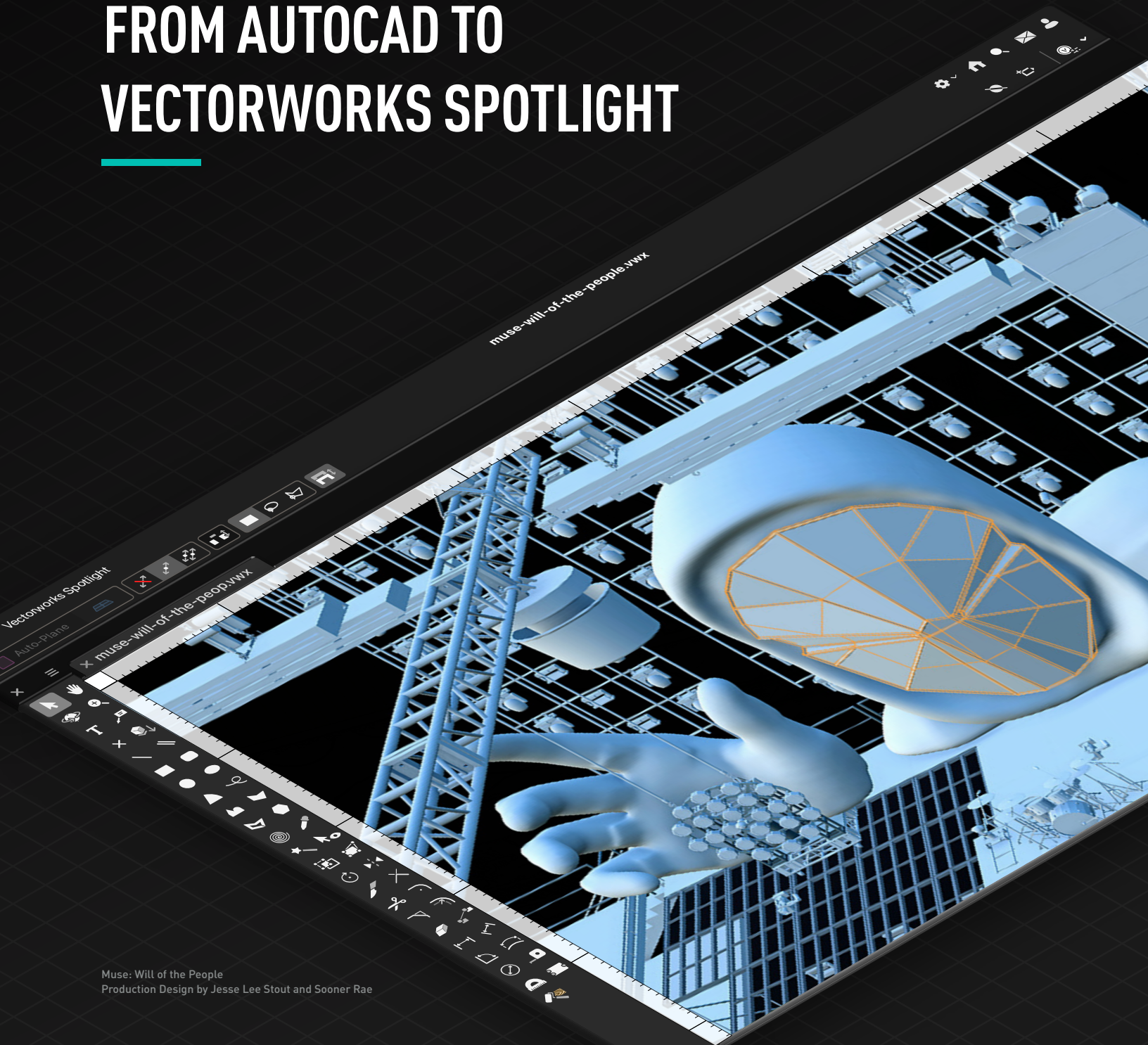




VECTORWORKS®
A NEMETSCHEK COMPANY

FOR ENTERTAINMENT PROFESSIONALS

REASONS TO MOVE FROM AUTOCAD TO VECTORWORKS SPOTLIGHT



Muse: Will of the People
Production Design by Jesse Lee Stout and Sooner Rae



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INTRODUCTION

Vectorworks Spotlight is the ultimate design software built for the theatrical and live event professional looking to speed up and streamline their workflow. Unlike AutoCAD, Vectorworks offers purpose-built design tools and a variety of import and export options. Let's take a look at what Vectorworks Spotlight can do for you.

INTRODUCTION (CONT'D)

CONCEPT TO FULLY FINALIZED SET DESIGN

Vectorworks is an all-in-one tool that enhances your design workflows from initial sketch to final documentation, eliminating the need to use separate software for modeling, rendering, presentation, and data management. Entire inventories of equipment, staging, and event furniture can be cross-referenced and totaled, enabling you to budget at both a preliminary and final stage.

It's easy to start exploring ideas in Vectorworks. In addition to solely drawing lines, you can also draw closed shapes, which are more conducive to sketching. These shapes can quickly become 3D venues, stages, or set objects, or you can use our intelligent parametric objects.

Vectorworks can import and work with many different file types including DWG, Rhino, 3Ds, OBJ, and MVR, just to name a few. You can import PDFs then measure and accurately scale them to the correct size. You don't have to trace over the top of a PDF — you can break the file down into its component lines and geometry. These lines can be used to create objects from source shapes such as walls and lighting pipes. It's entirely possible to go from PDF to conceptual 3D model in no time at all.

File Type	Import	Export
3D model files [IGS, OBJ, SAT, STP, STL]	●	●
3D model files [COLLADA, FBX]		●
3D Studio Max [3DS]	●	●
3D PDF		●
AutoCAD [DWG, DXF, DWF]	●	●
Cinema 4D [C4D]		●
Data files [CSV, gbXML]		●
GIS [SHP]	●	●
Google Earth [KML]		●
Illustrator [EPS]	●	●
Image files [BMP, GIF, HDR, JPG, PNG, TIF]	●	●

File Type	Import	Export
GDTF/MVR	●	●
Open BIM [BCF, IFC]	●	●
PDF	●	●
PDF/A	●	●
Photoshop [PSD]	●	●
Point cloud	●	
Python script	●	●
Rhino [3DM]	●	●
Revit [RVT, RFA]	●	●
SketchUp [SKP]	●	

INTRODUCTION (CONT'D)

As well as tangible geometry, Vectorworks can also facilitate the importing of laser-scanned point cloud files. The import translates into an easy-to-work-with mesh, providing a realistic context within which to place your design. The Vectorworks Nomad app can create a point cloud for you through your phone's camera.

With Project Sharing capabilities, you can work with other members of the production team on the same file at the same time. With Dropbox and other cloud-based file sharing, you don't even have to be in the same building or even connected to the internet. You can make changes as needed and upload them when you're ready.

EVENT DATA

Managing the logistics of an event was always a tedious and lengthy task involving exporting CSV or tab-delineated data into an inflexible and not-fit-for-purpose spreadsheet program. Was the data up to date? What if the user needed to edit the data? Would this have to be edited in the spreadsheet and again in AutoCAD? How can I be sure everything has been exported?

These were all-familiar concerns faced by users grappling with huge spreadsheets and trying to correlate data with their AutoCAD file. Thankfully, you no longer need worry about complex data management workflows. All of your model's data can be sorted and filtered into an appropriate worksheet within Vectorworks. These worksheets contain accurate data from your model which can be edited and then sent back to their appropriate symbols and plugin objects. These worksheets can be immediately refreshed so you can guarantee you're always viewing and editing the most recent version.

Additionally, much of the data at your fingertips has already been created by Vectorworks. Our entertainment industry content has a wealth of data already attached in an appropriate record type.

WHY MOVE TO VECTORWORKS?

DESIGN ANYTHING

It's easy to feel creatively constrained when you're driving your design software using keyboard shortcuts and numerical values. But Vectorworks is different — it allows you to freely sketch, model, and document your design ideas with precise drafting capabilities. While still being able to freely express your creativity, free form drafting is possible with 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:

- Push/pull modelling
- Complex surfaces and curvature
- 3D sculpting and deforming
- Precise solids modelling
- Algorithmic design

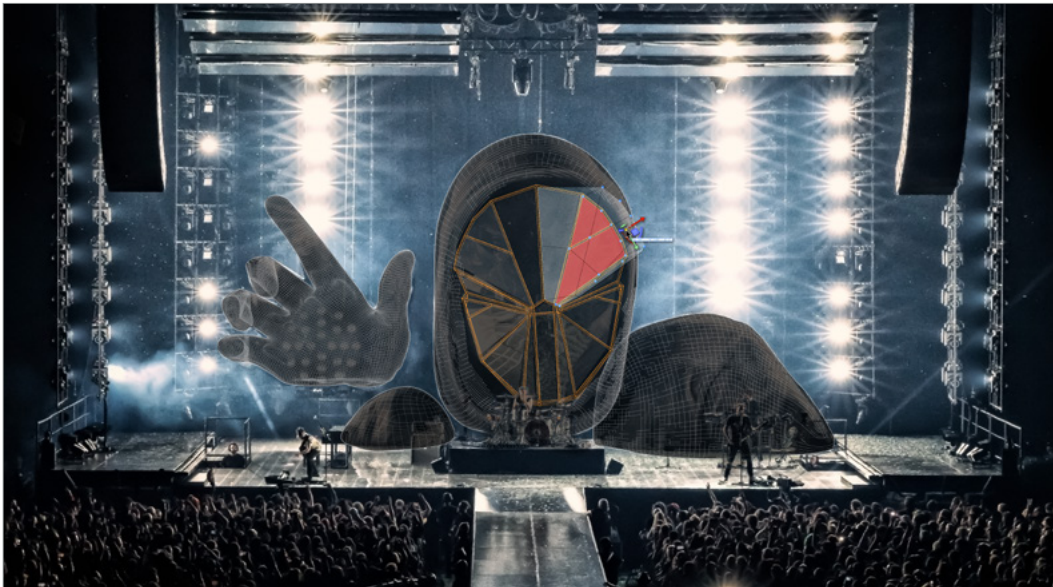


FIGURE 1: Muse: Will of the People | Production Design by Jesse Lee Stout and Sooner Rae, Photo Courtesy of Todd Moffses.

WHY MOVE TO VECTORWORKS? (CONT'D)

WIN MORE WORK

With Vectorworks Spotlight, you don't have to use other design software to create eye-catching presentations. Create fully rendered images and video walkthroughs of your design within the program using the Cinema 4D Render Engine. You can create and apply high-quality textures to the model and see shadows, light bounce, reflection, and even caustic light in glass elements. This allows you to create photorealistic or stylized renderings that can also be overlaid with imported alpha channel-enabled images.

Many rendering applications have a uniform look. With Renderworks, you can fully customize the rendering style, making the images your own and bringing them in line with your own style. You can even create an interactive AR or VR render of your model to share with your client. Out of the office working on a less powerful machine and need to render? Don't worry — if you're a Vectorworks Service Select customer, you can render in our Cloud. Your file will be processed on our servers and you will have a batch of PDFs to share with your clients.

DISPLAYING DATA AROUND OBJECTS

With data tags, you can pull all kinds of object information such as dimensions, volume, or custom record information. If changes are made to the object, the record and tags will be updated to reflect the change — no need to adjust the data twice. Vectorworks also offers a host of other dimensions tools that will update as objects are changed.

Aside from these main benefits, there are a number of reasons to use Vectorworks Spotlight. See how Vectorworks stacks up.

WHY MOVE TO VECTORWORKS? (CONT'D)

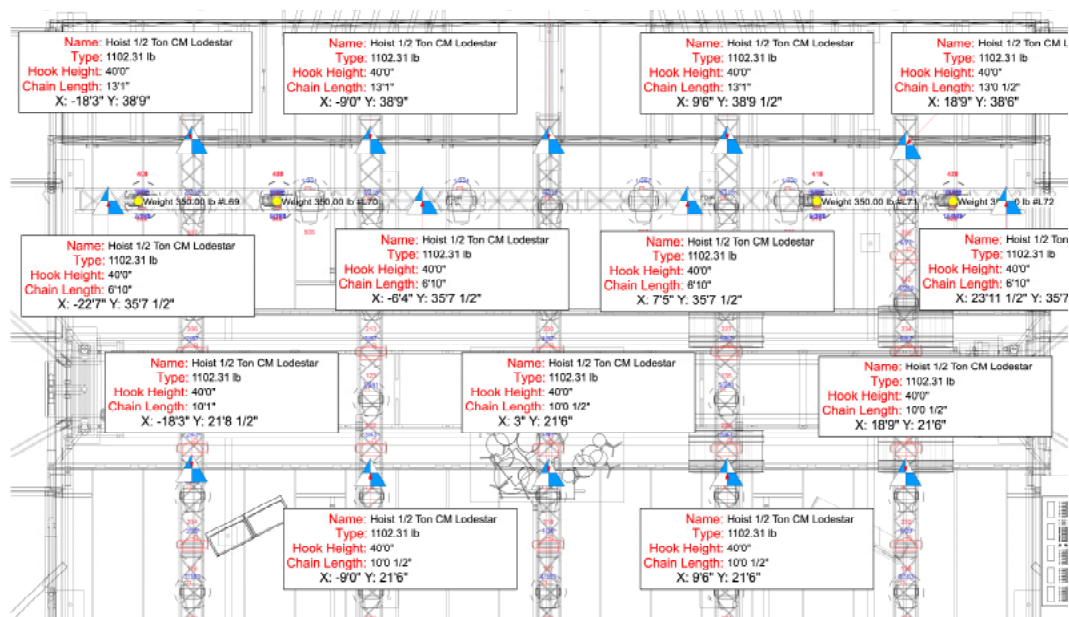


FIGURE 2: Rigging Hoist data tags containing Name, Type, and locational data.

Capability	Vectorworks Spotlight	Autodesk AutoCAD
Precision drafting	●	●
Staging Design tools	●	
Automatic drawing coordination	●	
Integrated rendering	●	●
Data extraction via worksheets	●	●
Pushing data via worksheets	●	
Photorealistic and artistic rendering	●	●
Lighting Design Tools	●	
Surface modeling	●	●
Solids modeling	●	●
Subdivision modeling	●	
NURBS modeling	●	●
Multi-user environment	●	
Cross platform application	●	
Data visualization	●	
Rigging Structural Analysis	●	
Integrated algorithmic design	●	

FIGURE 3: Vectorworks Spotlight vs. AutoCAD Comparison Chart.

HOW TO MOVE TO VECTORWORKS

GET UP AND RUNNING QUICKLY

You can begin drawing in Vectorworks straight away; just open a template file and you're good to go. With AutoCAD, there is a certain amount of repurposing of aspects of the software to align with your required industry-specific workflow. Vectorworks Spotlight was created with you in mind — its uniquely production-focused toolsets and plugins are there to streamline your workflow and effortlessly enhance and maintain your presentation and production drawing style. AutoCAD users must take a huge amount of care and possess highly disciplined organizational abilities to plan out their projects, resources, and layer structure. In light of this, Vectorworks allows creative professionals a greater flexibility and freedom when commencing a design. A lot of the hard, organizational work has been done for you and exists in the application's templates and resources. The only thing you need to think about is your design. The flexibility of Vectorworks Spotlight allows you to maintain your existing CAD workflows while maximizing its data and worksheet 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.

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.

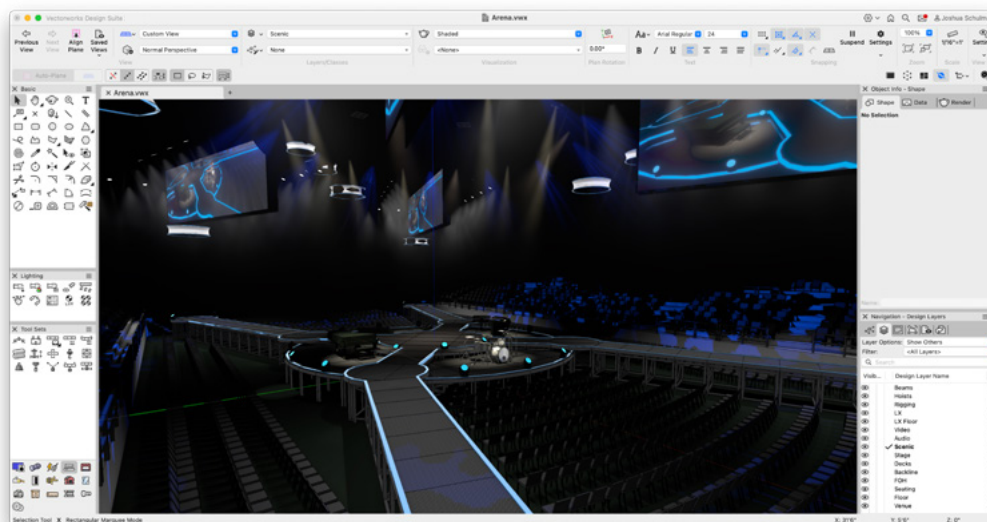


FIGURE 4: An example of the user interface in Vectorworks Spotlight.

HOW TO MOVE TO VECTORWORKS (CONT'D)

When you select a tool in Vectorworks, it will often have different modes to select in the Tool bar at the top of the drawing window. You can click them or scroll through each level of tool modes using the U, I, O, and P keys. The tools are organized in several “dockable” 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 — Lighting, Rigging, Event Design, Building Shell, 3D Modeling, Visualization, Furniture/Fixtures, Dims/Notes, and other detailing tools.

When you select an object in Vectorworks, the 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 the user to attach custom records (data) to the object, and the Render pane allows the user 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. This is similar to the class attribute settings but allows the designer to make object-based attribute settings if desired.

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](#).

AutoCAD Term	Vectorworks Term
AC Trim	Trim tool
Annotation tools	Dims/Notes tool set
Array (Polar, Rectangular)	Duplicate Array command
Attributes	Records, schedule worksheets
Block	Symbol or group
Block command	Create Symbol command (or Group command)
Break	Trim tool, Connect/Combine tool
Build Panel	Building Shell tool set
Chamfer 0 0	Join command
Circle	Circle tool, Oval tool

FIGURE 5: Portion of Table Comparing Vectorworks and AutoCAD Tools and Commands.

HOW TO MOVE TO VECTORWORKS (CONT'D)

FILE MANAGEMENT

Using a layer system in entertainment design processes is typical for most CAD solutions. Vectorworks provides additional aspects of file organization and visualization which involves Classes, Design Layers, and Sheet Layers. This provides a unique and intuitive method to produce and document drawings and models.

Classes are equivalent to layers in AutoCAD — they are a way to categorize an object. The graphic attributes of an object can be determined by an object's class; for example, the line thickness around a lighting symbol or the appearance of chair symbols in seating layouts. Chair symbol classes often occupy a "furnishing class." Classes are there to help you, and once mastered, Classes are another way to make large changes to the appearance of thousands of items with just a few clicks. It makes those daunting last-minute changes requested by the client easily achievable.

The Design Layer feature enables users to control the area or zones of work in which the project will take place (ground-plan, venue model, seating, staging, lighting, and truss/rigging). They can act like sheets of vellum for drafting and can also be given a scale.

You can easily modify the visibility of Layers and Classes in the Navigation palette, where each can be set to Visible, Greyed, 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. Some useful saved views could include close-ups on scenic detail, FOH, stage right, stage left, show deck, and floor level set construction — basically, any areas of a design that you constantly revisit.

Though Design Layers are similar to multiple model spaces in AutoCAD, they can also provide stacking order controls, so elements you need can always show "above" the stage, rigging, and so on without the tedious task of sending objects to the front or back.

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. These are essentially your Scenic layout/construction drawings. Your drawings can be laid out on sheet layers by creating viewports of your model.

HOW TO MOVE TO VECTORWORKS (CONT'D)

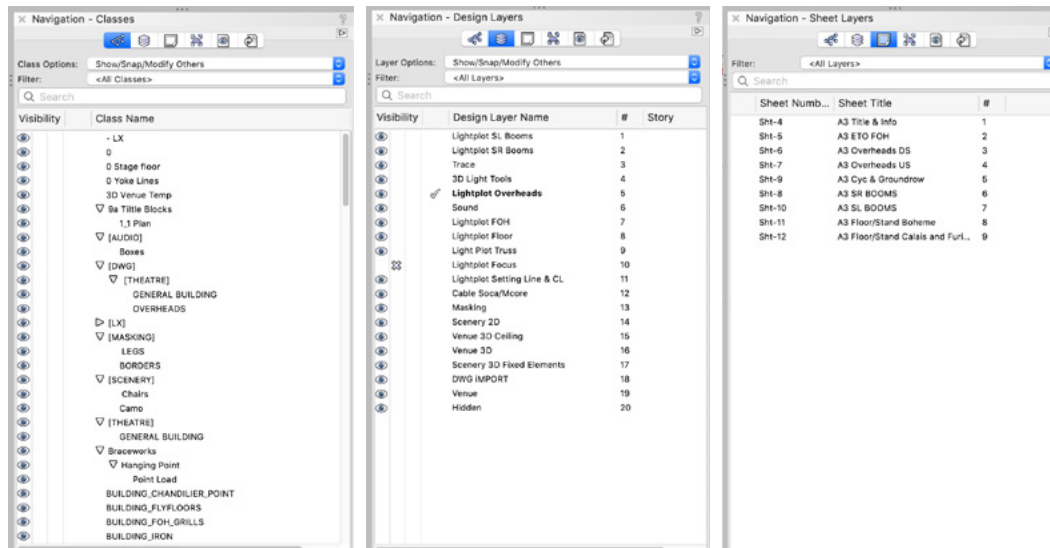


FIGURE 6: The Navigation Palette in Three of its Various States.

HOW TO MOVE TO VECTORWORKS (CONT'D)

THE RESOURCE MANAGER

The Vectorworks Resource Manager comes loaded with thousands of symbols and textures. Commonly used items like stage deck, ramps, steps, and more are built right into the default content and are ready for you to use. As you create geometry, you can choose from thousands of textures shipped with Vectorworks.

You can manage symbols, styles, worksheets, records, and other types of resources through the Resource Manager. Resources in Vectorworks are saved as regular Vectorworks files and can be either referenced or added to the current document

SYMBOLS AND STYLES

Symbols are common resources in Vectorworks. 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 innately carries 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 keep search time to a minimum, you can create a favorite file(s). There you can store any commonly used resources to speed up your workflow.

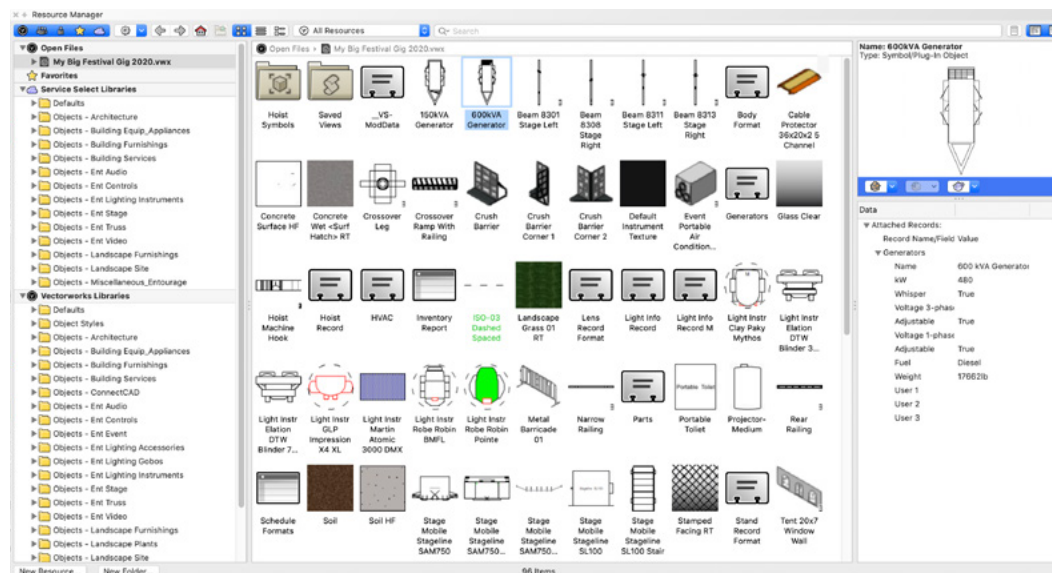


FIGURE 7: The Resource Manager.

HOW TO MOVE TO VECTORWORKS (CONT'D)

REFERENCING

As mentioned previously, Vectorworks Spotlight 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 tracked via the References pane of the Navigation palette, similar to the Reference Manager in AutoCAD. When you reference an external file, the layers you choose to reference within that file appear within the current document.

COLLABORATION

One of the key issues with entertainment design is poor communication, which often leads to expensive onsite mistakes during the build 'fit-up' or 'load-in' phase. Some common examples of this are the lighting or scenic department have to make changes for video projectors or speakers. These issues could be solved in the planning phase with Vectorworks' Project Sharing. In a project-shared file, a production coordinator can administer users' access and levels of control over a file. Each department can see the departments changes and plans in a live and constantly updating working file. Users can be allocated their own departmental layers in which to work or can check out layers that they would like to work on. To learn more about project sharing, [click here](#).

VERSATILE 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, thus associating those annotations to the viewport.

With Vectorworks' ability to work in 2D and 3D simultaneously, viewports offer several functions like "Viewport Overrides" that give you the ability to customize what is shown and how it looks without editing or affecting the original object. Create live elevation, section, and detail viewports to facilitate all aspects of visualizing and documenting your 3D-modeled site.

HOW TO MOVE TO VECTORWORKS (CONT'D)

Speaking of live viewports, the intelligent viewports are scale-aware, so the built-in labels recognize the viewport's scale and are coordinated. This means the change of location or number of a viewport is automatically noted in the viewport reference marker.

Another live aspect of Vectorworks' viewports is the ability to visualize the represented data. With this you can quickly color-code different parameters of objects in a drawing without affecting the original objects. For example, if you wanted to quickly show what drops belong to the house and which are being brought in for the show, you can use data already in the objects to show this in the viewport.

PRINTING AND PUBLISHING

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.

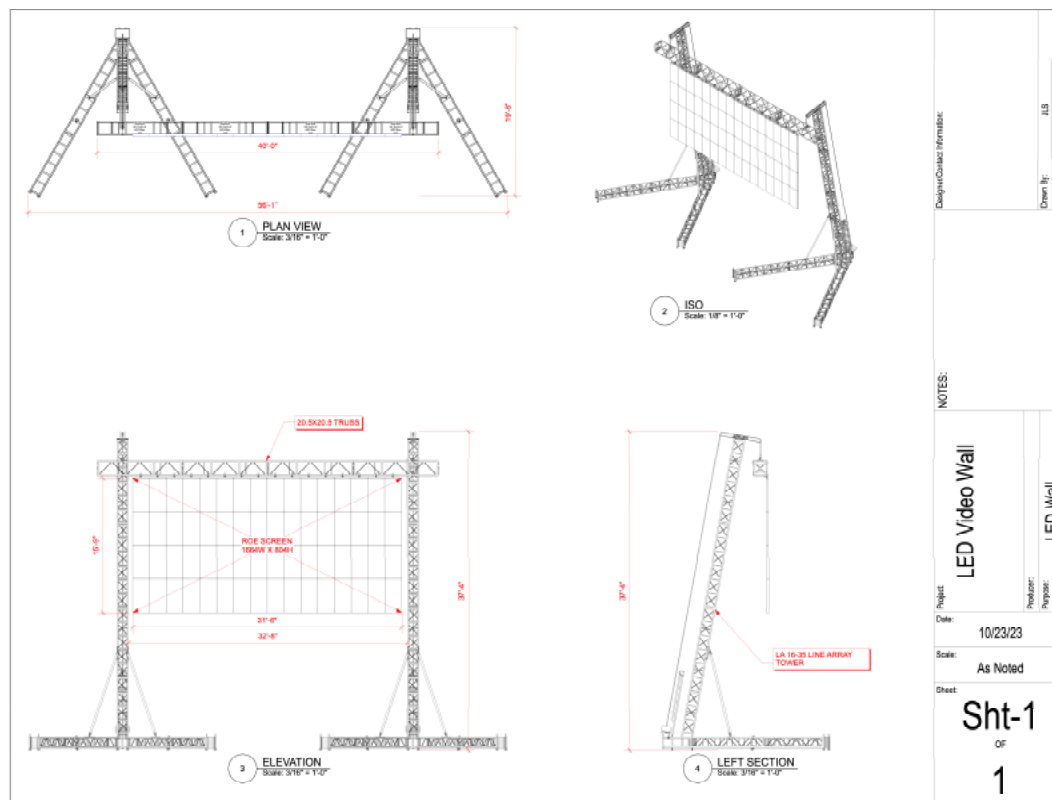


FIGURE 8: Four typical viewports showing different views: Plan, Isometric, Front Elevation, and Left Section of a LED Video wall.

CONCLUSION

Making the move to Vectorworks Spotlight will increase your efficiency and give you the entertainment-specific data, 3D modelling, CAD, and illustration capabilities you need, all in one program. Moreover, getting started can take no time at all. Vectorworks Spotlight has all of the entertainment industry resources you need to simply start designing. Open a template and off you go — no lengthy file set up process, no searching for content symbols and creating attributes for blocks.

When getting started, no need to fear — Vectorworks is here for you. Vectorworks understands the significant investment you'll make when purchasing Spotlight and will ensure you'll get the most out of your software as quickly as possible. Access to our online training and support is straightforward, and whenever you want to learn a new tool or perfect a workflow, the Vectorworks University is a great place to visit. In it you'll find a vast array of on-demand training content. And if you're looking for further support, other options include attending one of the many training courses we host or booking time with one of our industry specialists for a personalized one-on-one training session.

Vectorworks Spotlight has been designed with you in mind — it's not an application that has been repurposed to function. Vectorworks Spotlight has been created specifically for the entertainment industry and its unique and flexible workflows. It's an application created and designed to suit your needs, with menu items and tool sets that will revolutionize your workflow and make valuable inroads into reducing the time you spend drafting, leaving you more time to be creative.

LEARN MORE

about how Vectorworks can help you implement
and develop entertainment-specific workflows.

Email us at hello@vectorworks.net.