

autodesk®

# 2004

## Design MEP Systems, Coordinate Construction Documents—The Easy Way



Design in 2D, while automatic 3D visualization provides instant feedback on spatial relationships and possible interferences among building systems and structural members throughout all referenced files.

For an easier way to design and document mechanical, electrical, plumbing, and fire protection systems, check out **Autodesk® Building Systems 2004**. It provides engineering-specific design features for increased productivity and accuracy; building information modeling technology and drawing management tools for improved coordination of construction documents and project data; and extensive libraries of international content and content-creation tools for the design of complex MEP systems.

### A Single, Comprehensive Package

Autodesk Building Systems is a stand-alone application that meets your building mechanical, electrical, plumbing, and fire protection needs from schematic design through construction documentation. So you can efficiently share design data and be sure that your design fits within the overall building project. Autodesk Building Systems integrates three modules—mechanical, electrical, and plumbing—with functionality specific to each module. For example, the mechanical module contains single line, 2D, or 3D pipes for creating chilled water, hot water, steam, or other piping, as well as fire protection content. The electrical module includes an intelligent circuit object for efficient design and management of circuits and panels. And the plumbing module provides a customizable, built-in plumbing code system for automatically calculating pipe sizing and flow requirements.

### Building Information Modeling for Enhanced Coordination and Integration

Rather than individual team members producing multiple, unrelated drawings, with building information modeling everyone works from the same integrated digital representation of the building, so you can resolve inconsistencies and system interferences long before construction. Because all information in the model is dynamically linked, your changes update globally for consistent, coordinated documentation. Plus you can reuse the information in the model during the entire building lifecycle for various purposes, such as quantity takeoffs and cost estimating. The benefit: design and documentation of building systems that are fully integrated into the building project.



Autodesk Building Systems is the building information modeling application that easily coordinates mechanical, electrical, plumbing, and fire protection design and documentation.

#### Mechanical Design Made More Productive

Autodesk Building Systems provides tools created specifically for mechanical design, such as splined flex ducts with editable grips that conform to any shape; suggested layout paths for quickly laying out and designing ducts, pipes, cable tray, and conduit; and off-center takeoffs for determining offsets along the entire duct surface and rotating the duct at any angle. Plus you can produce construction documents faster and more accurately with tools like interference detection for checking and fixing collisions; rise/drop symbology for dynamically connecting ductwork and piping symbology; and hidden lines for automating the annotation of hidden objects in construction documents. In addition, Autodesk Building Systems now includes fire protection content such as sprinklers, deluge valves, and retard chambers to help you quickly lay out fire protection systems.

#### Streamlining Electrical Design

Accelerate your design and documentation process with tools made especially for electrical design, like the Demand Factor feature that automatically calculates service and feeder sizes based on industry standards. With intelligent circuit objects you can connect devices to panels without wires or use the Auto Wire feature to automatically add wires any time you choose. Intelligent circuit objects work across all external reference files and are definable as

single, two, or three pole. Panel schedules likewise work across all reference files and help ensure accuracy of construction documents by coordinating drawings with circuit data. Plus you can export panel schedule data to external applications such as Microsoft® Excel, and any changes are bidirectionally updated in both original and destination files.

#### More Efficient Plumbing Design and Documentation

The plumbing-specific functionality in Autodesk Building Systems software makes plumbing design and documentation more efficient. Use the Plumbing Schematic Piping tool to quickly lay out plumbing system designs. Built-in, fully customizable plumbing code systems automatically calculate code-driven pipe sizing and flow requirements. You can even calculate pipe sizing without drawing the plumbing system by simply inserting a fixture and using the stand-alone calculator. What's more, intelligent 2D and 3D plumbing objects such as lavatories and water closets behave according to their real-world properties and automatically update throughout all drawing files for consistent, coordinated construction documents.



Transparent tool palettes maximize screen real estate and store the content you use most often in one convenient location.



Drawing management tools ensure consistency throughout all aspects of the project and provide a central location for team members to access the most current documents.



### Intelligent Engineering Objects

Autodesk Building Systems software provides intelligent mechanical, electrical, plumbing, and fire protection objects—such as conduits, ducts, pipes, and sprinklers—that know their form, fit, and function and automatically update to reflect design changes. For example, when ducts connect, they clean up on their own. Intelligent objects display in 2D, 3D, or both and are dynamically linked throughout the building model—when you make a revision, it automatically appears in all drawing files.

### A World of Content

Hose connections. Alarms. Electrical panels. Air handlers. Water heaters. Pumps. Drains. Hose cabinets. Sinks. Autodesk Building Systems includes expansive libraries of mechanical, electrical, plumbing, and fire protection content for use right out of the box. These intelligent objects replicate their real-world counterparts, complete with details of size, materials, and more. Plus they are available in multiple, customizable dimensions—U.S. imperial, U.S. metric, and U.K. metric—so you can complete projects wherever you are in the world. U.S. metric

consists of imperial dimensions converted to metric, as well as metric content based on General Services Administration (GSA) guidelines; U.K. metric consists of content based on industry standard British sizes, terminology, and symbology.

For more specific requirements, customize existing content with the Catalog Editor, or use the Content Builder to easily create your own intelligent block content (create content for one size only) or intelligent parametric content (create content once and reuse for multiple sizes). The Preview Pane tool gives you a preview of your parametric object, so you don't have to leave your content-building session and insert the object into the drawing to see its exact size.

### Annotating Construction Documents

Autodesk Building Systems makes it simple to annotate construction documents. Easily insert turning vanes and add labels (single or multiple) to objects. Quickly define the type, number, and appearance of tick marks on objects. And flexibly rotate or fix your annotation text independent of how objects are placed. Because everything is linked in the building model, labels and annotations are always up-to-date.

### Coordinating and Managing Construction Documents

With building information modeling, you develop construction documentation as a set of views of the same building model. The result: documents that are coordinated, consistent, and complete. If you want to make a last-minute design change, you're not forced to make it manually in multiple locations. You simply enter the change once, and it is reflected globally. And because everyone works from the same model, mechanical, electrical, plumbing, and fire protection systems are tightly integrated in the overall building design from project outset. Plus Autodesk Building Systems includes engineering-specific templates for drawings, schedules, tags, and labels that are fully integrated in the building model. Team members can access project templates, external reference files, and entire DWG files from a central location with the drawing management feature. Drawing management provides a single interface to automate project setup, level management, and drawing sheet creation for coordination and consistency throughout all aspects of the project.

# Autodesk Building Systems

## Mechanical Design for Mechanical and Plumbing Designers

- Fire protection content
- 3D plumbing content
- Enhanced scheduling (through xrefs)
- Top and bottom of duct/pipe labels
- Enhanced duct functionality
- Improved turning vanes
- Enhanced suggested layout path
- Enhanced modeling tools for greater control
- Eccentric takeoffs
- Splined flex ducts
- Enhanced smart plumbing equipment and fixtures
- Pipe-sizing calculators/table definitions
- Pipe slope calculations
- Elevation label
- Duct/Pipe: insert HVAC equipment in simultaneous single-line, two-line, or 3D form
- Rise/Drop symbology: connect symbology dynamically by system types

## Custom Design and Circuit Management Tools for the Electrical Designer

- Automatically generate wires through Circuit Manager
- Enhanced circuiting across multiple DWGs
- Circuit overload alarm
- Layer keys for all electrical devices
- Panel schedule enhanced with bidirectional link
- Fire safety content
- Enhanced suggested layout path
- Automatically tag devices
- Circuit object
- Circuit Manager
- Demand factors
- Voltage definitions
- Circuit naming preferences
- Circuit analysis tools

## Common Design Tools

- Drawing management tools
- Tool palettes
- VIZ Render
- U.K. metric content
- Hidden line support through xrefs
- Labeling enhancements
- Live section support
- MvPart filter
- i-drop® enhancements
- Parametric Content Builder
- MvPart Content Builder
- Segment length control
- Catalog Editor
- Schematic system definitions
- U.S. metric content

## System Requirements

- Intel® Pentium® IV or AMD Athlon™/AMD Duron®-based PC, with 1.7 GHz processor minimum
- Microsoft® Windows® XP Professional (SP1 or later), Windows 2000 (SP3 or later), or Windows NT® 4.0 (SP6a or later)
- 512 MB RAM (minimum)
- 1.8 GB free disk space (minimum)
- 1 GB free disk space for virtual memory swap
- 1280x1024 VGA video display
- Windows video display driver with 64 MB RAM

## Purchase or Learn More

Purchase Autodesk Building Systems through your Autodesk Authorized Reseller. To locate the reseller nearest you, visit [www.autodesk.com/reseller](http://www.autodesk.com/reseller).

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