



BENTLEY® BUILDING MECHANICAL SYSTEMS

A COMPREHENSIVE BUILDING INFORMATION MODELING (BIM) SOLUTION FOR THE DESIGN AND DOCUMENTATION OF HEATING, VENTILATION, AIR-CONDITIONING, AND PLUMBING SYSTEMS FOR BUILDINGS AND INDUSTRIAL PLANTS.

Bentley Building Mechanical Systems is a focused application for mechanical engineers, designers, and CAD technicians and BIM practitioners responsible for design, construction, operations, and maintenance of facility mechanical systems. Design, analyze, document, collaborate, build and manage HVAC, Plumbing, Fire Protection, and other mechanical systems in a Building Information Management (BIM) environment.

Bentley Building Mechanical Systems is an advanced, yet intuitive and easy-to-use building information modeling (BIM) application that empowers mechanical engineers to create air-handling and plumbing systems for buildings and industrial plants with unlimited freedom to:

- Explore more design options
- Make better informed design decisions
- Predict costs and performance

With an intuitive and customizable user interface, extensive libraries of components, and powerful modeling, drafting, and reporting tools, Bentley Building Mechanical Systems supports all phases of the engineering workflow, from the design and modeling of air-handling and plumbing systems to analysis and construction documentation. Integrating design, visualization, drawing production, and reporting of quantities and costs, Bentley Building Mechanical Systems 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 Building Mechanical Systems 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.

Design and Modeling of Air-Handling and Plumbing Systems

Components such as rectangular, round, oval or flexible ducts; pipes; connectors; in-line devices; valves; grilles and diffusers; dampers; filters; and silencers are fully parametric, thus allowing dimension-driven creation and modification. A variety of country-specific standards are supported, and metric and imperial components can also be chosen from selected manufacturers' catalogs. Manufacturer's content can be globally applied to existing generically placed systems. Rapid design and production is facilitated through automatic placement of transitions and connectors, automatic diffuser hookup to ducts, and automatic sloping of complete piping systems. Automated, rule based, creation of insulation can be applied to complete systems.

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.

Automated Drawing Production and Coordination

Plans, sections, and elevations comply with user-definable drawing standards and rules for re-symbolization and annotation. Options are provided for single-line duct or pipe representation, removal or display of hidden lines, and extensive labeling and annotation of ducts, pipes, and fittings. Coordination and consistency is thereby ensured across all documentation.

Integrated Schedules and Reporting

User-definable attributes and properties associated with mechanical and plumbing components can be used to query the information model, to make selective or global changes to the geometry and non-graphical information, and to generate accurate component schedules and material takeoffs.

Integration with Analysis and Fabrication

Energy analysis can be carried out through gbXML import/export functionality to various energy analysis packages. Design alternatives can be investigated at an early conceptual design phase and throughout the project to increase communication within the design team to optimize energy performance of the building. Duct and pipe systems can be analyzed for connectivity and flow paths, while a Bentley Duct Sizer or the Trane Ductulator allow performance-based duct sizing. Custom components, ducts, and fittings can be created with Visual Basic for Applications (VBA) to meet fabrication standards. The interface to CAMDuct (M.A.P.) provides seamless integration from design to fabrication.

Visit us on the Web for more information about Bentley solutions and services.

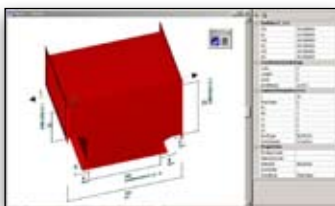
www.bentley.com

A Managed Environment

Bentley Building Mechanical Systems can be integrated with Bentley® ProjectWise®, 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.



A multidisciplinary building information model



Parametric fittings



Support of manufacturers' catalogs

SYSTEM REQUIREMENTS

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

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

Operating system: Microsoft
Windows 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 provides software for the lifecycle of the world's infrastructure. The company's comprehensive portfolio for the building, plant, civil, and geospatial verticals spans architecture, engineering, construction (AEC) and operations. With revenues now surpassing \$400 million annually, and more than 2400 colleagues globally, Bentley is the leading provider of AEC software to the Engineering News-Record Top Design Firms and major owner-operators, and was named the world's No. 2 provider of GIS/geospatial software solutions in a recent Daratech research study.

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BENTLEY BUILDING MECHANICAL SYSTEMS AT-A-GLANCE

Building Information Modeling (BIM)

- Design and construction documentation of air-handling and piping/plumbing systems
- Choice to work in 2D plans, 3D models, or both with a single set of tools
- Automatic connector placement, diffuser hookup, and sloping of complete systems
- Attributes and properties significant for design, analysis, construction, and operations

Parametric component design

- Parametric, dimension-driven creation and modification of components
- Access to component product manufacturers, such as Lindab
- Creation of custom components with VBA scripts and XML

Coordinated construction documentation

- Rule-based creation of plans, sections, and elevations Automatic

resymbolization of 3D components to 2D representations

- User-definable annotation and labeling
- Material takeoffs, component schedules, 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 country-specific component libraries
- Support of DGN, DWG, gbXML, DXF, PDF, STEP, IGES, IFC, and other major industry standards

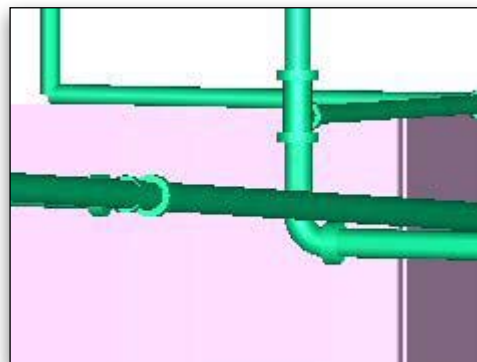
Interoperability with building design, engineering, and analysis

- Fully integrated with Bentley® Architecture, Bentley® Structural, Bentley® Building Electrical Systems, and more

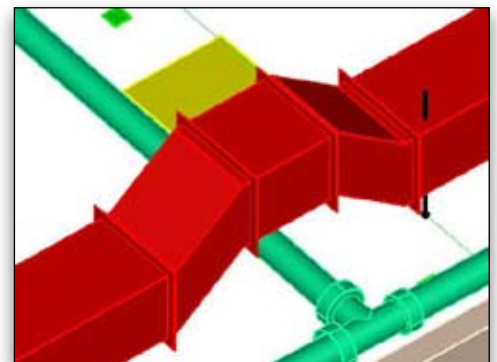
- A shared multidisciplinary model for team collaboration and coordination
- Wall attribute checking to determine fire damper requirements
- Review and manage interferences across multiple files and disciplines, in conjunction with Bentley® Interference Manager
- Simulated construction schedules in conjunction with Bentley® Navigator and project management applications, such as Microsoft Project or Primavera P3
- Export to CAM-Duct (M.A.P.) for automated fabrication
- Exchange data with Energy Analysis programs such as EDSL/TAS, ECOTECT, Trace 700, Carrier HAP, Green Building Studio, etc.

Integration with managed environment

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



Automatic sloping of pipe system



A multidisciplinary building information model