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OpenBridge Designer

Integrated modeling, analysis, and design for bridges

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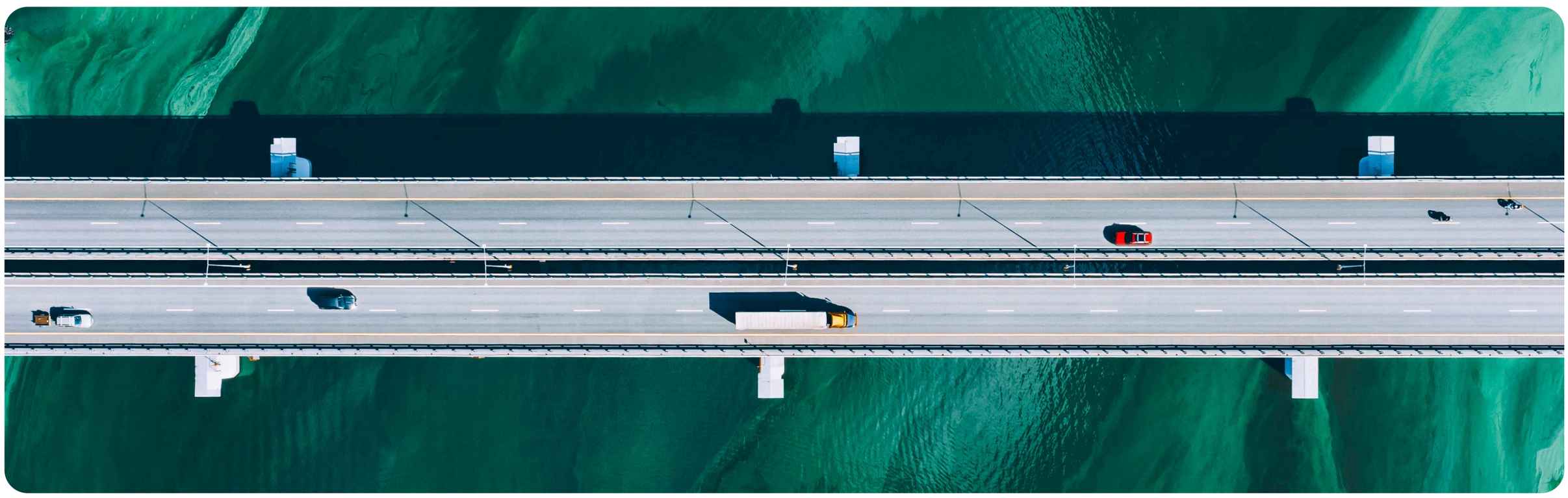
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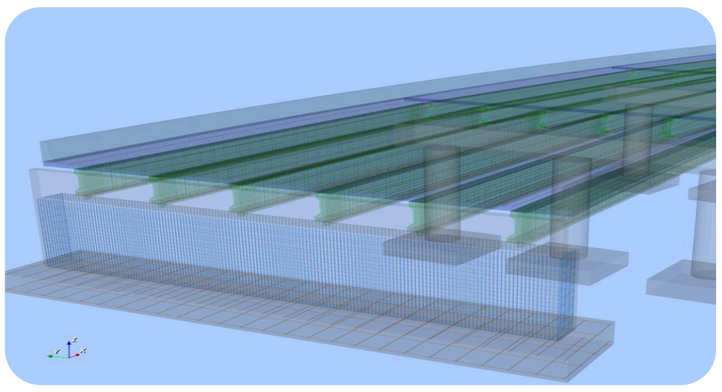
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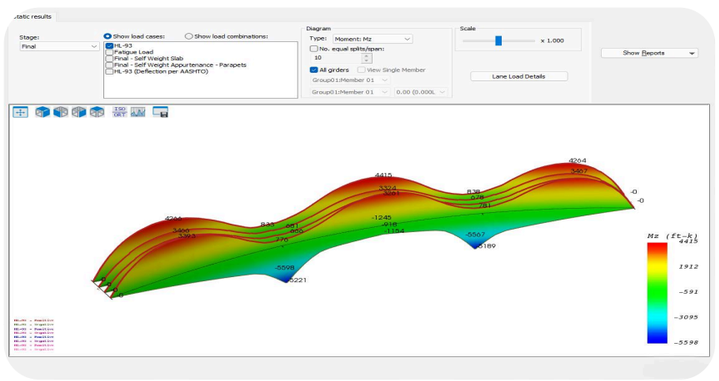


OpenBridge® Designer

Integrated modeling, analysis, and design for bridges



LeapBridge concrete 3D Model



LeapBridge steel line girder analysis

Produce intelligent models

OpenBridge Designer produces intelligent, parametric models that are rich in engineering content for various bridge components. The application reuses data from various stakeholders, thus maintaining relevant and up-to-date geometry within a single model. Advanced modeling capabilities for complex steel tub bridges, including cross-frames and stiffeners, along with a flexible 2D/3D workflow, will enhance the modeling process of the bridge for analysis and design. It allows you to specify the construction sequence of the bridge for analysis and design as a true 3D solution. The application can also perform clash detection with other structures, objects, and underground utilities to eliminate problems before they occur during construction.

Accelerate performance with an all-in-one bridge application

Innovative analysis, design, and load-rating functionality come together in one advanced environment within OpenBridge Designer. The direct exchange of project information helps users improve decision-making for design and construction while connecting and enhancing workflow processes. Accelerating modeling tasks. The resulting information provides a data-rich asset for as-built documentation, maintenance, and operations. OpenBridge Designer is the ideal solution for professional bridge organizations, construction teams, maintenance and inspection crews, and owner-operators.

Improve collaboration

OpenBridge Designer allows direct referencing of DGN models from highway alignments, profiles, and ground information created with OpenRoads™ and OpenRail™ applications as LandXML and IFC files. If the reference data changes, the parametric and rule-based bridge model automatically responds to those changes. OpenBridge Designer works seamlessly with ProjectWise®, and you can create a digital twin of your bridge to maximize the collaboration between different teams and disciplines. Review geotechnical information with OpenGround's Geotechnical Extension. Models built with OpenBridge Designer facilitate model-based construction workflows and can be easily integrated into SYNCHRO™, allowing virtual construction planning with up-to-the-minute information.

Improve deliverables production

An integrated rebar modeler engine improves the production of concrete reinforcement deliverables. Model and detail rebar for any concrete element, detect clashes, and generate schedules—all within a single, parametric workflow, eliminating the need for an external application for this task. Modeling in a 3D environment helps rapidly verify bridge geometry. The bridge is seen in plan, elevation, and cross-section views. A variety of deliverables can be generated using OpenBridge Designer. It also facilitates the evaluation of multiple bridge alternatives, construction sequences, and cost reports. Dedicated workflows for reports and drawing generation streamline the design process, by reducing time and increasing efficiency. You can utilize iTwin® Design Review workflows for 2D and 3D design review in a web-based environment that streamlines review sessions on design work-in-progress deliverables. It also offers a companion installation of LumenRT™ to create stunning visualizations.

System requirements

Minimum: Intel Pentium-based or AMD Athlon-based processor 2.5 GHz or greater, Windows 11 (64-bit), 16 GB RAM, 1 GB of video RAM, 25 GB of hard disk space.

OpenBridge Designer capabilities at-a-glance

Ease of use

- Intelligent graphical user interface
- U.S. customary and metric (SI) units
- Comprehensive 3D physical bridge modeling
- 2D/3D workflows for enhanced usability
- Optional standalone modeler for workflow flexibility
- User-customizable libraries
- Intuitive dialogue-driven workflows
- Cross-section template for complex geometry
- Catalog of appurtenances
- Automated bridge creation through bridge wizards

Modeling and visualization capabilities

- All bridge types
- Prestressed concrete, steel I-girder and boxes, segmental, trusses, suspension and cable-stayed bridges
- Superstructure and substructure modeling
- Integrated rebar modeler engine for concrete rebar modeling and detailing
- Advanced modeling for steel tub bridges, including cross-frames and stiffeners
- Detailed modeling of concrete beam end cuts
- Parametric, intelligent bridge components
- Intuitive, dialogue-driven workflows
- Rule-based and constraint-driven modeling
- Clash detection and clearances
- Solid and transparent views
- Lifelike rendering
- Reference roadway information and ground data
- Construction scheduling and animation
- Flexible BIM modeling with insert/delete span capabilities

Versatile reporting options

- Customized and dynamic report
- Expanded custom reports for geometry and quantities by span
- Deck and beam-seat elevations report
- Material quantities report
- Cost estimate report
- Camber diagram
- Formats: 3D, PDF, Microsoft Word, Microsoft Excel, HTML

Automated drawing generation

- DGN and DWG drawings
- Plan and elevation drawings
- Bridge framing plans
- Precast, prestressed concrete girders
- Piers and abutments
- Concrete reinforcement drawings and schedules

Intelligent analysis and design

- Full 4D analysis
  - 3D geometry for static and dynamic analysis, including creep, shrinkage, and time effects in schedules
- No limitations
  - Improved transfer of decks, diaphragms, and steel H-piles for analytical models
  - Continuous and non-continuous analysis options in LBS
  - Geometry, boundaries, loading and combination, construction stages, linear dynamics, nonlinear material behavior
  - Cables, tendons, beams, springs, and advanced elements
- Any structural model
  - Plane truss, plane frame, grillage, FEM
- Complex analysis
  - P-Delta, cable sagging, large displacements
  - Nonlinear time history analysis, pushover analysis
  - Hydrodynamic analysis
  - High-speed rail
  - Optimization
  - Wind buffeting in time and frequency domain, wind CFD
- Any materials
  - Steel, concrete, and composite structures, pre-/post-tensioning
- Any erection method
  - 20+ international design codes
  - Balanced cantilever, pre-cast segmental, incremental launching, span-by-span, advanced shoring

Integration with other software

- AASHTO BRIDGEWare database
- File formats: DGN, DXF, XML, and LandXML
- Direct data exchange with MicroStation®, OpenRoads, OpenRail, AssetWise® Inspections, and ProStructures™ for steel detailing workflows

Find out more at Bentley.com
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