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written with version 2012

NEMETSCHEK Vectorworks

Vectorworks Architect

Tutorial Manual

Contents

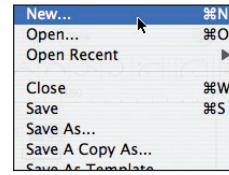
Step 1 File Setup

Document Setup

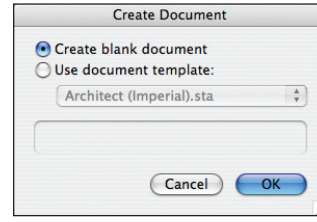
We will set up the file from the beginning, from a blank document. Vectorworks has set up commands to make it easier to set up the file. When you have set up the file, it can become a template file that you can use to start every new job, saving you a lot of setup time.

movie001.mov

- Go to the Menu bar.
- Choose **File > New...**



- This opens a dialog box for you to choose **Create blank document**.



- A blank file opens with a layer scale of 1:1 and a letter-size page.
- We should set up our page first.

Step 2 Property Line

When you want to draw a property line (site boundary) you will notice that surveyors usually use 0º for north while Vectorworks uses horizontally across to the right as 0º.

You may think that this causes us a problem. It doesn't because we have a tool that will translate the surveyors information into native Vectorworks information. This tool is called the **Property Line tool**.

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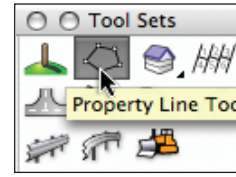
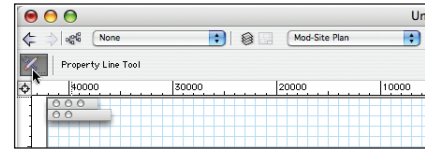
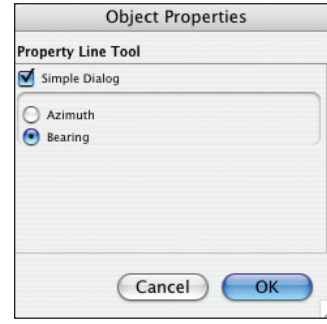
- Select the **Property Line** tool to draw the site.



- Go to the **Tool** bar.
- Click on the **Preferences** button.



- Choose the **Simple Dialog** option.
- Click on the **OK** button.



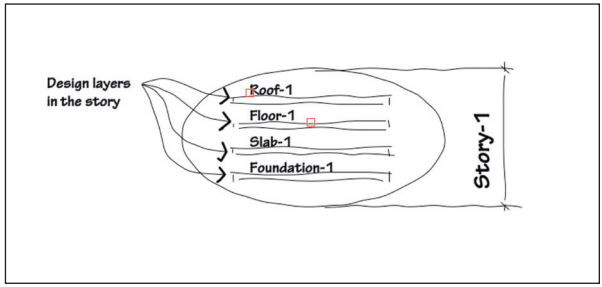
In some countries, surveyors always assume that the bearings are measured from north through east so that true north is 0º and true east is 90º. The simple dialog box works very well for this method. In other countries you will need to use N_E or N_W, depending on the bearings from the surveyor.

Step 3 Layer (Model) Setup

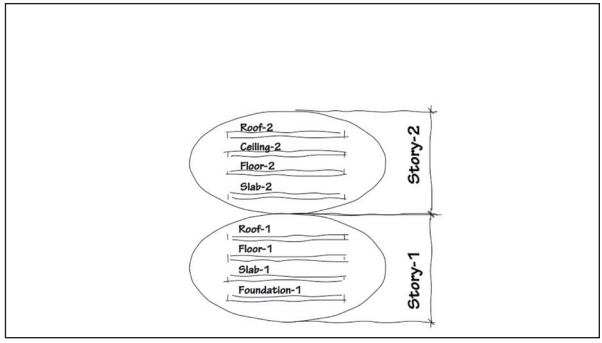
We need to break up the project into a series of manageable chunks to make it easier to draw the building. We will use Stories to control the elevation heights, design layers for modeling, and classes to control visibility and graphic style of object. If you are not familiar with layers and classes, please refer to the Vectorworks Essential Manual, which has a series of exercises to explain these.

Stories

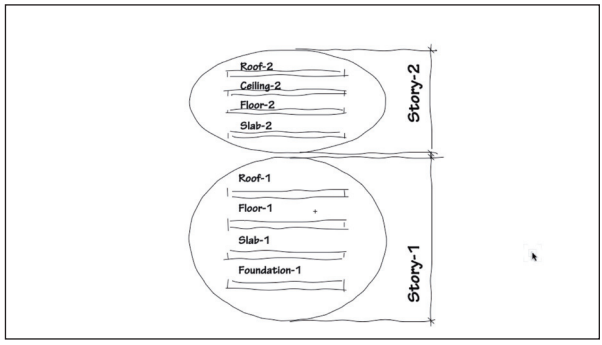
A story (storey) is a collection of design layers (foundation, slab, walls, and ceiling). The story settings control the elevation of the story relative to other stories.



When you have two or more stories, you have two collections of design layers.



The settings of each story are relative to each other. When you change the elevation of one story, it can adjust other stories above or below.



Step 4 Creating the Site Model

Creating a site model and a building model is an area of Vectorworks that really shows the advantage of working in 3D. With the site model we can visualize the site, the height-to-boundary or recession plane constraints, the sun position relative to the site, and the shading that other buildings, trees, and parts of the site will have on your building.

Building a site model gives you the ability to see on the screen what the constraints on your site are. You can use the site model to help sort out the bulk and location on the site, which is what we will be doing with our project.

Think of it this way. You have a tricky site with tight height-to-boundary problems. You build a site model so you can quantify the constraints. You can build a mass block model to sort out exactly how much you can build and where you can build it. Using a site model can help you to resolve the levels on the site as well as resolving the area that you can build. When you have sorted out the bulk and location, you can refine the design and use the recession planes when you submit your drawings to the local planning authority.

When you use Vectorworks this way, you can create a concept model in about 30 minutes. This allows you to check the site constraints, solar analysis and adjoining buildings. You can use the concept model to make better design decisions.

What is a Site Model?

A site model is a way of looking at 3D data (spot levels or contours) in a way that allows you to see complex models and plan representations. Vectorworks uses the 3D information to create the models based on the data to help you understand the plan and model nature of your site.

How Does It Work?

First you have to put in 3D data, such as spot levels, contours, or surveyor's data files. Then you ask Vectorworks to create a site model from this data. Vectorworks uses a set of algorithms to analyze the information and then creates the plan and model representations. The algorithms can be thought of as a set of mathematical assumptions that are used to calculate these parts. Because of these assumptions you may get some oddly shaped contours, or 3D models that don't look as you expected. A site model is not reality; it is a mathematical model of the data you give Vectorworks. The better the data you provide, the better the site model will be.

When you create a site model, Vectorworks will make an object that can show one type of information in a plan view (contours) and a different type on information if you are in a model view (3D contours, extruded contours, etc.). Using this hybrid object is a good way of combining the plan and model components into one object. If you are used to earlier versions

Step 5 Quick Bulk and Location

Now that we have the site, we need the existing building. We really need to see the existing building on the existing site before we start modifying the site model. First we will draw the walls for the lower floor and upper floor and then create a roof for the building.

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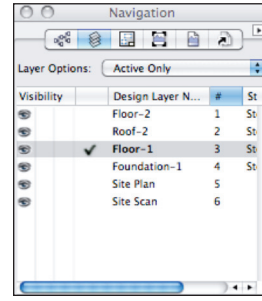
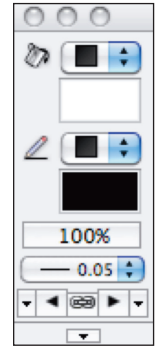
Creating the Lower Floor



- Change layers to **Floor-1**.
- Change the layer options to **Active Only**.
- The **Navigation** palette lets you carry out both of these instructions with the same palette.



- Before we get started, set the Attributes to a solid fill with a thin line.

Step 6 Concept Drawings

Now that we have our concept model, we can set up the concept drawings. We can do this even though we haven't completed the design.

Preparation

Using classes for your objects gives you a lot of flexibility for controlling, changing objects, and creating drawings. We will have to create some classes, edit them and assign objects to these classes.

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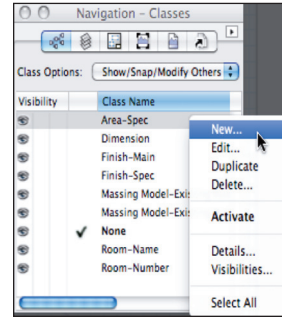
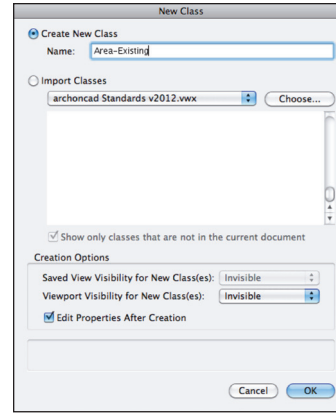
- Go to the Navigation palette.
- Right-click and choose **New...**



- Create a Class for existing areas.
- Choose **Visible** for the viewport visibility.
- Check the option to **Edit Properties**...
- Click on the **OK** button.



Step 7 Creating The Walls

Why use walls? First, most of you are drawing buildings and so need to show walls in plan. There are two ways to do this—either by drawing lines to represent the wall or by using the Wall tool to draw all the lines and cavities on the wall that you specify. The Wall tool makes it fast to draw a plan of a building.

For most architects and designers the Wall tool is fundamental to modeling a building. Mainly you will be drawing plans to describe the work to be carried out. The Wall tool not only draws the plan parts of the walls with cavities, cladding, and so on, but it also uses the layer heights to extrude the walls for you. This is why it's important to set up the layers first.

We will be creating wall styles. A wall style allows you to create a wall that you can re-use again and again. A wall style will know how high it needs to be, as well as what components (wall parts) should be in the wall. Wall styles can be copied form one file to another, and you can make a library of wall styles for quick and easy access.

If you need more information on joining walls, healing walls, and creating walls, refer to page 243.

Creating Basement Walls

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- Change the active layer to **Floor-1**.
- Change the layer options to **Active Only**.
- Use the **Navigation** palette for this. It's quick!
- Go to the **Building Shell** tool set.
- Choose the **Wall** tool.

- Before the Wall tool can be used, you have to define the width of the wall (Wall Separation) and any components (cavities) that you want to include.

- To set up the components and the separation, click on the Wall Preferences button on the Tool bar. This will open the Wall Preferences.