

# Questions and Answers

Purpose-built for building information modeling (BIM), Revit® Architecture software works the way architects and designers think, so you create naturally, design freely, and deliver efficiently.

Revit® Architecture mirrors the real world of buildings, and helps you accurately capture your early design concepts and maintain your vision through design, documentation, and construction. Support sustainable design and perform energy analysis through easy exchange with partner applications. Parametric change technology ensures every change you make is automatically coordinated everywhere in your project, including model views, drawing sheets, schedules, sections, and plans. Design and documentation stay coordinated, consistent, and complete.

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# 1. General Product Information

## 1.1 What is Revit Architecture?

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

At the heart of the Revit platform is the Revit parametric change engine, which automatically coordinates changes across the project—in model views or drawing sheets, schedules, sections, plans, and more.

## 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, designers, engineers, builders, and owners a clear overall vision of their projects and contributes to the ability to make better decisions faster, helping increase project quality and profitability.

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/powerofbim](http://www.autodesk.com/powerofbim).

## 1.3 In addition to Revit Architecture, are there other industry-specific applications built on the Revit platform?

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

Revit® MEP is the BIM solution for mechanical, electrical, and plumbing (MEP) engineering design and documentation.

## 1.4 What is AutoCAD Revit Architecture Suite software?

AutoCAD® Revit® Architecture Suite bundles Revit Architecture and AutoCAD® software together, with a single serial number and authorization code. This combination enables you to maintain your investment in technology and training, while offering the BIM competitive advantage and the flexibility to move to a new technology platform when you're ready. For more information about AutoCAD Revit Architecture Suite, visit [www.autodesk.com/autocadrevitarchitecturesuite](http://www.autodesk.com/autocadrevitarchitecturesuite).

## 2. Technology

### 2.1 What are the important new features in Revit Architecture 2009?

Revit Architecture 2009 continues to deliver superior design information to support better design decision-making by introducing new design and visualization features, adding more control and flexibility to existing features, and better leveraging performance and integration. Here are a few of the key features in Revit Architecture 2009:

**Design Visualization:** Better experience your architectural projects, even before they are built, with Revit Architecture 2009. A proven, powerful tool with roots in the entertainment world, the mental ray® rendering engine is now available for your architectural projects. The advanced capabilities of mental ray in Revit Architecture 2009 enable accurate visualizations through the Autodesk® FBX® file format and easy interoperability with Autodesk® 3ds Max® Design 2009 Design software.

**Swept Blend:** Extending the range of what is achievable during conceptual design and family creation, swept blend functionality offers more opportunity to express complex forms.

**Autodesk 3D UI:** The Autodesk 3D UI includes ViewCube™ and SteeringWheels™ technology, two intuitive, interactive scene navigation tools that offer a familiar experience across multiple Autodesk 3D design products. The 3D UI enables you to navigate 3D scenes easily and effectively, regardless of your level of experience. Your extended team can apply the same software skills across different products and disciplines.

**Dimension Improvements:** Dimension improvements offer new flexible options for expressing dimension text by conveying more than just length values in the dimension string. New dimension text enables you to add a variety of supplemental text to a dimension string without damaging the integrity of the building information model by overriding dimension values.

**Revision Schedules:** Enhancements give added flexibility and control to the display of revision schedules. New attributes enable you to reverse the direction of schedules and to control whether they build dynamically or remain a fixed size. In addition, a new Issued By property has been added and schedules can be rotated on title blocks to achieve the various needs of individual firms.

**Advanced Rendering with 3ds Max Design 2009:** Autodesk 3ds Max Design 2009 design software introduces new lighting simulation and analysis technology, advanced rendering capabilities, and workflows that integrate with popular Autodesk® products such as Revit Architecture 2009. Through Autodesk FBX, an open-standard, platform-independent 3D file format, Autodesk 3ds Max Design significantly enhances interoperability with Revit® 2009–based products through the accurate import of lights, materials, and cameras.

These and other features take advantage of the continuous and immediate availability of high-quality, reliable, and coordinated information—efficiencies that users have come to expect from purpose-built software for BIM.

### 2.2 How does Revit Architecture 2009 help with Sustainable Design?

Revit Architecture 2009 offers a rich set of capabilities that support better sustainable design decision making. For example:

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- Calculating material quantities to support cost estimating and study design analysis against LEED criteria is greatly simplified through the use of the material takeoff feature.
- Revit Architecture 2009 sun studies enable designers to quickly analyze sun positions and solar effects while informing the design process.
- Designers can export building information, including materials and room volumes, to gbXML (green building extensible markup language) to perform energy analysis and study building performance.
- Using design options easily develop and evaluate multiple sustainable design alternatives. Visualize, quantify, and present any combination of schemes to inform the decision making process.

Whether you're considering one or several sustainable design options, through the analysis of materials, quantities, energy use, and lighting in a virtual building information model, designers can better create sustainable building performance in the real world.

### **2.3 How does Revit Architecture 2009 support conceptual design to fabrication workflows?**

Revit Architecture 2009 software extends conceptual design information beyond the conceptual design stage. Purpose-built for BIM, Revit Architecture 2009 provides the ability to quickly define abstract architectural concepts and then accurately transform those ideas (or the forms from disparate models, such as those coming from Autodesk Maya<sup>®</sup> or other generic modeling tools) into rationalized architectural ideas comprising constructible building components. Revit Architecture 2009 is based on the use of coordinated, consistent, and computable information about a project - information which can be used throughout the building design process; from early conceptual design stages, as well as during production documentation phases, construction, fabrication, and even building lifecycle management.

### **2.4 Revit Architecture 2009 handles modeling well, but what about conventional drafting and detailing? Do I still need AutoCAD for that?**

Designers can work entirely in Revit Architecture 2009 to generate construction documentation. AutoCAD<sup>®</sup> software is not required.

For more information about producing construction documents in Revit Architecture or interoperability with AutoCAD software and other CAD systems, see the Autodesk white paper on the subject at [www.autodesk.com/revitarchitecturesuite](http://www.autodesk.com/revitarchitecturesuite).

### **2.5 How does Revit Architecture 2009 work with large teams and projects?**

Worksharing in Revit Architecture 2009 distributes the power of the Revit parametric building modeler across the project team. Worksharing provides a complete range of collaborative 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 their workflow and project requirements.

If you are looking to migrate to building information modeling gradually, AutoCAD Revit Architecture Suite software was created for just that purpose.

## 3. Installation, Configuration, and Licensing

### 3.1 What are *families* in Revit Architecture, and how many are there in the library?

All elements in Revit Architecture 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 through 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 Architecture library contains thousands of families and includes components in both imperial and metric units. Revit Architecture family files are also available from the Revit Architecture web library (accessible from within 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 characteristics—as well as the most elementary building parts.

### 3.2 Do I need to know a programming language to create content in Revit Architecture?

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.

### 3.3 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 Architecture provides. These relationships are created either automatically by the software or deliberately by the user as they work.

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, links, tags, and so forth.

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

### 3.4 Do I have to regenerate sections and schedules manually? What if I want to work in the section?

No. In Revit Architecture 2009 a section view is “live” and presents itself instantly when the user creates it. The section view will automatically update if the defining section line is moved. Designers can work (add or edit components) in the section view without restrictions.

The beauty of Revit Architecture is that designer's work in the view that makes sense for their project. Revit Architecture was built to work the way an architect thinks.

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Schedules are created using the same principle. They are simply another type of view. So they are also “live” and they update as the designer changes the model. In fact, designers can change things in the schedule and Revit Architecture 2009 updates the model and drawings.

### **3.5 Can I use Revit Architecture 2009 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.

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

### **3.6 Is Subscription available for Revit Architecture 2009?**

Yes, Subscription is available in most countries for many of Autodesk's products including Revit Architecture 2009.

Autodesk® Subscription is the best way to keep your design tools and learning up-to-date. For an annual fee you get the latest versions of your licensed Autodesk software, self-paced training options, and a broad range of other technology and business benefits.

Autodesk Subscription includes direct web support. You get one-to-one online communication with Autodesk support technicians for fast, complete answers to your installation, configuration, and troubleshooting questions. Web and email communications deliver support straight to your desktop. Plus you have web access to your account, so you can track and manage questions and responses.

Additionally, Autodesk Subscription includes access to Autodesk University (AU) conference materials and home use licensing options.

For more information about Autodesk Subscription, contact your Autodesk Authorized Reseller or visit [www.autodesk.com/subscription](http://www.autodesk.com/subscription).

### **3.7 Does a stand-alone AutoCAD Revit Architecture Suite user have to put both Revit Architecture and AutoCAD applications on one machine?**

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

### **3.8 Does the License Borrow feature available for the network version of AutoCAD software-based products work with Revit Architecture 2009?**

Yes, one of the biggest benefits to network users of Revit Architecture 2009 is the ability to use the License Borrow feature for laptop users. This feature replaces the concept of external floating licenses that existed in earlier versions of the software.

## 4. Compatibility and Interoperability

### **4.1 What standards and file formats does Revit Architecture 2009 support?**

Revit Architecture 2009 supports a wide range of industry standards and file formats, including

- CAD formats: DGN, DWFT™, DWG™, DXF™, IFC, SAT, and SKP
- Image formats: BMP, PNG, JPG, AVI, PAN, IVR, TGA, and TIF
- Other formats: ODBC, HTML, TXT, MDB, XLS, FBX, and gbXML

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### **4.2 What if clients or consultants insist on DWG deliverables?**

Revit Architecture 2009 can produce DWG deliverables just as AutoCAD can. Revit Architecture 2009 provides industry-leading DWG compatibility using the RealDWG™ toolkit. And because these DWG deliverables were created in a modeler, they are well structured and easy to change.

Revit Architecture 2009 supports the process most architectural firms use with their consultants by producing well-organized and layered DWG files using any layering standard. Revit Architecture 2009 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 Architecture 2009 provides features that help integrate your work with that of consultants. Import or link DWG files directly into Revit Architecture 2009 to use as reference geometry or as the starting point for a new design, such as a site plan. CAD systems that support the DWG, DGN, or DXF file formats can work effectively with Revit Architecture 2009.

### **4.3 What about object compatibility between Revit Architecture 2009 and AutoCAD Architecture and AutoCAD MEP?**

Revit Architecture 2009 can read and write ACIS® solids. This capability gives users a way to export their models from AutoCAD® Architecture 2009 and AutoCAD® MEP 2009 software and import or link 3D information into Revit Architecture 2009. Use this method to cut sections and perform visual interference detection.

### **4.4 Does Revit Architecture 2009 have layers like the products based on AutoCAD software? How does Revit Architecture 2009 organize data?**

No, Revit Architecture software 2009 does not have layers. Revit Architecture 2009 uses a system of categories and subcategories to organize information within the building information model. Users can create their own subcategories for organizing data and various filtering and graphic override techniques for visibility and graphic control.

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.

### **4.5 What about data compatibility between Autodesk AutoCAD or Bentley MicroStation software products and Revit Architecture 2009?**

Revit Architecture 2009 provides several important interoperability capabilities for AutoCAD® and Bentley® MicroStation® users. First, Revit Architecture 2009 can import, export, and link any version of DWG and DGN (V7) format files. Users can draw on imported files to create Revit Architecture 2009 parametric model geometry. Revit Architecture 2009 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 Architecture 2009 can map a specific DWG layer on import to a specific DGN level number on output or vice versa in any combination.

Revit Architecture 2009 supports the process most architectural firms use with their consultants by producing perfectly layered DWG or DGN files using any layering standards the user wants.

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### **4.6 Revit Architecture 2009 now uses mental ray as a rendering solution. Can I use Revit Architecture 2009 with Autodesk 3ds Max Design?**

Users can transfer geometry from a Revit Architecture 2009 model into the Autodesk 3ds Max Design 2009 application through DWG or the new FBX file export.

### **4.7 Is there an application programming interface (API) or other third-party development tools for Revit Architecture 2009?**

Yes. Revit Architecture 2009 ships with a general API, in addition to the previously existing ODBC (Open DataBase Connectivity) export functionality.

A sampling of partners who are already developing applications for previous versions of Revit Architecture include the following:

#### **Green Building Studio, Inc.**

Green Building Studio is a web service that gives 3D CAD users quick, reliable estimates of a building's energy costs during the early stages of conceptual design. Find out more at [www.greenbuildingstudio.com](http://www.greenbuildingstudio.com).

#### **Integrated Environmental Solutions**

The IES plug-in for Revit Architecture provides a direction link to IES software. It enables easy top-level analysis of energy efficiency and building performance at early stages of the design process. Find out more at [www.iesve.com](http://www.iesve.com).

#### **InterSpec**

e-SPECS<sup>SM</sup> for Revit automates project specifications by linking the product and material requirements directly to the Revit Architecture model. Find out more at [www.e-SPECS.com](http://www.e-SPECS.com).

#### **Mcs Software (Italy)**

ArchVISION<sup>®</sup> Revit provides a dynamic link between Revit Architecture and ACCA Primus 3000 r2, a popular Italian cost-estimating software. Find out more at [www.mcs-software.it/pages/Revit.html](http://www.mcs-software.it/pages/Revit.html).

#### **U.S. Cost**

Success Design Exchange uses Success Estimator and Autodesk Revit Architecture to create accurate cost estimates. Find out more at [www.uscost.com](http://www.uscost.com).

#### **Innovaya**

Visual Estimator is a BIM-based estimating solution that integrates Revit Architecture with Sage Timberline Office Estimating. Find out more at [www.innovaya.com](http://www.innovaya.com).

#### **USG**

Using BIM during project design your projects, USG's web-based library, Design Studio, is a valuable tool that offers online Revit Architecture specific content for walls, ceilings, drywall suspension systems, and floors which help in quickly selecting USG products that best fit your needs. Find out more at [www.usgdesignstudio.com](http://www.usgdesignstudio.com).

## 5. Consulting, Training, and Support

### 5.1 What consulting services are available for Revit Architecture 2009?

Check with your local Autodesk Premier Solutions Provider or Autodesk Authorized Reseller for consulting services they offer.

Autodesk Consulting also provides consulting offerings for project assessments, process audits, and a range of Revit Architecture 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](http://www.autodesk.com/consulting).

### 5.2 Where can I find training courses for Revit Architecture?

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 Architecture users. To learn more, visit [www.autodesk.com/atc](http://www.autodesk.com/atc).

Training courses through Autodesk Consulting include Autodesk Classroom Training (onsite or at Autodesk), Revit Architecture 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](http://www.autodesk.com/revit-training).

### 5.3 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](http://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](http://www.autodesk.com/discussion). Autodesk hosts topical discussion groups about specific products, including Revit Architecture.

Autodesk Subscription customers receive personalized web support from Autodesk technical experts. For complete information, visit [www.autodesk.com/subscription](http://www.autodesk.com/subscription) or contact your Autodesk Authorized Reseller.

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

Find a complete list of support options on the Autodesk website at [www.autodesk.com/revit-support](http://www.autodesk.com/revit-support).

## 6. Subscription

### 6.1 What are some of the benefits of Revit Architecture 2009 subscription?

The following benefits are included in the Revit Architecture 2009 software subscription.

- Technology upgrades and new features to protect your software investment.
- Exclusive access to a library of e-Learning lessons.
- Personalized web support from Autodesk technical experts.
- Flexible purchasing options that help you leverage your software investment and ultimately add even more benefit to your business.
- Access to an exclusive subscription portal that offers easy information access and account administration.

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