



# AASHTOWARE BRIDGE DESIGN

## WHO WE ARE

AASHTOWare Bridge Design (BrD) is a comprehensive bridge design tool developed by AASHTO. AASHTOWare BrD is a tool developed by states for states to design both superstructures and substructures in accordance with the latest AASHTO LRFD Bridge Design Specifications. AASHTOWare BrD integrates seamlessly with the AASHTOWare Bridge Rating (BrR) software to effortlessly evaluate bridges to ensure compliance with Federal regulations.

## GOALS/BENEFITS

- Pooled from multiple state resources to provide a software solution at a significant cost savings
- DOT-Driven software
- Best practices approach
- Focus on Federal requirements
- Built-in Flexibility – allows software configurations to meet unique needs
- Timely updates
- Long-term data preservation of bridge input
- Robust and active user community



**COMMON NEEDS**



**CUSTOMER SATISFACTION**



**FLEXIBILITY**

## WHO USES AASHTOWARE BRIDGE DESIGN SOFTWARE?

State DOTs, Local Agencies, and educational institutions within the jurisdiction of AASHTO Members and Associate Member Departments

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## ABOUT THE SOFTWARE

AASHTOWare Bridge Design utilizes a common database with AASHTOWare Bridge Rating to allow an organization to store a detailed model of each bridge, that is independent of the analytical engine, method of analysis and specification.

## BENEFITS INCLUDE

- Design a bridge using multiple analysis engines and versions of the LRFD specification from a single bridge model.
- Software is designed modularly to allow for upgrades/modifications to components of the software, including the structural analysis engine, specification checking software, and user interface while preserving the basic bridge data.
- Data integration support is provided between BrDR and the AASHTOWare Bridge Management (BrM) software to synchronize bridge data.

## STANDALONE TOOLS

- Prestressed Concrete Design Tool
- Steel Plate Girder Design Tool
- Analysis Results Comparison Tool
- Bridge Copy Utility

## PRODUCT INFORMATION

[Technical Support](#)

[AASHTOWare FY2024 Catalog](#)

[AASHTOWare](#)

[Rating & Design Bridge User Group \(RADBUG\)](#)



## CURRENT FEATURES

### BRIDGE CONFIGURATIONS AND CAPABILITIES

#### SUPERSTRUCTURES

- Reinforced concrete tee beams, slabs, I-beams, and multi-cell box beams
- Reinforced concrete box culverts
- Prestressed concrete box, I, tee, and U-beams (precast, pretensioned, continuity for live load, harped strands, and de-bonded strands)
- Steel rolled beams (including cover plates)
- Steel built-up plate I-girders
- Steel welded plate I-girders (including hybrid)
- Simple spans, continuous spans, hinges (steel and reinforced concrete)
- Parallel and flared girder configurations
- Parallel, tapered, parabolic, and circular webs
- Transverse and longitudinal stiffened steel girders
- Frame structure simplified definition
- Girder-line and 3D-FEM analyses
- 3-D analysis of steel and concrete multi-girder superstructures
- 3-D analysis of curved steel multi-girder superstructures
- U.S. customary and S.I. units

#### SUBSTRUCTURES

- Analysis and spec-checking of bridge piers including wall, hammerhead and multi-column pier bents
- Single drilled shaft for substructure



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## LRFD DESIGN CAPABILITIES

- Prestressed Concrete Design Tool
- Steel Plate Girder Design Tool
- Shear Stirrup Design Tool
- Shear Stud Design Tool
- Flange to web weld design
- Reinforced Concrete Box Culvert Design Tool

## DESIGN REVIEW/SPECIFICATION CHECKING FEATURES

- LRFD specification checking with detailed computation reporting.
- Design ratio graphs and summary reports.
- Wizards for simplifying the modeling of steel and prestressed concrete bridges.
- AASHTO engine for LRFD design reviews/ specification checking.

## OUTPUT REPORTING FEATURES

- A sophisticated set of output reports to help the designer understand the performance of a new bridge.
- Tree-structured graphical representation of the LRFD specification indicates whether each article is passed or failed and provides access to the detailed calculations for the bridge and the specification text.
- A suite of X-Y plots show moments, shears, deflections, and other valuable information

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## GRAPHIC FEATURES AND CUSTOMIZABLE LIBRARIES

- Libraries of standard and user-defined vehicles, loads, steel and prestressed shapes, load and resistance factors, materials, parapets, and other bridge components allow bridge models to be built quickly in a drag-and-drop manner.
- All or part of a bridge can quickly be copied to another bridge model to reduce input time and minimize errors.
- As a bridge model is constructed, a framing plan, elevation view, cross-section view, and other schematics are generated to provide feedback and validate data entry.

## ARCHITECTURAL SUPPORT FOR THIRD-PARTY CUSTOMIZATION AND ADD-ONS

Since a bridge structural model can be complex, AASHTOWare Bridge Design provides a simplified object model that ties the modules of the system together and makes the software open to expansion by experienced users and third-party developers. The AASHTOWare Bridge Design and Rating .NET Application Program Interface makes it possible to access the system's data from many commercial software packages, including Visual Basic®, Excel®, AutoCAD®, and even Microsoft Word®. AASHTO encourages third-party developers to market add-on features, which enhance the core capabilities of the system.



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## CONTACT INFORMATION

# AASHTO

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