autodesk®

Features and Benefits

Autodesk® Building Systems 2005 —designed specifically for building systems engineers—helps you increase productivity, enhance accuracy, and improve coordination through all phases of the building process. Based on the AutoCAD® software, Autodesk Building Systems provides powerful features that give you more time to focus on design instead of on drafting. You can continue to design in 2D, while benefiting from the automated creation of a 3D building information model. Through effective implementation of Autodesk Building Systems, you get the productivity of automated drafting tools, the accuracy of intelligent engineering data, and the coordination of high-quality construction documents.

Autodesk Building Systems—unify your drawing, designs, and analysis in one comprehensive solution.

Key Features and Benefits

Productivity—Increase Efficiency by Reducing Tedious Drafting Tasks

Autodesk Building Systems offers an easy way to develop and document mechanical, electrical, plumbing, and fire protection systems. With intelligent engineering objects—such as ducts, pipes, and wire—that interact logically, Autodesk Building Systems provides many tools that automate tedious drafting tasks, helping save you time and money. You can easily access tools and make changes directly in an intuitive workspace, providing a smoother means of design.

Accuracy—Streamline Your Design Process with Fewer Errors

Designs in Autodesk Building Systems are coordinated with your construction documents, eliminating time-consuming, nonproductive drawing reviews, so you have more time for design. Extensive libraries of industry-based parts and equipment integrated into engineering-specific tools make the documentation process more efficient by helping to reduce errors and omissions. Built-in design calculators and the ability to extract engineering design data for interoperability with third-party analysis applications eliminates the need for manually data transfer, while helping ensure that the work you do in design development is available for immediate use during the documentation process.

Coordination—Work Effectively with Extended Design Team

With Autodesk Building Systems you can see a true representation of the constructed system during the design process, resulting in better coordination between your extended design team. Since your designs are linked to your construction documents, coordinating changes is easier, reducing design cycle time and helping avoid costly design changes in the field. Because Autodesk Building Systems is interoperable with other Autodesk building design solutions—such as AutoCAD and Autodesk Buzzsaw—data sharing among the extended design team has never been easier, resulting in better coordination between engineers, architects, and builders.

Legend

√ denotes feature availability

$\surd^{+}$ denotes feature enhancements

Productivity—Increase Efficiency by Reducing Tedious Drafting Tasks				
Feature	**Benefit**	**Product Comparison**		
		AutoCAD 2005	**Autodesk Building Systems 2004**	**Autodesk Building Systems 2005**
Part Convert	Effectively use 2D architectural drawings by converting 2D blocks into parts, such as plumbing fixtures, that can be logically connected to your system designs.			√
Sheet Sets	Introduced with AutoCAD 2005 and further enhanced by the project navigator feature to better support the building design process, elevations, sections, schedules, sheet numbers, sheet indexes, call outs, and general annotation are coordinated, resulting in sheet sets that can be fully managed, plotted, published, e-transmitted, and archived.	√		$\surd^{+}$
Third-Party Support	Extract the engineering design data from your models in standard file formats for interoperability with third-party analysis applications eliminating the time-consuming tasks of transferring data manually for.		√	$\surd^{+}$
Tool Palettes	Highly visual and customizable, tool palettes provide centralized access to commonly used design tools. With the enhancement of palette groups, tools are organized in easy-to-find, design-specific palettes, including HVAC, piping, electrical, plumbing, architectural, and structural groups.		√	$\surd^{+}$
Properties Palette	The Properties palette enhances productivity by providing a central location to view and modify an object's properties, as well as engineering data.		√	$\surd^{+}$
Content Browser	The Content Browser provides a central location to disseminate project-based information, ensuring that every member of your design team has access to the most up-to-date tools.		√	$\surd^{+}$
Drawing Management	Drawing Management tools ensure consistency throughout all phases of design. You can be assured that everyone on your design team is accessing the most current documents—from project templates to construction documents—from a centralized location.		√	$\surd^{+}$
Schematic Symbols and Lines	Quickly produce schematics and riser diagrams, without the hassles of trimming lines and rotating blocks, with a customizable collection of 2D schematic symbols and automated tools for easy creation and modification.		√	$\surd^{+}$

Productivity—Increase Efficiency by Reducing Tedious Drafting Tasks

Feature	Benefit	Product Comparison		
		AutoCAD 2005	Autodesk Building Systems 2004	Autodesk Building Systems 2005
Direct Manipulation	Streamlining the design process by eliminating dialog boxes, keeping you focused on the task at hand. Make design changes quickly by working with grip points on objects or making direct on-screen changes.		√	√+
Slabs	The flexibility of the slab gives you the ability to easily create housekeeping pads under your equipment for an accurate model that you can use as the basis for details, sections, and elevations.		√	√+
Standard-based Parts	Autodesk Building Systems provides extensive collections of parts, such as fittings, equipment and fixtures, based on common industry standards for increased accuracy throughout your designs.		√	√+
Display Manager	Draw your design once and easily change the design's view from a single-line floor plan to a double-line floor plan to a reflected ceiling plan without having to re-draw separate drawings for each view. Apply patterns to systems to distinguish between different types of systems, such as new vs. demolition, eliminating the need to manually add crosshatching to your construction documents. Since each view is based on your design, you can be assured that any change you make is properly reflected throughout all views of your design.		√	√+
Drawing Window Status Bar	The user interface has been streamlined into highly focused areas of all-purpose drawing tools, providing a fluid design environment that enhances productivity and efficiency.	√	√	√+
Templates	Start designing quickly with the most common system design standards, which saves time, provides consistency, and offers a comprehensive foundation for your designs.	√	√	√+
Layer Manager	Layer management provides an easy way to manage the information in your drawings, ensuring that everything you draw goes on the correct layer.	√+	√	√+
Suggested Layout Path	Increase productivity with automated routing solutions of duct, pipe, cable tray, and conduit, based on your default project settings and common industry design standards.		√	√
Systems	Provide a fast and consistent method for laying out parts that represent real-world building systems, such as air supply or return systems. When you use systems during design layout, new parts inherit the current system's defaults, such as size and shape, and you can apply changes simultaneously to all connected parts.		√	√

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		AutoCAD 2005	**Autodesk Building Systems 2004**	**Autodesk Building Systems 2005**
Content Builder	Create custom parts and equipment, with minimal effort and time, that can be adding to catalogs to build your library of parts and directly integrated into your designs to increase accuracy.		√	√
Style Manager	Styles—grouped by functionality—can be accessed through a single, centralized interface, making it easier to maintain project standards such as rise and drop symbology.		√	√
Compass	Provides a fast and consistent method of laying out ducts, pipes, cable trays, and conduit by restricting the angle of bends and elbows guiding the direction of the run. Using the compass during design layout eliminates the need to worry about the orientation of the user coordinate system.		√	√
Construction Annotation	Eliminate the need to manually add construction annotation, such as hidden lines and hatch on duct, with enhanced display representations of objects.		√	√+
Segment Length Control	Save valuable time performing takeoffs by specifying a maximum segment length for duct, pipe, cable tray and conduit, which automatically updates as your design changes, enabling you to quickly and accurately produce bills of materials.		√	√

Accuracy—Streamline Your Design Process with Fewer Errors

Feature	Benefit	Product Comparison		
		AutoCAD 2005	Autodesk Building Systems 2004	Autodesk Building Systems 2005
Engineering Spaces and Zones	Automatically generate engineering spaces from 2D architectural floor plans or design drawings to produce room information, complete with square footage and volumes. By defining loads, design temperatures, and airflow rates, and grouping into zones, engineering spaces can eliminate the need for manually transferring design data for load calculations and building energy analysis.			√
Duct Sizing	Automatically size ducts while laying out ductwork based on traditional duct design methods, equal-friction and static regain, eliminating the need for tedious manual recalculations, while maintaining consistency with design requirements.			√
Wire Sizing	Size wires automatically when connecting devices and panels based on customizable engineering data, such as conductor sizes, material, insulation, and temperature ratings, enabling you to efficiently size wire on the fly, while maintain design requirements.			√
Fire Protection	With fire protection content now available, you can lay out fire protection piping, locate sprinkler heads and control valves, and connect fire pumps to create an accurate fire protection system to complete the building system model.		√	√+
Circuit Manager	Enables you to work more efficiently by providing a single location to manage and edit circuit information. Automatic prompts notify you of potential overloads as they occur and undersized wires based on conductor size, helping you avoid errors and rework.		√	√+
Schedules	Schedules are dynamically linked to your design data, automatically updating as your design changes, increasing productivity while reducing the chance for errors.		√	√+
Live Sections	Live sections provide an easy way to work on a limited area of a large model, with each design change reflected in real time, eliminating manual updates.		√	√+
Sections and Elevations	Sections and elevations are dynamically linked to your model, resulting in automated creation and annotation within your document set. When changes are made in your design, sections and elevations can be simultaneously updated, eliminating the tedious task of updating the views manually.		√	√+

Accuracy—Streamline Your Design Process with Fewer Errors

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		AutoCAD 2005	Autodesk Building Systems 2004	Autodesk Building Systems 2005
Connectors	Enable building systems objects, such as duct and pipe, to logically connect and transfer information, such as size and shape, creating an intelligent building model. Automated connection tools check for valid connections eliminating the need to manually verify your design layout, and make it easier to locate connection points so you can complete your design faster and with greater accuracy.		√	√
Ductwork and Piping	Autodesk Building Systems facilitates routing of ductwork and piping with intuitive design tools that automate much of the layout process. The most commonly used fittings are automatically inserted as you lay out the runs, and because you are creating objects instead of a series of unrelated lines, arcs, and circles, modifying your design is much easier. With objects based on industry standards, the result is a more accurate design that models a real-world installation, helping reduce errors and minimize project design time.		√	√
Custom Duct and Pipe Fittings	Easily create your own custom duct and pipe fittings using simple AutoCAD lines, arcs, and circles. The ability to create custom fittings enables you to tailor your designs to meet the project's requirements.		√	√
Electrical Devices	Quickly and easily lay out the basic circuitry for your project by placing devices on defined circuits, creating logical relationships in your electrical design. Benefit by adding devices in 2D while simultaneously producing 3D representations of the devices for an accurate model.		√	√
Panels	Enables you to group and create circuits, facilitating the creation of panel schedules that are dynamically link to your electrical design and automatically update as your design changes.		√	√
Circuits	Eliminate errors in your electrical design by using circuits to track properties such as load, number of attached devices, and length. Defining voltage ranges enables you to test compatibility of electrical connections preventing overloads, while calculating the estimated demand loads on feeders and panels enables you to size equipment quickly and efficiently directly in your design.		√	√
Circuit Analysis Tools	Provide easy access to data in electrical designs, enabling you to quickly total loads and generate reports for accurate documentation.		√	√

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		AutoCAD 2005	Autodesk Building Systems 2004	Autodesk Building Systems 2005
Panel Schedules	Create customizable panel schedules from your circuit layouts with a single click, directly in your drawings or exported to Microsoft® Excel. Bi-directional links between the circuitry in your designs and the panel schedules ensure that these schedules are always up-to-date and accurate.		√	√
Wiring	Graphically show the circuit path connecting electrical components, such as devices and panels, while automatically creating circuits on-the-fly during layout. Optional wiring display helps you avoid clutter for clearer construction documents.		√	√
Cable Tray and Conduit	With intuitive design tools that automate the layout process, you can lay out conduit and cable tray in 3D as fast as you used to in 2D. In this way, you can take full advantage of features such as interference detection to reduce errors and avoid costly design mistakes that are later found in the field.		√	√
Plumbing Piping	Minimize production time by using plumbing piping (schematic pipe) that provides all the benefits of intelligent 3D building systems objects in 2D linework. Use automated tools to insert, trim, and align fittings to pipe segments, and calculate slopes and elevations of crucial points in your system, eliminating tedious drafting tasks.		√	√
Plumbing Pipe Sizing	Automate the sizing of your water supply and sanitary plumbing systems while maintaining the integrity of your design with tools based on code-driven requirements.		√	√

Coordination—Work Effectively with Extended Design Team

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		AutoCAD 2005	Autodesk Building Systems 2004	Autodesk Building Systems 2005
Export/Import gbXML	Extract engineering data from your models in gbXML file format for interoperability with third-party analysis applications, helping to ensure the accuracy of your designs.			√
Publish Part Catalogs	Publish your customized part catalogs directly to the web for maintaining consistency with your extended design team. The i-drop technology provides a fast and easy way to drag parts from the web, including intranet and manufacturer's sites, directly into your designs, increasing productivity.			√
Setup and Deployment Options	New setup options, for both network and single-user installations, make it easier to control and manage content with the ability to point content support files to a centralized location.			√
Import LandXML	Import LandXML data from applications such as Autodesk® Land Desktop to generate digital terrain models directly in your drawings, enabling you to accurately understand how a building site may affect your design without having to redraw it.			√
Publish to Autodesk MapGuide®	Publish your models and engineering data to other industry professionals who are using Autodesk MapGuide software to give them quick access to design information for the operation and maintenance of your building systems.			√
Tables	Tables eliminate the need to cut and paste Excel spreadsheets or manufacturer's cut sheet information into your drawings by providing a quick and easy of creating tables directly within your workspace.	√		√
Field Codes	Hyperlink design information, such as specifications for parts or equipment, in a schedule, or dynamically display project information, such as submittal dates, on title sheets and title blocks for greater coordination.	√		√+
Property Set Data	Property set data—used to query and display non-graphical information of objects such as size, manufacturer and other engineering data—is dynamic and attaches easily to parts and equipment for scheduling purposes, automatically ensuring accuracy of construction documents. Export to Microsoft® Access, where the data can be viewed, sorted, and queried for specific design needs, such as quantity takeoffs and cost estimations.		√	√+

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Column and Ceiling Grids	Enables you to quickly lay out reflected ceiling plans with diffusers or light fixtures that automatically anchor to your ceiling grid, and locate duct, pipe, cable tray or conduit by offsetting components from your column grid.		√	√+
Structural Members	Use structural members to visually check for interferences in your model, improving the accuracy of your designs.		√	√+
Keynoting	Streamline the error-prone process of manually annotating construction documents with standardized notes that are controlled via a central Microsoft® Access database.		√	√+
Labels	Dynamic labels—size and system labels, flow arrows, and engineering labels, such as top and bottom of duct or invert of pipe labels—provide a quick and easy way to annotate your construction documents, saving time by eliminating the need to calculate engineering values manually.		√	√+
Export to AutoCAD	Export to AutoCAD allows you to easily generate pure AutoCAD DWG files to distribute to members of your extended design team who may be using various versions of AutoCAD.		√	√+
VIZ Render	VIZ Render, a simple but powerful visualization application provided with Autodesk Building Systems, allows you to capitalize on your building model to produce photorealistic renderings and walkthrough animations for design presentations suitable for any stage of design development and marketing.		√	√+
Autodesk® Architectural Desktop Support	Since Autodesk Building Systems is built on top of Autodesk Architectural Desktop software's object technology, and includes the latest version of architectural features conveniently located on separate tool palettes and menus, coordination among design teams has never been easier within the building design process.		√	√+
Plot Setup UI	Plot setup user interface makes it easy to setup sheets for plotting with different plot styles.	√+	√	√+
Publish to DWF	With the click of a button, you can view your building systems designs using Autodesk® DWF™ Viewer. The DWF file format allows members of your design team to review and redline, while protecting your drawings from unauthorized changes, making DWF an efficient means to distribute and share data.	√+	√	√+

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		AutoCAD 2005	**Autodesk Building Systems 2004**	**Autodesk Building Systems 2005**
eTransmit	eTransmit enables you to electronically distribute or archive sheets, sheet sets, or complete projects in one easy step.	√+	√	√+
Interference Detection	Automatically detect spatial interferences between objects, in the same drawing or through xrefs, making it easier to locate collisions between building systems objects and structural members, increasing design accuracy and minimizing errors in the field.		√	√
Catalog Editor	The stand-alone Catalog Editor provides a central location for viewing and working with part catalogs outside the AutoCAD environment. It provides the flexibility to create and modify part catalogs to meet your design needs.		√	√
Object Viewer	Explore designs more effectively with instant feedback on the model or selected components, allowing for a better visual understanding of your designs.		√	√
Autodesk® Buzzsaw® Support	Autodesk Building Systems is integrated with the Buzzsaw online project collaboration service, enabling you to share drawings, documents, and project team communications in one central and secure online location. Easily access and distribute your drawings with a direct link to your Autodesk Buzzsaw site (available separately).	√	√	√
Autodesk Professional Services	Autodesk Professional Services provides integrated consulting, training, and support to help you maximize the value of your investment in Autodesk technology.	√	√	√

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