, Joseph S. Jones, Sidney Poleynard, Jack Freidenrich, Henry W. Derthick, Robert C. Cassano, Clellon Loveall, James E. Siebels, David Pope, and Tom Lulay. The Committee expresses its sincere appreciation of the work of these men and of those active members of the past, whose names, because of retirement, are no longer on the roll.

Suggestions for the improvement of the specifications are welcomed. They should be sent to the Chairman, Subcommittee on Bridges and Structures, AASHTO, 444 North Capitol Street, N.W., Suite 249, Washington, D.C. 20001. Inquiries as to the intent or application of the specifications should be sent to the same address.

ABBREVIATIONS

AASHTO	—American Association of State Highway and Transportation Officials
ACI	—American Concrete Institute
AISC	—American Institute of Steel Construction
AITC	—American Institute of Timber Construction
ASCE	—American Society of Civil Engineers
ASME	—American Society of Mechanical Engineers
ASTM	—American Society for Testing and Materials
ANSI	—American National Standards Institute
AWS	—American Welding Society
AWPA	—American Wood Preservers Association
CRSI	—Concrete Reinforcing Steel Institute
CS	—Commercial Standards
NDS	—National Design Specifications for Stress Grade Lumber and Its Fastenings
NFPA	—National Forest Products Association
RMA	—Rubber Manufacturers Association
SAE	—Society of Automotive Engineers
SSPC	—Steel Structures Painting Council
WPA	—Western Pine Association
WRI	—Wire Reinforcement Institute
WWPA	—Western Wood Products Association

1997 Interim Specifications

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