November 30 – December 3, 2004 ◊ Las Vegas, Nevada

In Union There Is Strength: AutoCAD® and Autodesk® Revit® in Concert

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BD32-3 This session is intended to introduce Autodesk Revit into firms that are currently using AutoCAD to document their designs. Seminar topics include interoperability procedures, strategies for implementing Revit, and migrating office standards.

Who Should Attend
CAD managers and users at architectural firms wanting to use both AutoCAD and Autodesk Revit

Topics Covered
* Introduction to Autodesk Revit Series
* CAD and BIM: using the right tool for the job
* Interoperability features
* Shared positioning: coordinating coordinate systems
* Migrating office standards

About the Speaker:
Christopher has been providing support for Autodesk® Revit® users for over 4 years; 2 with Autodesk and 2 with Revit Technology. He is a registered architect and a member of the AIA. Prior to joining Revit, Christopher was a project architect and CADD manager at a firm in Boston that specialized in design for the high-tech industry.

Introduction to AutoCAD Revit Series

Combines industry-leading AutoCAD and Autodesk Revit software so you can flexibly move to building information modeling when and how you want, while preserving your investment in AutoCAD software and training.

Ultimate Flexibility, Immediate Competitive Advantage

You want the hard-hitting advantage of building information modeling, but on your own terms: when and how you want, to integrate with and get the most out of your existing processes. No problem. Autodesk® AutoCAD® Revit® Series couples industry-leading AutoCAD software with the state-of-the-art Autodesk Revit parametric modeler—an unbeatable combination that enhances document coordination, improves design communication, and, most of all, gives you complete flexibility to move to building information modeling exactly when and how you decide. Protect and innovate—with AutoCAD Revit Series, you can have it both ways.

Complete Workflow Flexibility

AutoCAD Revit Series flexibly accommodates any kind of workflow. You can use either AutoCAD or Autodesk Revit when you want, how you want. For example, you can:

- Prepare design proposals with Revit, and then use either AutoCAD or Revit to design the project.
- Accelerate decision making with Revit in the design phase, and then create construction documents with AutoCAD.
- Use Revit to eliminate coordination errors, while using AutoCAD for tasks requiring large pools of trained staff or specialty design tasks (like stair design, roofing details, or elevator cores).

CAD and BIM: Using the right tool for the job

- *CAD: This technology supports drafting automation very effectively and with little effort—better than any other technology, in fact.*
- *BIM: An approach to building design, construction, and management. It supports the continuous and immediate availability of project design scope, schedule, and cost information that is high quality, reliable, integrated, and fully coordinated.*
- *Autodesk Revit is a parametric building modeling system.*
- *Parametric building modeling is analogous to the decision support systems used in the financial community. These systems combine a data model (geometry and data) with a behavioral model (change management) that gives meaning to the data through relationships. This provides an integrated system that can be used to simulate the behavior of a real-world system.*

What Is Building Information Modeling, and What Are Its Key Benefits?

Building information modeling is an approach to building design, construction, and management. It supports the continuous and immediate availability of project design scope, schedule, and cost information that is high quality, reliable, integrated, and fully coordinated. Though it is not itself a technology, it is supported to varying degrees by different technologies.

Building information modeling is, essentially, the intersection of two critical ideas:

- Keeping critical design information in digital form makes it easier to update and share and more valuable to the firms creating and using it.
- Creating real-time, consistent relationships between digital design data—with innovative parametric building modeling technology—can save significant amounts of time and money and increase project productivity and quality.

Autodesk Parametric Building Modeling Technology

Autodesk® Revit® software is an example of parametric building technology. It is purposebuilt for building industry professionals ready for a new way of working and the correspondingly high level of building information modeling benefits that go with it. Revit is inherently a building information modeler, and there is no effective way to use Revit in any other way. It delivers only a fully integrated, self-coordinating building information model.

Some important characteristics of parametric building modeling systems

- Information about the entire building and a complete set of design documents are stored in an integrated database.
- All of the information is parametric and therefore completely interconnected. Any change to the relationships among objects is always instantly reflected throughout the rest of the project—in all representations of the project.
- All relationships within the model are available for user definition—not just relationships (such as a window hosted by a wall) that have been preprogrammed by the developers. This includes graphical definition by the end user of parametric objects.

Interoperability features

- *Autodesk Revit provides DWG compatibility using the Autodesk ObjectDBX™ toolkit.*
- *You can import and export models to DXF™ and DWG formats.*
    - *When exporting, Autodesk Revit matches its components and their subcategories from the current view to AIA or user-defined layer names.*
    - *You can also import these formats into 2D or 3D views, allowing for smooth coordination and exchange of information among team members.*

Using AutoCAD plus Autodesk Revit

Complete design and documentation in Autodesk Revit, using AutoCAD where schedules require the largest pool of trained personnel or to integrate the work of personnel with specialized skills.

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If the source file of the link in your Revit project has changed, Revit automatically updates the link when you open the Revit project. Imports remain fixed in the state at which they were imported.

Shared positioning: coordinating coordinate systems

- *An Autodesk Revit project has internal coordinates for all the elements that compose the model in a project. Those coordinates are known to this project only. This is acceptable if you have a standalone model whose position is not relevant to other models or to a site, but if you want the position of this model to be known to other linked models, you need to share coordinates.*
- *Shared coordinates are used for remembering the mutual positions of multiple interlinked files. Those interlinked files can be all RVT files, or a combination of RVT, DWG, and DXF files.*

You should derive shared coordinates from only one file. That one file defines the coordinates for all other files that compose the project. Acquire coordinates from one file and then publish those coordinates to other files.

If the significant coordinates for a project are in a linked model, such as a building model with a linked site, acquire the coordinates from the linked model.

If the significant coordinates for a project are in the host model, such as a site with linked building models, publish coordinates from the host to the linked models.

Migrating Office Standards

- *Line Weights*
- *Object Styles*
- *Export Layer Settings*
- *Import Line Weight Settings*
- *Annotations*
  - *Text Styles*
  - *Dimension Styles*
- *Content*

Project Template

Custom project templates are files that provide initial conditions for a project. Any new project based on the template inherits all families, settings, and geometry from the template.

Line Weights

The Line Weights dialog box includes three tabs for controlling line weights: model line weights, perspective line weights, and annotation line weights.

The Model Line Weights tab specifies line width of modeling components, such as doors, windows, and walls, in orthographic views. The widths are dependent on the scale of the view.

The Perspective Line Weights tab specifies line weights for modeling components in perspective views. You may want to apply different line styles and line weights using the Linework tool.

The Annotation Line Weights tab controls the line width of annotation symbols, such as section lines and dimension lines. The widths of annotation symbols are not dependent on the scale of the design.

Object Styles

The Object Styles commands set Line Weights, Line Colors, Line Patterns, and Materials for different categories and subcategories of components or imported geometry layers.

Export Layer Settings

The Export Layers command maps Autodesk Revit categories and subcategories to specific layer names that are available after exporting to other CAD programs. Revit does not come with any existing mapping files. You can choose to load your own layer mapping file and manually change values for it, or you can generate a file using preset mapping standards.

Import Line Weight Settings

Autodesk® Revit® can import pen numbers from a DWG or DXF file and map them to a Autodesk Revit line weight. You can then save these mappings in a text file, and they become the set mappings for the project.

Annotations

Define the look and size of text, dimensions and other annotations in your project.

Content

Load default content.