VECTORWORKS®
A NEMETSCHEK COMPANY

FOR ARCHITECTURE PROFESSIONALS

MOVING FROM AUTOCAD TO VECTORWORKS ARCHITECT: A GUIDE

Data

Material: Concrete 3500psi
Mark: M-1
Description: Concrete CIP Reinforced
Category: Concrete
Classification: OmniClass
Lambda: 1.156
Report as: Volume
Cost: $150.00/cy

Shape
Wall
Class:
Layer:
Wall-Exterior
1-Floor Layout
EXT-CMU 8"-Brick Ve
Standard Wall

Shape
Wall

Render

Data

Layer Plane

93%

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INTRODUCTION

Vectorworks Architect is the ultimate design software for any firm that wants more flexibility and functionality from their software. In a single application, you can take a design from concept to completion utilizing a complete suite of BIM tools and maintaining your existing workflows. If you're thinking of moving to Vectorworks software from AutoCAD, read on for some compelling reasons to make the move now.

HOW ARE AUTOCAD AND VECTORWORKS DIFFERENT?

Vectorworks Architect is a comprehensive design and BIM tool that offers you all the CAD behaviors you get with AutoCAD, plus the full suite of BIM capabilities you need for any project. With extensive 3D modeling capabilities, Vectorworks allows you to create unique shapes in a full BIM environment without having to resort to other third-party software. Your presentation workflows are also fully supported with image importing, a robust color palette including Pantone® and Sherwin-Williams® colors, alpha channel transparency, multi-colored gradients, and true graphic representation of colors and line weights — WYSIWYG (What You See Is What You Get). Finally, Vectorworks is truly cross platform; the user interface is the same between Mac and Windows, so you can choose the platform that best suits your needs without worrying about capability or compatibility.

Capability	Vectorworks Architect	Autodesk AutoCAD
Precision drafting	●	●
Parametric BIM modeling tools	●	
Automatic drawing coordination	●	
Integrated rendering	●	●
Data extraction via worksheets	●	●
Pushing data via worksheets	●	
Photorealistic and artistic rendering	●	●
Integrated energy analysis package	●	
Surface modeling	●	●
Solids modeling	●	●
Subdivision modeling	●	
NURBS modeling	●	●
Multi-user environment	●	
Cross platform application	●	
Data visualization	●	
Site information modeling and design	●	
Integrated algorithmic design	●	

FIGURE 1: Capability chart

HOW ARE AUTOCAD AND VECTORWORKS DIFFERENT? (CONT'D)

CAN I COLLABORATE WITH AUTOCAD USERS?

Vectorworks software has the most import/export options of any BIM application, so it's easy to collaborate with AutoCAD users. You can import, export, and directly reference both 2D and 3D DWG files. Vectorworks also supports several previous versions of AutoCAD, so you can import your archived DWGs, as well as any current files you may have.

File Type	Import	Export	File Type	Import	Export
3D model files [IGS, OBJ, SAT, STP, STL]	●	●	Image files [BMP, GIF, HDR, JPG, PNG, TIF]	●	●
3D model files [COLLADA, FBX]		●	Open BIM [BCF, IFC]	●	●
3D Studio Max [3DS]	●	●	PDF	●	●
3D PDF		●	PDF/A	●	●
AutoCAD [DWG, DXF, DWF]	●	●	Photoshop [PSD]	●	●
Cinema 4D [C4D]		●	Point cloud	●	
Data files [CSV, gbXML]		●	Python script	●	●
GIS [SHP]	●	●	Rhino [3DM]	●	●
Google Earth [KML]		●	Revit [RVT, RFA]	●	
Illustrator [EPS]	●	●	SketchUp [SKP]	●	

FIGURE 2: Import/export chart

WHY MOVE FROM AUTOCAD TO VECTORWORKS?

SKETCH TO BIM

Vectorworks is an all-in-one software that enables your design workflows from initial sketch to final documentation, eliminating the need to use separate software for modeling, presentation, and BIM.

It's easy to start exploring ideas in Vectorworks. In addition to drawing lines, you can draw shapes, which are more conducive to sketching. These shapes can quickly become 3D schematic models with push/pull modeling. When your design is ready to move forward, you can convert those 2D shapes and 3D models to parametric building objects.

DESIGN ANYTHING

BIM software isn't exactly known for promoting creative expression. But Vectorworks is different. It allows you to freely sketch, model, and document your design ideas with precision drafting capabilities and the most flexible 3D modeling engine available, powered by SIEMENS Parasolid®.

2D workflows in Vectorworks support precise CAD documentation as well as intuitive Adobe® Illustrator®-like graphics. 2D objects are drawn as solid shapes, not lines, making it easier to understand one object's relation to another. These objects can be drawn freehand, or values can be entered while drafting via the Floating Data bar. You can easily modify or scale drawn objects in the Object Info palette. And you can make calculations within data fields by using standard operators such as +, -, *, and /.

When it comes to 3D modeling, Vectorworks' capabilities include:

- · SketchUp-like push/pull modeling
- · Rhino-like complex surfaces and curvature
- · Maya-like 3D sculpting and deforming
- · SolidWorks-like precise solids modeling
- · Grasshopper-like algorithmic design

FLEXIBLE BIM

Vectorworks Architect's comprehensive BIM capabilities are supported by data-driven modeling and design exploration typical of traditional workflows. Draft or model intelligent objects like walls, slabs, and roofs. Vectorworks even includes a comprehensive site-modeling tool set that allows you to model your existing and proposed site, as well as perform cut and fill calculations and slope analysis. An adaptable, two-dimensional drawing system helps organize elements by both location in space and object attributes, so 2D, 3D, and composite objects can be assigned an elevation in building space and, at the same time, be classified visually with flexible line type or color attributes. You can incorporate any or all of these constructs as you adopt BIM at your own pace.

WHY MOVE FROM AUTOCAD
TO VECTORWORKS? (CONT'D)

WIN MORE WORK

With Vectorworks Architect, you don't have to use other design software to create eye-catching presentation boards. WYSIWYG graphics, opacity, line weights, and sketch styles allow you to create beautiful diagrams and drawings directly from your model. Image-based textures can be applied to objects within your model, then rendered with the built-in rendering engine. This allows you to create photorealistic or stylized renderings that can also be overlaid with imported alpha channel-enabled images.

FIGURE 3: Four renderings created from the same model

WHY MOVE FROM AUTOCAD TO VECTORWORKS? (CONT'D)

ANALYZE AND VISUALIZE

Impressive graphic features and flexible BIM capabilities make it easy to analyze and visualize data within your drawings. Viewport overrides — the ability to change the graphics attributes of particular objects for a specific drawing — allow you to create multiple drawings from the same model view. Another way to create customized, data-driven drawings is to use data visualization, which allows you to assign graphic attributes to objects that have a certain data value or range. You can also create powerful worksheets that not only display and calculate data from your objects, but can also push new data to those same objects.

FIGURE 4: Viewports using data visualization

GET UP AND RUNNING QUICKLY

The flexibility of Vectorworks Architect allows you to maintain your existing CAD workflows while adding BIM capabilities at your own pace. And Vectorworks' import and export capabilities and perpetual licensing model mean you'll always have access to your DWG legacy files.

HOW DO I MOVE FROM AUTOCAD TO VECTORWORKS?

USER INTERFACE

Similar to AutoCAD, you can access the tools in Vectorworks via customizable tool palettes, and you can access commands via menus. The biggest difference between the AutoCAD and Vectorworks user interfaces is there is no command line in Vectorworks. However, many Vectorworks tools and commands have keyboard shortcuts, and you can assign shortcuts via workspace customization, so you can keep a very similar workflow to using a command line.
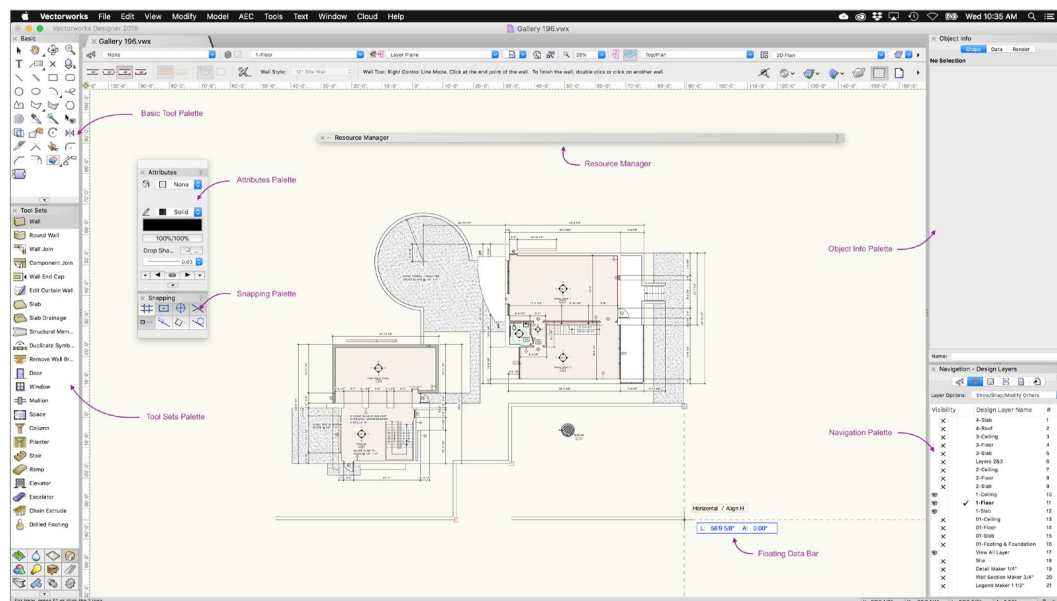

FIGURE 5: The Vectorworks user interface

HOW DO I MOVE FROM
AUTOCAD TO VECTORWORKS? (CONT'D)

When you select a tool in Vectorworks, it will often have different modes that can be selected in the Tool bar at the top of the drawing window. These can be clicked, or you can scroll through each level of tool modes using the u, i, o, p, [, and] keys. The tools are organized in several tool palettes: the Basic tool palette, which includes standard 2D drafting, text, selection, and navigation tools, and the Tool Sets, which include several tabbed tool palettes. These are Site Planning, Space Planning, Building Shell, 3D Modeling, Visualization, Furn/Fixtures, Dims/Notes, and other detailing tools. These tool sets can be selected individually to see the tools they contain.
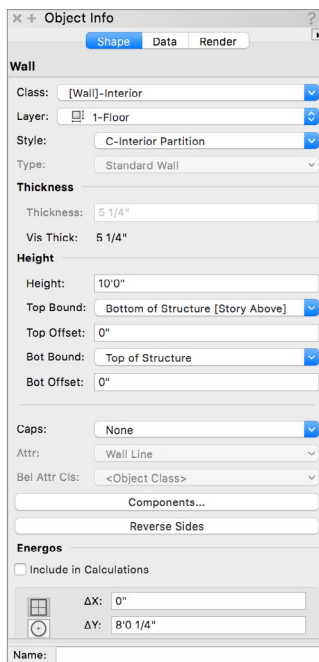

FIGURE 6: The Object Info palette with a wall selected

When you select an object in Vectorworks, its data is visible and editable in the Object Info palette. The Object Info palette, or OIP, has three panes: Shape, Data, and Render. The Shape pane is similar to the Object Properties palette in AutoCAD in that it displays information about the object, but it also allows you to modify the object's size and position in space without invoking separate modification tools. The Data pane allows you to attach custom or IFC data to the object, and the Render pane allows you to set textures to 3D objects. An additional palette in Vectorworks — the Attributes palette — allows you to set the 2D graphic properties of the object.

To learn more about the Vectorworks user interface, go the Vectorworks Basics section of Vectorworks Online Help. To see a table of common AutoCAD and Vectorworks tool comparisons, click here.

HOW DO I MOVE FROM AUTOCAD TO VECTORWORKS? (CONT'D)

FILE ORGANIZATION

In Vectorworks, drawings are organized into a system of design layers and classes. Classes are equivalent to layers in AutoCAD — they are a way to classify an object. The attributes of an object are often determined by an object's class. Layers are where objects are located within a file. Layers can have an elevation in space and connect to stories in a BIM model, or they can act like sheets of vellum for drafting. Layers can also be given a scale, which is useful for WYSIWYG line weights, tiles, and hatches. Layers are often set to the scale at which drawings will be printed.
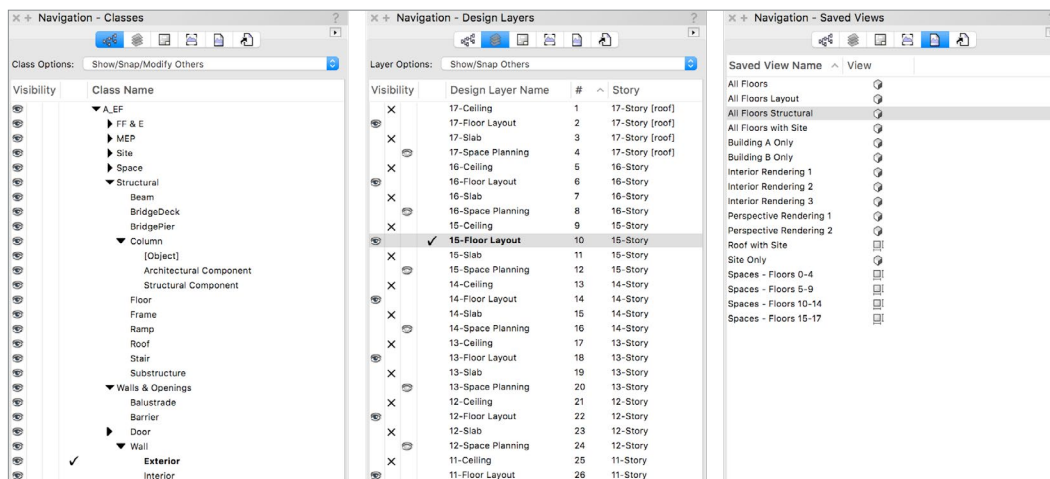
You can easily modify the visibility of layers and classes in the Navigation palette, where each class and layer can be set to Visible, Grayed, or Invisible. These visibility states, along with the pan, zoom, 3D view, and rendering of a model, can be stored in a saved view. Setting up saved views allows you to navigate quickly and efficiently throughout your model.

Design layers are similar to model space in AutoCAD, while sheet layers are similar to paper space layouts. Sheet layers are often set to the paper size at which your drawings will be printed and can be accessed via the Sheet Layers pane of the Navigation palette. Your drawings can be laid out on sheet layers by creating viewports.

Like in AutoCAD, viewports are views of your model, and the visibilities and attributes of layers and classes, as well as the scale and crop, can be changed within the viewport. Unlike the limitation of only labeling on top of viewports in AutoCAD, dimensions, notes and other graphics can be added in the annotation space of a viewport — associating those annotations to the viewport. The viewport settings and class and layer overrides can be transferred from one viewport to another.

To learn more about file organization, go the Drawing Setup section of Vectorworks Help.

HOW DO I MOVE FROM AUTOCAD TO VECTORWORKS? (CONT'D)

2D AND 3D BEHAVIORS

When you first open Vectorworks, you are in Top/Plan view. Top/Plan is a 2D view of your model, similar to a floor plan with a defined cut plane. The graphic attributes of objects in Top/Plan view are WYSIWYG — this is how viewports of plans and sections will look on your sheet layers. However, if you navigate to a 3D view via the Current View menu in the View bar or via the Flyover tool, you will see a change in background color and a simplified graphics view. You can set the rendering of your 3D view in the View menu to wireframe, OpenGL, or a custom rendered style, including several artistic variations. Switching to different 3D views can be as easy as using the numeric keypad on full-size keyboards. Working with multiple views of your file open simultaneously allows for easier 3D modeling and more efficient workflows.
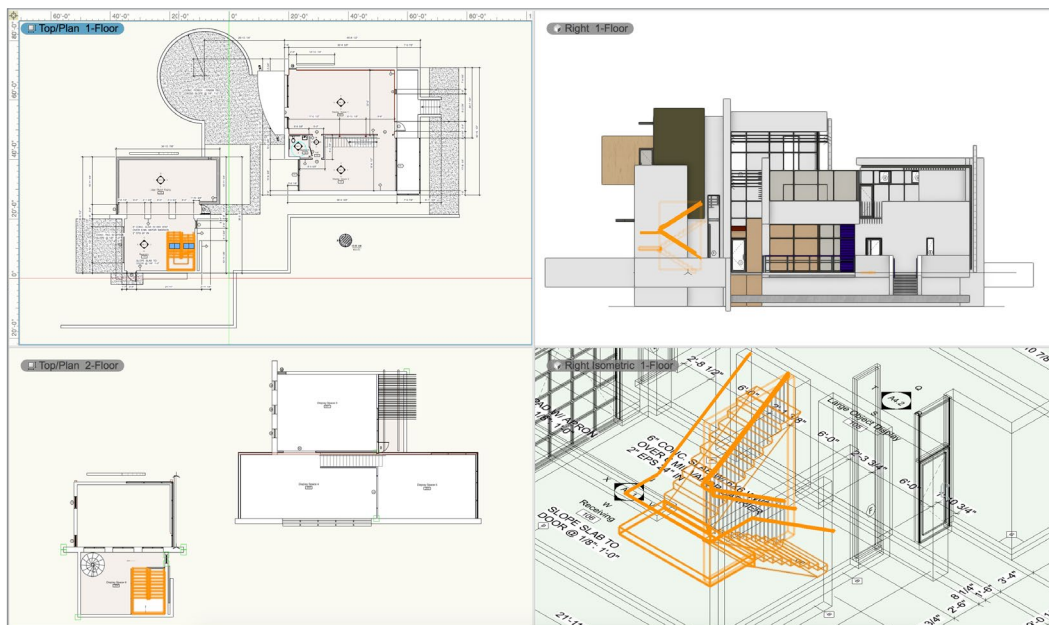

FIGURE 8: Multiple view panes of objects in Top/Plan and 3D views

Most parametric objects, like walls, slabs, doors, and windows, are hybrid objects, in that they look different in top/plan and in 3D. The 2D graphic attributes of an object can be independent of the 3D textures. This can be very useful, because a plan view of an object often has a different level of detail and is used for a different purpose than a perspective view of that same object.

HOW DO I MOVE FROM AUTOCAD TO VECTORWORKS? (CONT'D)

FILE MANAGEMENT

You can manage templates, worksheets, records, symbols, styles, and other types of resources via the Resource Manager. Resources in Vectorworks are saved as regular Vectorworks files and can be either referenced into the current document or placed directly into the drawing area.
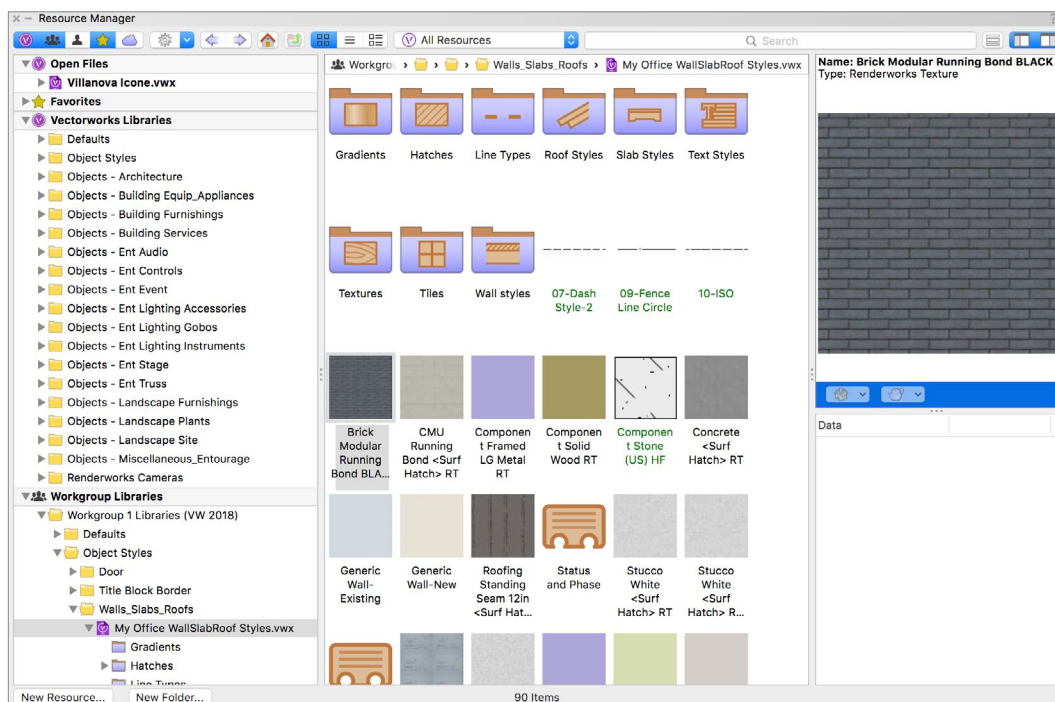

FIGURE 9: The Resource Manager

A common resource in Vectorworks is a symbol. Symbols are similar to blocks in AutoCAD. They can be shared between files and can have data attached via record — much like block attributes. Vectorworks also has the concept of styles, whereby parametric objects can have certain parameters that persist across all instances of that style, while other parameters can be by instance. These styles can be saved as resources, just like symbols. This is very useful for objects like doors and windows that may be of a similar type but have different dimensions.

To learn more about resource management, go to the Resources section of Vectorworks Online Help.

HOW DO I MOVE FROM
AUTOCAD TO VECTORWORKS? (CONT'D)

COLLABORATION

Vectorworks allows you to easily collaborate and share files with colleagues, consultants, and clients. Just like resources, you can reference other files within the current document. Files can be referenced via the References pane of the Navigation palette — similar to the Reference Manager in AutoCAD. When you reference a file, the layers you choose to reference within that file appear within the current document and can be used to overlay or align geometry.

In a multi-user office, it is important to be able to work on the same project and in the same file simultaneously. Unlike AutoCAD's X-referencing system, Vectorworks' Project Sharing feature allows multiple users to work concurrently in a single project file. To learn more about project sharing, click here.

When it is time to print your drawings, you can coordinate your drawing set, issues, and revisions with the Title Block Manager and the Publish command. You can batch print specific sheet layers to PDF or DWG and save sheet sets for reference.

CONCLUSION

Making the move to Vectorworks Architect will increase your efficiency and give you the BIM, 3D modeling, CAD, and illustration capabilities you need, all in one program. You can get more from your drawings while still keeping your familiar workflows. With Vectorworks Architect, you can conceptualize your ideas, as well as generate drawings and schedules — all without altering your creative process or exceeding the scope of your work.

LEARN MORE

about how Vectorworks can help you
implement and develop BIM workflows.
Email us at **hello@vectorworks.net**.