



BENTLEY® STRUCTURAL

A COMPREHENSIVE BUILDING INFORMATION MODELING (BIM) SOLUTION FOR STRUCTURAL ENGINEERING DESIGN, ANALYSIS, AND INTER-DISCIPLINARY COORDINATION AND DOCUMENTATION.

Bentley Structural is a focused application for Structural engineers, designers, and structural BIM practitioners. It offers simultaneous physical and analytical modeling for design, analysis, coordination, documentation, reporting and visualization. In addition to these key features, Bentley Structural provides the advantage of a bidirectional connection to leading analysis software. The end result is an engineering software solution that is one of the most significant opportunities to increase accuracy and efficiency while reducing time schedule and cost in complex multidisciplinary projects.

With an intuitive user interface, extensive libraries of structural components, and powerful tools for modeling, drafting, and reporting, Bentley Structural supports all phases of the structural workflow, from the design and modeling of structural systems to structural analysis and construction documentation. Integrating design, visualization, drawing production, and reporting, Bentley Structural is part of Bentley's BIM solution of integrated design, engineering, and management applications for the entire lifecycle of constructed assets. Used on large and complex projects around the world, Bentley Structural was specifically developed to support workgroups and distributed teams in a managed environment, allowing architects, engineers, and contractors to build as one.

BIM enables business-critical benefits over traditional computer-aided drafting (CAD), eliminates waste, significantly reduces errors and omissions, provides greater predictability of costs and performance, allows exploration of more design options, and ultimately results in better buildings.

Structural design and information modeling

A comprehensive range of dedicated tools supports the design and modeling of structures in steel, concrete, and timber. Parametric components, such as walls, foundations, columns, beams, trusses, slabs, and bracings, allow dimension-driven creation and modification. Intersecting members are automatically coped or cut back from supporting members, and if necessary, rotated to the slope angle of their supports.

Choice of 2D, 3D, or both

The building information model can be created and manipulated in a traditional 2D plan or an advanced 3D model environment - using the same tools and interface for either.

Integration with analysis and detailing

Simultaneously with the physical members, an analytical model is created, to which boundary conditions, member releases, and various load combinations can be added. This finite element information integrates directly with leading structural analysis applications. Integration with steel detailing and concrete reinforcement software is supported via industry-standard exchange formats.

Rule-based drawing production

Plans, framing layouts, sections, and elevations comply with user-definable drawing standards and rules for resymbolization and annotation. Options are provided for single- or double-line representation, removal or display of hidden lines, and extensive labeling and annotation of structural members. Coordination and consistency is thereby ensured across all documentation.

Integrated schedules and reporting

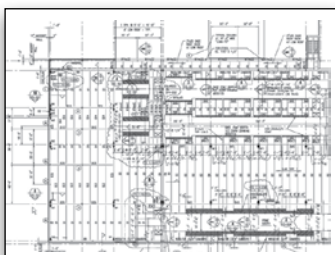
User-definable properties associated with structural members can be used to query the structural information model, to make selective or global changes to the geometry and nongraphical information, and to generate accurate component schedules that include lengths, volumes, weights, centers of mass, and more. Changes in Microsoft Excel spreadsheets, affecting attributes such as steel section size and height of single or multiple structural components, update both physical and analytical models.

A managed environment

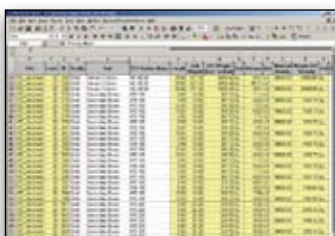
Bentley Structural can be integrated with Bentley® Project-Wise®, a collaboration server that manages access to project information across a LAN, WAN, VPN, or through the Internet, and publishes and synchronizes shared information, manages change, protects intellectual property rights, and more.



BBC Broadcasting House
(Image courtesy whitbybird)



Detailed construction documentation
(Image courtesy SSOE, Inc.)



Member schedules including volume and weight calculations

SYSTEM REQUIREMENTS

Software: MicroStation® v8.9
(MicroStation®TriForma®
extension)

Processor: Intel Pentium-based or
AMD Athlon-based PC or workstation

Operating system: Microsoft Win-
dows Vista, XP, Windows 98/2000

Memory: 128 MB RAM

Disk space: 200 MB minimum
free disk space

Input device: Mouse or digitizing
tablet (tablet on Windows requires
WINTAB driver or Bentley's Windows
Digitizer Tablet interface)

ABOUT BENTLEY

Bentley Systems, Incorporated is the
global leader dedicated to providing
comprehensive software solutions for
sustaining infrastructure. Architects,
engineers, constructors, and owner-
operators are indispensable in
improving our world and our quality
of life; the company's mission is to
improve the performance of their
projects and of the assets they
design, build, and operate. Bentley
sustains the infrastructure professions
by helping to leverage information
technology, learning, best practices,
and global collaboration – and by
promoting careers devoted to this
crucial work.

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BENTLEY STRUCTURAL AT-A-GLANCE

Building information modeling (BIM)

- Structural design and construction documentation for structures in steel, concrete, and timber
- Integrated analytical model with finite elements, nodes, boundary conditions and member releases, loads and load combinations

Parametric and feature-based structural design

- Dimension-driven creation and modification of structural components
- Automatic user-definable cutbacks and coping of intersecting members
- Support for many metric and imperial steel section tables (American, British, Asia-Pacific, European, Canadian, and others)

Coordinated construction documentation

- Plans, framing layouts, sections, and elevations created with extraction rules for resymbolization and member annotation
- Material-dependent hatching and patterning of cross sections
- Quantity takeoffs, member schedules, volume and weight analyses, and other reports

- Compatibility with office automation tools for further processing and formatting

International and custom standards support

- Create, manage, verify, and enforce company and project standards
- Support for U.S. and other national CAD standards
- Support of DGN, DWG, DXF, PDF, STEP, IGES, IFC, and other major industry standards

Integration with analysis and detailing

- Import/export tools for interoperability with dedicated industry standards, such as CIS/2 and SDNF for structural design to fabrication.
- Interoperability between Bentley's STAAD.Pro, RAM Structural System and Bentley Structural engineering products for efficient and accurate structural design, analysis, drawing production, quantification and project team coordination
- Interoperability with other structural analysis applications, such as MIDAS/GENw, Oasys (Arup) GSA and SFRAME

Visual Basic for Applications

- Wizards to create steel trusses,

bar joists, handrails, columns with corbels, haunches, platforms, and other structural components

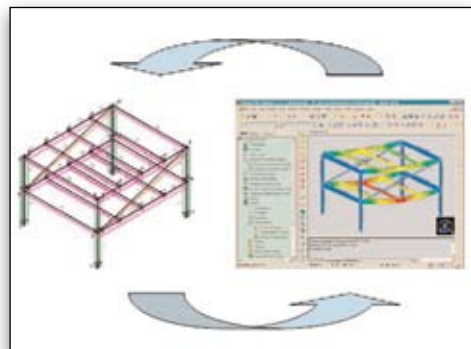
- Development of custom wizards and applications

Interoperability with building design, engineering and analysis

- Fully integrated with Bentley Architecture, Bentley Building Mechanical Systems, Bentley Building Electrical Systems, and more
- A shared multidisciplinary model for team collaboration and coordination
- Review and manage interferences across multiple files and disciplines in conjunction with Bentley Interference Manager
- Simulated construction schedules in conjunction with Bentley Navigator and project management applications, such as Microsoft Project or Primavera P3

Integration with managed environment

- Fully supported in Bentley ProjectWise, Bentley's comprehensive collaboration server



Integration with finite element analysis applications



Support for a wide variety of cross sections