

# Autodesk Revit Architecture for AutoCAD Users

Autodesk Revit Architecture building design software works the way architects and designers think, so you can develop higher-quality, more accurate architectural designs. Built for Building Information Modeling (BIM), Autodesk Revit Architecture helps you capture and analyze concepts and maintain your vision through design, documentation, and construction. Make more informed decisions with information-rich models to support sustainable design, construction planning, and fabrication. Automatic updates keep your designs and documentation coordinated and more reliable.

Many building industry professionals are familiar with AutoCAD® software and use it today for their work. This white paper will help those who are familiar with that tool understand how Autodesk Revit Architecture works on their terms, introducing some of the main features and concepts in Autodesk Revit Architecture and comparing them to those you may be familiar with in AutoCAD.

If you are a current AutoCAD user interested in Autodesk Revit Architecture and building information modeling, the AutoCAD Revit Architecture Suite software may be right for you. It couples the industry-leading AutoCAD, AutoCAD Architecture software with the state-of-the-art Autodesk Revit Architecture software for building information modeling into a single, comprehensive solution. Autodesk Revit Architecture Suite software turns maximum flexibility into competitive advantage. It enables you to make the switch to Building Information Modeling (BIM) at your own pace, while continuing to support existing software, training, and design data investments.

## True 3D design

A major difference between Autodesk Revit Architecture and AutoCAD is that you work with intelligent objects rather than lines and curves. This is a tremendous productivity gain because—unlike traditional drafting with AutoCAD, which requires a wall to be drawn several times, once for floor plan, once for elevation, and then again in section—we only have to model the wall once within Autodesk Revit Architecture, and at any given time, you can display this information as floor plans, sections, schedules, and perspectives, just to name a few.

An even greater advantage with Autodesk Revit Architecture is that you are creating a parametric Building Information Model; if you make a change anywhere, it will automatically update all dependencies. With lines and curves, each view remains a separate drawing, so edits need to be repeated for each drawing type, which is a very manual process and could lead to greater risk of error.

## Autodesk Revit Parametric Components

Autodesk Revit Architecture is a true parametric architectural building modeler. The modeling engine in AutoCAD contains primitive 3D objects and requires that all custom shapes be created manually. Autodesk Revit Architecture contains 3D parametric building elements. Autodesk Revit Parametric Components are an open, graphical system for design thinking and form making, a powerful way of expressing design intent at increasingly detailed levels. Parametric Components can be used to generate the most elaborate assemblies—including intricate iterative, algorithmic, and behavioral characteristics—as well as the most elementary building parts. No programming language or coding is required to drive this powerful system. And any and all relationships are available to be expressed directly in the system; nothing is assumed.

Revit Parametric Components carry information about their relationships to other objects in the building, unlike the blocks and solids used in AutoCAD. For example, in Autodesk Revit Architecture, a wall's properties can be defined as rising to the next level or roof. After you set this property, Autodesk Revit Architecture ensures that your wall will retain its relationship to the next level or roof no matter what changes you make in the building.

## AUTODESK REVIT ARCHITECTURE FOR AUTOCAD USERS

Dimensions always correspond to the actual size of the building elements. Updating a dimension automatically updates the parametric components and their relationships to other components. Schedules provide another view of the comprehensive Autodesk Revit Architecture model. Changes to a schedule view are automatically reflected in all other views.

### Families vs. Blocks

AutoCAD users are accustomed to storing symbols as blocks in individual DWG files. Autodesk Revit Architecture stores similar parametric components in family files. One of the strengths of component families is that they can be controlled by parameters, which allow for a great deal of flexibility. For example, a table family can be created to have several sizes, all based on parameters that can be set by the user, allowing for a single family definition to accommodate several different kinds of tables. Parameters can control more than just sizes—they can control materials, visibility states, and non-graphical information (cost, URL, etc.)

### Alignment vs. Osnaps

Autodesk Revit Architecture offers tools like Temporary Dimensions and Alignment Guides. Alignment guides are similar to the Object Tracking feature in AutoCAD. Temporary lines and arc extensions, as well as other useful snap points relative to your current position in the model, are an advantage within Autodesk Revit Architecture. This is in contrast to the osnap feature of AutoCAD, which snaps to any entity that fits the current osnap settings. With Autodesk Revit Architecture, you do not need to change the UCS in order to place blocks or creating your drawings; you can quickly place doors, windows and other components correctly with the appropriate placement and orientation options. Doors open in the desired direction and windows are placed with the correct sill height on the wall. You can place these components in either 2D or 3D views, whichever is easiest.

### One Model, Many Views

Autodesk Revit Architecture makes extensive use of various views since all model information is stored in a single, coordinated database. Autodesk Revit Architecture can generate schedule, drawing sheet, 2D view, and 3D view at any given time. Many views may be opened at the same time and any changes made in one view are automatically updated in all other views. Plan, section, and 3D view can be opened side by side so you can verify that moving or deleting a component in one view will automatically coordinate the changes in section and 3D view as well. This feature, which means that a change anywhere is a change everywhere, is extremely valuable for experimenting with design changes.

### No Command Line or Layers

When working in Revit, AutoCAD users will notice the absence of the command line and layer control. The Autodesk Revit Architecture user interface offers desktop organization through a large drawing window with access to the tools and commands you need. Tools are organized into a collection of tabs and panels to represent architectural workflows such as Annotation or Collaboration. With Revit, designers can stay more focused on the model rather than the keyboard and command line.

Layers are not needed to control the visibility of elements within Autodesk Revit Architecture. Visibility is controlled through the Visibility/Graphics dialog. For example, when you model a wall, the wall automatically belongs to Wall category with certain predefined line types, and line weight. The Visibility/Graphics dialog works on a per-view basis, comparable to the AutoCAD Freeze/Thaw/On/Off by viewpoint feature.

### Single File, Multi-user Projects

AutoCAD users are accustomed to storing and retrieving project data from multiple files. In Autodesk Revit Architecture, all project data is stored in the single database. This creates a more collaborative environment between users because everyone is working on the same model simultaneously, which means everyone working on the model must coordinate and maintain constant communication with one another. Every time someone saves their work, the changes are incorporated and update in the central file.

## Import/Export DWG

Autodesk Revit Architecture provides industry-leading DWG compatibility. It supports exporting to DWG and DXF, SAT, and DGN file format. When exporting, Autodesk Revit Architecture matches its components and their subcategories from the current view to either industry standard or user-defined layer names. If you use one of the export tools while in a 3D view, Autodesk Revit Architecture exports the actual 3D model, not a 2D representation of the model; similarly, if you export while in 2D view, it will export a 2D view. This allows for smooth coordination and exchange of information among project team members.

## Producing Paper Drawings

Because drawings are the critical output of the design process, the parametric change technology in Autodesk Revit Architecture enables fast and accurate plotting. With Autodesk Revit Architecture, all drawings are produced from the same, single parametric building model used to create the design. Any changes to your design along the way are always updated in your drawing sheet views. Changes to elevations, sections, and callouts are immediately updated in all reflected views. Any view you have created of the model can be added to a sheet and properly scaled.

Once placed on the sheet, Autodesk Revit Architecture can enable the designer to perform any last minute placements just as easily in a sheet view as in a model view. Scale-dependent line-weight and scale-independent annotation size allow reuse of information in views without complex reformatting, which greatly reduces management overhead. The WYSIWYG display also lets the user see the final result before output for fewer plotting errors. Finally, the plotter hardware support in Autodesk Revit Architecture is only limited by the operating system. If there is a Microsoft® Windows® driver for your plotter, Autodesk Revit Architecture can use it.

Thank you for your interest in Autodesk Revit Architecture. Autodesk Revit Architecture will help you design and document your building projects more productively, with better coordination, and with better quality. If you have any further questions about Autodesk Revit Architecture or would like to know more please visit us online at [www.autodesk.com/revit-architecture](http://www.autodesk.com/revit-architecture).

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