Questions and Answers

In Autodesk® Revit® Building software, every drawing sheet, every 2D and 3D view, and every schedule is a direct presentation of information from the same underlying building database.

As the user works in familiar drawing and schedule views, Revit Building collects information about the building project and coordinates this information across all other representations of the project.

Autodesk Revit Building 9 includes many new and enhanced features to help you work the way you think, provide higher coordination and quality, and improve your business for a competitive advantage.

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1. General Product Information

1.1 What is Autodesk Revit?

Autodesk® Revit® technology is Autodesk's platform for building information modeling. Built on the Revit platform, Autodesk® Revit® Building software is a complete, discipline-specific building design and documentation system supporting all phases of design and construction documentation. From conceptual studies through the most detailed construction drawings and schedules, Revit-based applications help provide immediate competitive advantage, deliver better coordination and quality, and can contribute to higher profitability for architects and the rest of the building team.

At the heart of the Revit platform is the Revit parametric change engine, which automatically coordinates changes made anywhere—in model views or drawing sheets, schedules, sections, plans…you name it.

1.2 What is building information modeling?

Building information modeling (BIM) is the creation and use of coordinated, internally consistent, computable information about a building project in design and construction. The ability to keep this information up-to-date and accessible in an integrated digital environment gives architects, engineers, builders, and owners a clear overall vision of their projects and contributes to the ability to make better decisions faster—helping raise the quality and increase the profitability of projects.

For more information about building information modeling and Autodesk's strategy for the application of information technology to the building industry, see the white papers and other information at *www.autodesk.com/bim.*

1.3 Are there any other industry-specific applications built on the Autodesk Revit platform?

Autodesk® Revit® Structure software is a fully integrated modeling, design, and documentation system for structural engineers and drafters that takes full advantage of Revit platform change management technology. Revit Structure offers building information modeling for structural engineering firms.

Autodesk® Revit® Systems is the building information modeling solution for mechanical, electrical, and plumbing (MEP) engineering design and documentation.

1.4 What is Autodesk AutoCAD Revit Series—Building software?

Autodesk® AutoCAD® Revit® Series—Building is a bundle consisting of Autodesk Revit Building and AutoCAD® software with a single serial number and a single authorization code. This combination enables you to maintain your investment in technology and training, while offering the competitive advantage of building information modeling, and providing the flexibility to move to a new technology platform when you're ready. For more information about AutoCAD Revit Series—Building, visit *www.autodesk.com/autocadrevitseries-building.*

2. About Autodesk Revit Building

2.1 What are the important new features in Autodesk Revit Building 9?

Revit Building helps communicate design proposals more quickly and clearly, offers better design insight through on-demand visualization and analysis, and provides a process that mirrors the real world of building.

With its parametric change technology, you can make any change, anytime, anywhere, and Revit Building automatically coordinates that change everywhere in your project. Here are a few of the more important new features in Revit Building 9.

Sun Studies: Revit Building sun studies enable designers to quickly analyze sun positions and solar effects while informing and influencing design strategy. Choose a specific date and time, or time frame, to generate a still or animated composition.

Download the complete feature list for Autodesk Revit Building 9 at *www.autodesk.com/ revitbuilding.*

Detail Library: Take advantage of the extensive detail library provided with Revit Building. Presorted to align with the CSI format, libraries can be tailored to accommodate office standards. Create, manage, and share custom detail libraries with ease.

Material Takeoff: Precisely calculate materials with the new Material Takeoff tool. Ease the burden of tracking material quantities associated with design efforts. As a project evolves, the Revit parametric change engine helps to ensure that material quantity takeoffs are always up-to-date and accurate.

Keynoting: Boost your efficiency by taking advantage of Revit Building keynotes. Keynoting streamlines the error-prone process of manually annotating construction documents. Revit Building automates the creation of keynote legends, thereby removing the obstacle of manually tracking component and material information. Populate modified keynote definitions throughout the project model with ease.

These and other features will continue to leverage the continuous and immediate availability of high quality, reliable, and coordinated information; efficiencies that we've come to expect from purpose-built software for building information modeling (BIM).

2.2 Autodesk Revit Building handles modeling well, but what about conventional drafting and detailing? Do I still need AutoCAD for that?

Designers can work entirely in Autodesk Revit Building to generate construction documentation. AutoCAD software is not required.

For more information about producing construction documents in Autodesk Revit Building, see the Autodesk white paper on the subject at *www.autodesk.com/revitbuilding*.

In addition, a white paper on Autodesk Revit Building interoperability with AutoCAD software and other CAD systems is also available at *www.autodesk.com/revitbuilding*.

If you are looking to migrate to building information modeling gradually, Autodesk AutoCAD Revit Series—Building software was created for just that purpose.

2.3 How does Autodesk Revit Building work with large teams and projects?

Autodesk Revit Worksharing distributes the power of the Revit parametric building modeler across the project team. Worksharing provides a complete range of collaboration modes, from on-the-fly simultaneous access to the shared model, through the formal division of the project into discrete shared units, to complete separation of project elements or systems into individually managed linked models. Worksharing enables team members to choose the best way to collaborate and interact based on workflow and project requirements.

A white paper on using worksets, "Multi-User Collaboration with Autodesk Revit Worksharing," is available at *www.autodesk.com/revitbuilding*.

2.4 Can Autodesk Revit Building produce elaborate geometry?

Yes, Revit Building Maker is a flexible and responsive conceptual modeling and design environment linked to the Revit Building model. Like no other software tool, it allows for a cumulative understanding of the relationship between expressive and built form as the design develops. The designer independently develops conceptual models and maps them to building model components as the design progresses. The designer works fluidly between the conceptual model and the building model, fluidly capturing both design intent and detail at the moment of conceptualization.

3. Interoperability

3.1 What standards and file formats does Revit Building support?

Revit Building supports a wide range of industry standards and file formats, including

- CAD formats: DGN, DWF™, DWG, DXF™, IFC, SAT, and SKP

- Image formats: BMP, JPG, AVI, PAN, IVR, TGA, and TIF

- Other formats: ODBC, HTML, TXT, MDB, XLS, and gbXML

For more information about using Autodesk Revit Building with conventional CAD systems, see the "Autodesk Revit Interoperability with CAD" white paper at www.autodesk.com/revitbuilding.

3.2 What if clients or consultants insist on DWG deliverables?

Revit Building can produce DWG deliverables just as AutoCAD can. Revit Building provides industry-leading DWG compatibility using the Autodesk® RealDWG™ toolkit. And because these DWG deliverables were created in a modeler, they are well structured and easy to change.

Revit Building supports the process most architectural firms use with their consultants by producing well-organized and layered DWG files using any layering standard the user wants. Revit Building helps to ensure that nothing in an exported DWG file ends up on the wrong layer, easing consultant interactions and accelerating the design and construction process.

Revit Building provides features that help integrate your work with that of consultants. Import or link DWG files directly into Revit Building to use as reference geometry or as the starting point for a new design, such as a site plan. Any CAD system that supports the DWG, DGN, or DXF file format can work effectively with Revit Building.

3.3 What about object compatibility between Autodesk Revit Building and Autodesk Architectural Desktop and Autodesk Building Systems?

Revit Building can read and write ACIS® solids. This capability gives users a way to export their models from Autodesk® Architectural Desktop and Autodesk® Building Systems software and import or link 3D information into Revit Building. Use this method to cut sections and perform visual interference detection.

3.4 Does Autodesk Revit Building have layers like the products based on AutoCAD software? How does Revit Building organize data?

No, Autodesk Revit Building software does not have layers. Autodesk Revit Building uses a system of categories and subcategories to organize information within the building information model. Users can create their own subcategories for organizing data.

Categories and subcategories can be mapped for export in a way that creates layered DWG, DGN, or DXF files conforming to various CAD standards.

Four default mappings ship with the product: AIA CAD Standard 2000 (United States), BS1192 (United Kingdom), ISO13567 (Europe), and CP83 (Asia). Users can also create their own project-specific layer mappings. Autodesk is investigating components that can be added to templates for improved compliance to the NCS version 3.

> Autodesk Revit Building supports the process most architectural firms use with their consultants by producing perfectly layered DWG or DGN files using any layering standard the user wants.

3.5 What about data compatibility between AutoCAD or Bentley MicroStation software products and Autodesk Revit Building?

Revit Building provides several important interoperability capabilities for AutoCAD and Bentley® MicroStation® users. First, Revit Building can import, export, and link DWG and DGN (V7) format files. Users can draw on imported files to create Revit Building parametric model geometry. Revit Building can manage imported or linked files so that detail libraries in either DWG or DGN file format can be placed on sheets and all callouts are automatically managed. Further, Revit Building can map a specific DWG layer on input to a specific DGN level number on output or vice versa in any combination.

Revit Building helps to ensure that nothing in an exported DWG or DGN file ends up on the wrong layer or level, easing consultant interactions and speeding the design and construction process.

3.6 How do I use Autodesk Buzzsaw with Autodesk Revit Building?

The Autodesk® Buzzsaw® on-demand collaborative project management solution is independent of the software used for building design and documentation. Revit Building enables users to upload projects directly to predefined project locations. It automatically saves the project to either DWG or DWF file format. Model files (RVT files) can be posted to Buzzsaw for sharing with the project team just like any other file. A read-only copy of Autodesk Revit Building enables users to print and export models that have not been edited, serving as a robust viewer and file translator for team members who receive Revit Building models but who are not using the software themselves. And because Revit

Building also publishes directly to industry-leading file formats, team members can share sets of deliverables on Autodesk Buzzsaw in this way as well.

3.7 Autodesk Revit Building uses AccuRender raytracing and radiosity as a rendering solution. Can I use Autodesk Revit Building with Autodesk VIZ or Autodesk 3ds Max?

Users can transfer geometry from a Revit Building model into the Autodesk® VIZ or Autodesk 3ds Max application through DWG file export. The Autodesk VIZ 2005 Interoperability for Revit plug-in imports the DWG file exported from Revit 7 or Revit Building 8 and maintains material assignments. Because this functionality is incorporated into Autodesk VIZ 2006 and 3ds Max 8, the plug-in is no longer necessary.

3.8 Is there an application programming interface (API) or other third-party development tools for Autodesk Revit Building?

Yes. Revit Building ships with a general API, in addition to the previously existing ODBC (Open DataBase Connectivity) export functionality.

Partners who are already developing applications for Revit Building include the following:

Green Building Studio, Inc.

Green Building Studio is a web service that gives 3D CAD users quick, reliable, and free estimates of a building's energy costs during the early stages of conceptual design. Find out more at *www.greenbuildingstudio.com*.

InterSpec

e-SPECS[SM] for Revit automates project specifications by linking the product and material requirements directly to the Revit Building model. Find out more at *www.e-SPECS.com*.

Mcs Software (Italy)

ArchVISION® Revit provides a dynamic link between Revit Building and ACCA Primus 3000 r2, a popular Italian cost-estimating software. Find out more at *www.mcs-software.it/pages/Revit.html*.

Analist Group (Italy)

"ArchiPlan for Revit" offers integration between Revit Building and cost estimation product, Quanto. Find out more at www.inrevit.com.

4. Parametric Components

4.1 What are *families* in Autodesk Revit Building, and how many are there in the library?

All elements in Revit Building are based on families. The term *family* describes a powerful concept that helps users manage data and make changes easily. It refers to an element's ability to have multiple types defined within it, each of a different size and shape. Even though the types can look completely different, they are all still related and come from a single source, hence the term *family*. Changes to a family or type definition ripple though the project and are automatically reflected in every instance of that family or type in the project. This capability keeps everything coordinated and saves users the time and effort of manually tracking down components to update.

The Revit Building library contains thousands of families and includes components in both imperial and metric units. Revit Building family files are also available from the Revit Building web library (accessible from the product) and from other publicly accessible websites. Each family file can produce many components. Because each file typically includes several sizes or types, the number of parts available is in the tens of thousands.

Use Parametric Components to generate the most elaborate assemblies—including those with intricate iterative, algorithmic, and behavioral character-istics—as well as the most elementary building parts.

4.2 Do I need to know a programming language to create content in Autodesk Revit Building?

No, Parametric Components are an open, graphical system for design thinking and form making, a powerful way of expressing design intent at increasingly detailed levels. No programming language or coding is required to drive this powerful system. And any and all relationships can be expressed directly in the system; nothing is assumed other than that you are thinking about a building design.

5. Parametric Change Engine

5.1 What does *parametric* mean, and how does the parametric change engine keep everything updated when I make changes? Why is the concept important?

The term *parametric* in this context refers to the relationships among and between all elements of the model that enable the coordination and change management that Revit Building provides. These relationships are created either automatically by the software or deliberately by the user as the user works.

A fundamental characteristic of a building information modeling application is the ability to coordinate changes and maintain consistency at all times. The user does not have to intervene to update drawings or links.

At the heart of Revit Building is technology that is new to building design and documentation systems: a parametric change engine. Revit Building is built from the ground up using this technology. The Revit Building parametric change engine uses the information captured as the designer works to build a network of relationships between elements. When the designer changes something, Revit Building immediately applies that change to any affected elements.

This concept is important because it is this capability that delivers the fundamental coordination and productivity benefits of Revit Building: Change anything at any time anywhere in the project and Revit Building coordinates that change through the entire project. This change management is also one of the fundamental characteristics of a building information modeling solution.

5.2 Do I have to wait for sections and schedules to generate?
**   What if I want to work in the section?**

No. In Revit Building a section view is "live" and presents itself instantly when the user creates it. Create a section in Revit Building and then move the section line. Watch as the section immediately updates where it cuts through the building automatically. Designers can also work (add or edit components) in the section view without restrictions.

Schedules are created using the same principle. They are simply another type of view. So they are also "live" and update as the designer changes the model. In fact, designers can change things in the schedule and Revit Building updates the model and drawings.

The beauty of Autodesk Revit Building is that designers work in the view that makes sense for their project. Revit Building was built to work like an architect thinks.

6.   Licensing Autodesk Revit Building and Autodesk Revit Series—Building

6.1 Can I use the product in trial mode or demonstration mode?

You can use the software in trial mode for a 30-day period without an activation code. You can also use the product in demonstration mode, which enables all features except save, plot, and export.

6.2 Does Autodesk Revit Building use the Network Installation wizard like AutoCAD 2006 based products for network deployment?

No, Revit Building 9 uses its own network installation technology and process. The Network Installation wizard is designed to work only with AutoCAD software–based products.

Designers can make changes in section, elevation, or schedule and Revit Building propagates the changes throughout the model.

6.3 Does a stand-alone Autodesk AutoCAD Revit Series—Building user have to put both Autodesk Revit Building and AutoCAD applications on one machine?

Yes, a stand-alone user of AutoCAD Revit Series—Building must use both applications on one machine and cannot split up the bundle.

6.4 Can I install my network license of Autodesk AutoCAD Revit Series—Building with a separate network license of AutoCAD on one server? What gets checked out when I open my AutoCAD-only licenses?

Yes, if you have both AutoCAD Revit Series—Building and AutoCAD on the same network, the server will identify whether it is AutoCAD from AutoCAD Revit Series—Building or a stand-alone AutoCAD license and check out the appropriate license from the server.

6.5 Does the License Borrow feature available for the network version of AutoCAD software–based products work with Autodesk Revit Building?

Yes, one of the biggest benefits to network users of Revit Building is the ability to use the License Borrow feature for laptop users. This feature replaces the concept of external floating licenses in earlier versions of the software.

7. Consulting, Training, and Support

7.1 What consulting services are available for Revit Building 9?

Check with your local Autodesk Authorized Reseller for consulting services they offer.

Autodesk Consulting also provides consulting offerings for project assessments, process audits, and a range of Revit Building implementation services. Custom consulting offerings are also available to meet your specific project needs. For more information on Autodesk Consulting, contact your local Autodesk Authorized Reseller or Autodesk Account Executive, or visit *www.autodesk.com/consulting.*

7.2 Where can I find training courses for Autodesk Revit Building 9?

Training courses are available from Autodesk Authorized Resellers, Autodesk Consulting, and Autodesk® Authorized Training Center (ATC®) sites. Check with your local Autodesk Authorized Reseller for a schedule of training classes.

You can enroll in instructor-led training at ATC locations around the world. These training centers use Autodesk Official Training Courseware (AOTC) to deliver comprehensive courses for new and intermediate Revit Building users. To learn more, visit *www.autodesk.com/atc.*

Training courses through Autodesk Consulting include Autodesk Classroom Training (onsite or at Autodesk), Revit Building Distance Learning Seminars (online or instructor-led), or custom training to match your specific needs. For more information, or to register for a course, go to *www.autodesk.com/revit-training.* For more information about Autodesk's training services for Revit Building, call 781-839-5858 or send an email to *RevitEducation@autodesk.com.*

7.3 How can I get technical support information?

Technical support information is available from several sources. First, Autodesk Authorized Resellers offer technical support information to their customers. Second, you can locate the answers to frequently asked technical questions in the support knowledge base on *www.autodesk.com/revit-support.* Third, you can ask questions and read information about the use of Autodesk products in the peer-to-peer discussion groups on *www.autodesk.com/discussion.* Autodesk hosts topical discussion groups about specific products, including Revit Building.

Autodesk® Subscription customers receive personalized web support from Autodesk technical experts. For complete information, visit *www.autodesk.com/subscription* or contact your Autodesk Authorized Reseller.

Information on other support options can be found at www.autodesk.com/support. Contact your Autodesk Account Executive or Autodesk Authorized Reseller for more details.

Autodesk Authorized Resellers also provide telephone support services for Revit Building, and all other Autodesk products. In the United States and Canada, call 800-964-6432 to locate a reseller near you, or visit *www.autodesk.com/reseller*.

Find a complete list of support options on the Autodesk website at *www.autodesk.com/revit-support*.

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