



LEAP[®] Bridge Steel

Integrated Design, Analysis, and Load Rating of Steel Bridges

LEAP Bridge Steel is a comprehensive 3D steel bridge design and rating application. It offers advanced physical 3D bridge modeling, design, analysis, and load rating of steel bridges, following AASHTO LRFD specifications.

Advanced 3D Bridge Modeling, Design, Analysis, and Load Rating

This intuitive and powerful software complements Bentley's LEAP[®] Bridge Concrete capabilities for concrete design, providing a system that supports the real-world steel bridge design process. LEAP Bridge Steel enables you to take full advantage of this innovative approach for using engineering data throughout the lifecycle of the bridge, from design and engineering to project management, maintenance, operations, and inspection.

The CONNECT Edition

CONNECT Edition products provide you a common environment for comprehensive project delivery and connects users, projects, and your enterprise. With the CONNECT Edition, you now have a personal portal to access learning, communities, and project information. You can also share personal files including i-models and PDFs directly from your desktop with other users, or stage them for easy access from a Bentley app, such as Structural Navigator. With the new project portal, your project teams can review project details and status, and gain visibility into project performance.

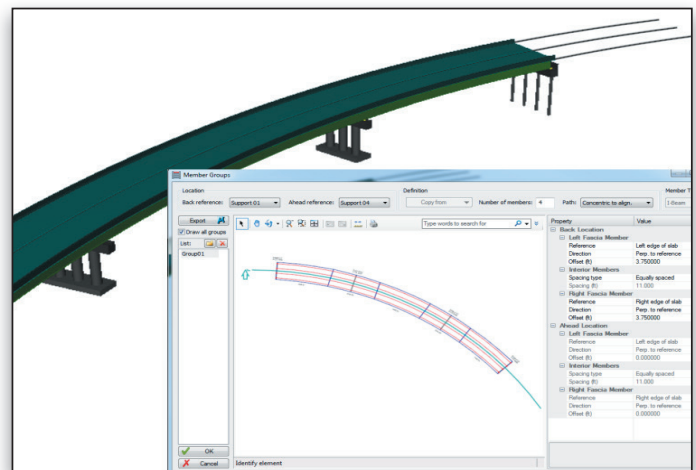
Design both Superstructure and Substructure Quickly and Accurately

LEAP Bridge Steel is a powerful structural modeling and analysis solution for small- to medium-sized steel bridges. With an intuitive tree and ribbon control interface, it enables you to design, model, and evaluate steel bridges faster. The software easily handles the vast majority of the straight and curved steel bridges built today, making it the choice for bridge professionals.

LEAP Bridge Steel offers a synthesis of geometric modeling, substructure and superstructure analysis and design, and load rating in a single, information-rich environment providing a smarter way to design. Intelligent data management and computational modeling will dramatically improve your bridge delivery process, making it easier to deliver your project on time and under budget.

LEAP Bridge Steel enables you to:

- Save time with a streamlined and robust analysis and design process in a full 3D work environment.
- Gain direct access to OpenRoads data (geometry, horizontal/vertical alignments, and digital terrain models).
- Export information-rich 3D bridge models to MicroStation[®].
- Eliminate manual processes by performing load transfers from steel superstructure to substructure analysis/design.



Layout your curved bridge members in real time.

LEAP Bridge Steel models provide a rich data set for as-built documentation, maintenance, operations, and inspection.

Meeting the Demands of Compliance and Data Integrity

Bentley understands the importance of compliance – the AASHTO codes are built into the design of LEAP Bridge Steel, simplifying the complexity of meeting government regulatory requirements. Bentley bridge applications make it easy to share the right information with the right people at the right time. Because the data is interoperable with OpenRoads, you can avoid the costs of translating files and integrating data unnecessarily.

Analysis and Design of Reinforced Concrete Abutments, Piers, and Foundations

Design multi-column and hammerhead piers; straight, tapered, or variable caps; and circular, rectangular (tapered and non-tapered) or drilled-shaft columns. Footing types include isolated or combined, supported on either soil or piles. There is no limit to the number of loads, bearings, and piles that may be included in the design. Analysis results are presented in a variety of easy-to-view formats. By combining superstructure design with substructure design, you can benefit from a comprehensive bridge model.

Planning, Engineering, Design, and Construction for the Lifecycle of Your Bridge

With the integrated process of LEAP Bridge Steel, you can synergistically develop a precise bridge data model that improves overall project accuracy and consistency.

System Requirements

Supported Operating Systems

Windows 10 (32-bit or 64 bit), Windows 8, Windows 8.1, Windows 7, Windows 7 (64-bit), Windows Vista, Home Premium, Ultimate and Enterprise editions, Windows Vista (64-bit)

Communications Protocols

Internet Protocol version 4 (IPv4), Internet Protocol version 6 (IPv6)

Prerequisites

Windows installer Version 3.1v2, Microsoft .NET Framework 3.5 SP1, Microsoft Office Access Runtime 2007

Processor

Intel or AMD processor 2.0 GHz or greater

Memory

4 GB minimum, 32 GB maximum

Hard Disk

700 MB free disk space (which includes the 300 MB install footprint for a complete installation)

Video

256 MB of video RAM or higher is recommended.

Find out about Bentley at: www.bentley.com

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Information Mobility – Access Intelligent Data When and Where You Need It

Data re-use and mobility are essential for a well-designed, constructed, and maintained asset. Bentley i-models are containers for the open exchange of infrastructure information that enable project team members to share and interact with project data and information regardless of authoring application or technology platform.

LEAP Bridge Steel's data-rich models allow stakeholders from all disciplines to be involved from cradle to grave in developing a fully intelligent and living model. Effective and efficient sharing and distribution of information can reduce errors, resolve conflicts, compress project schedules, and reduce project costs.

Bentley LEAP Bridge Steel At-A-Glance

Supported Configurations

- Simple and continuous spans
- Straight and curved alignments
- Unlimited spans and girders
- Standard rolled shapes, I-girders, and built-up sections

Modeling and Visualization

- Streamlined and rapid modeling workflow of all bridge components
- Direct access to OpenRoads for importing horizontal alignment, vertical profile, and terrain
- Instantaneous 3D visualization of the bridge superstructure and substructure as designed
- Automatic creation of intelligent 3D MicroStation models

Computational Physical Bridge Modeling Encompassing All Bridge Components

- Horizontal alignment and vertical profile
- Roadway/deck surface
- Piers and abutments, normal, skewed and/or offset
- Deck slab definition including flared slabs and deck placement sequence
- Member group and framing plan definitions
- Straight, flared, and curved girder layout
- Extensive library of standard rolled steel shapes
- Schedule-based member definition for built-up members
- Cross frame and diaphragm definition and layout tools
- Transverse, bearing, and longitudinal stiffeners
- Bracing connection plates
- Shear connector layout
- Appurtenance library for parapets, medians, sidewalks, railings, and other components
- Import alignment and beam line geometry from MicroStation
- Cross frame member design check
- Shear connector design
- DGN drawing creation for framing plan, bridge cross section, and plan views
- Span hinge definition
- Deck elevation report
- Camber diagrams

Integrated Modeling and Documentation Workflows Improve Project Delivery

When combined with Bentley software for user collaboration and project data management, LEAP Bridge Steel becomes an ideal solution for professional bridge organizations, construction teams, maintenance and inspection crews, and bridge owner-operators.

LEAP Bridge Steel works seamlessly with ProjectWise®, Bentley's platform for connecting people and information across project teams. By using LEAP Bridge Steel with ProjectWise and Bentley Navigator, you can continuously share, reuse, and repurpose data, gaining the benefits of real-time collaboration – working across multiple locations and time zones, among numerous contributors, companies, and stakeholders.

- Material quantities report
- Enhanced cross frame member definition
- Enhanced reporting
- Enhanced 3D solid model
- Grillage model warping stiffness adjustment per NCHRP Report 725

Analysis and Design

- Deck placement sequence analysis
- Automatic dead load calculation for self-weight of girders, cross frames, concrete deck, and appurtenances
- User-defined dead load: uniform, trapezoidal, and point loads
- Automatic generation load cases and load combinations for each of the analysis stages
- Live load library for LRFD HL-93 loading, fatigue truck, standard rating and permitting vehicles
- Custom vehicle definition including variable gage axles
- Field splice design
- Structural analysis powered by Bentley STAAD.Pro® engine
- Automated physical to analytical model creation for line-girder, 3D grillage

Reporting

- Extensive options for viewing and printing analysis and design results
- Microsoft Word, Microsoft Excel, Adobe PDF, and HTML
- Options for creating custom reports of selected results

Standards

- AASHTO LRFD 7th Edition including 2015 interims
- AASHTO MBE 2nd Edition including 2015 interims

Product Interoperability

- OpenBridge Modeler
- InspectTech
- OpenRoads
- MicroStation
- ProjectWise

For more information, visit www.bentley.com/LEAP