NEMETSCHEK Vectorworks



Vectorworks Architect Tutorial Manual

by Jonathan Pickup

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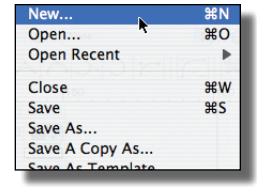
Step 1 Layer and Model Setup

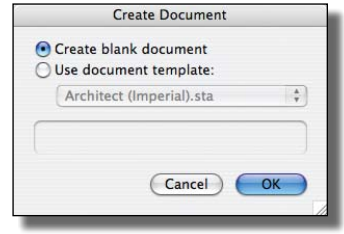
Document Setup

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.

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

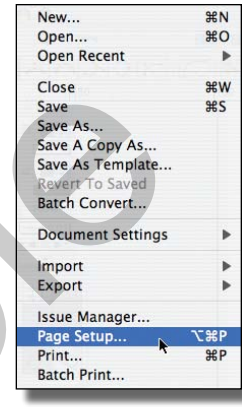


- This opens a dialog box for you to choose **Blank Document**.

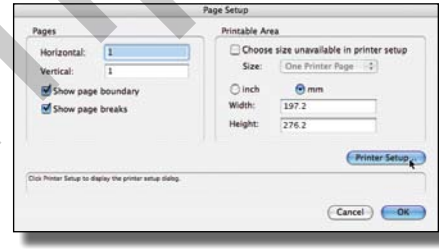


- A blank file opens with a layer scale of 1:1 and a letter-size page.
- We should set up our page first.

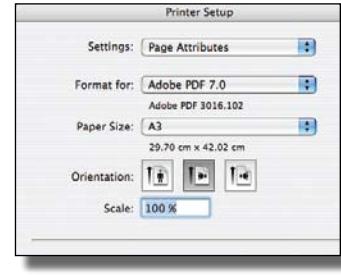
- Go to the **Menu Bar**.
- Choose **File > Page Setup...**
- This opens a dialog box for you to set up the page size.



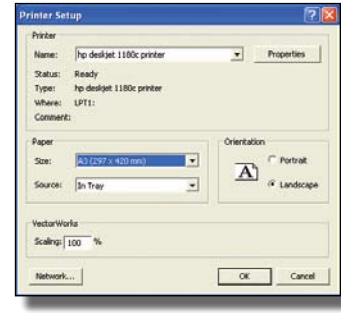
- This dialog box allows you to set up the printer that you are using.
- Click on the **Printer Setup...** button.



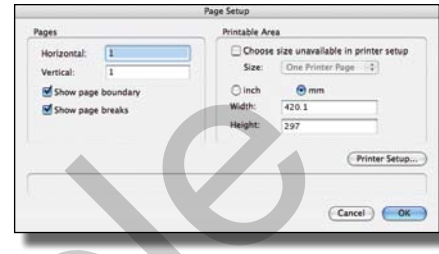
- This dialog box will vary depending on your printer.
- On a Macintosh the dialog box will look similar to this picture. Set the printer, page size and page orientation.
- Click on the **OK** button.



- On a Windows machine the dialog box will look similar to this picture. Set the printer, page size and page orientation.
- Click on the **OK** button.



- This takes you back to the Page Setup dialog box.
- Our drawings are going to be set up using Viewports, so the page boundary won't be meaningful on our design layers.
- Turn off **Show Page Boundary.**
- Turn off **Show Page Breaks.**
- Click on the **OK** button.

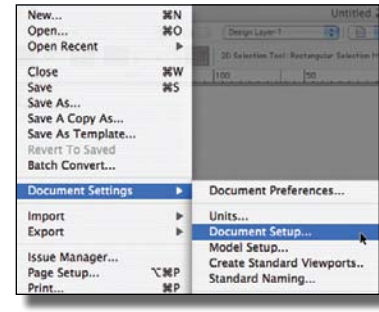


- Vectorworks shows the new drawing area.

The reference grid may not appear on the screen due to the density of the grid at a particular scale and page size.

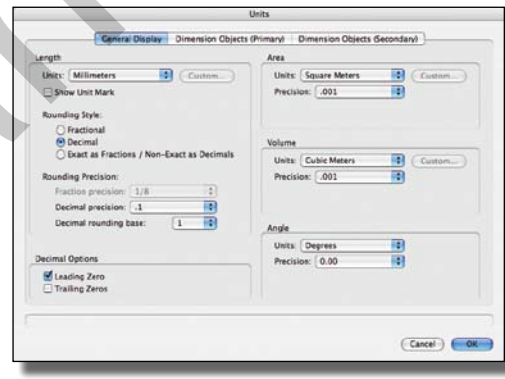
- Go to the **Menu Bar**.
- Choose **File > Document Settings > Document Setup...**

Document Setup is a quick way to set up the drawing when you are starting a new project.



- On this dialog box we get the opportunity to check the setup of the project as a whole: the units, layer scale, drawing area, grid setting and the title block size.
- Click on the **Drawing Units: Change...** button. This will open the Units dialog box for us to set up the drawing units, primary dimensioning, secondary dimensioning and area and volume units.

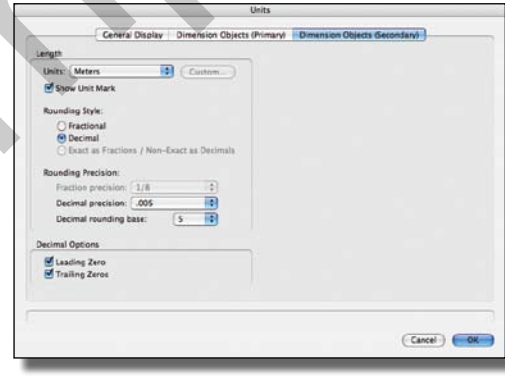
- Set your **General Display** units to the settings that you want.



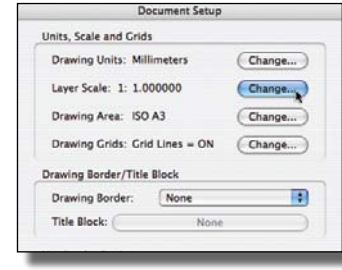
- Set the **Dimension Objects (Primary)** to the settings that you want.

- The settings might start in feet and inches.

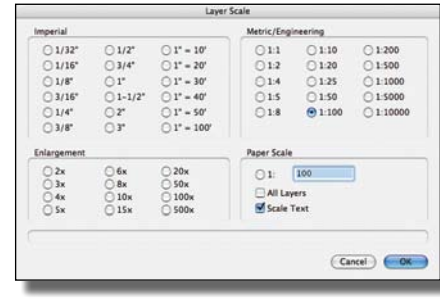
- Set the **Dimension Objects (Secondary)** to the settings that you want.
- Click on the **OK** button.



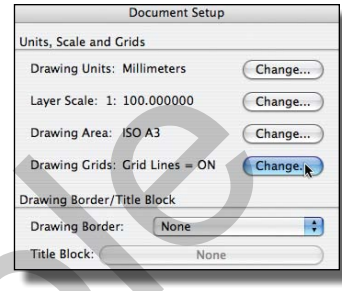
- Click on the **Layer Scale: Change...** button. This will open the Layer Scale dialog box for us to set the scale of the current layer.



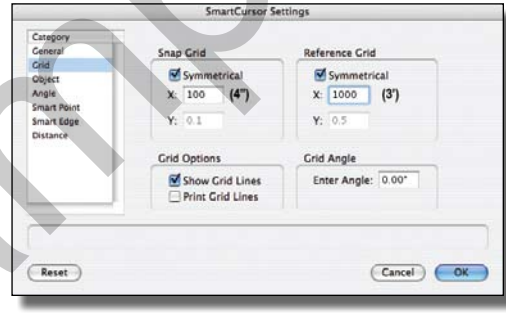
- Set your Layer Scale to **1:100** for metric drawings or **1/8 (1:96)** for imperial drawings.
- Click on the **OK** button.



- Click on the **Drawing Grids: Change...** button. This will open the Set Grid dialog box for us to set the snap and reference grids for our file.



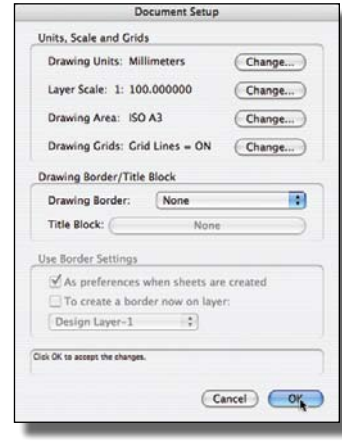
- Choose **Grid** on the left hand side.
- For metric drawings set the snap grid to **100mm** and the reference grid to **1000mm** .
- For for imperial drawings set the snap grid to **4"** and the reference grid to **3'**.
- Click on the **OK** button.



The reference grid may not appear on the screen due to the density of the grid at a particular scale and page size.

The Document Setup dialog box now shows you your setup...

- Click on the **OK** button.



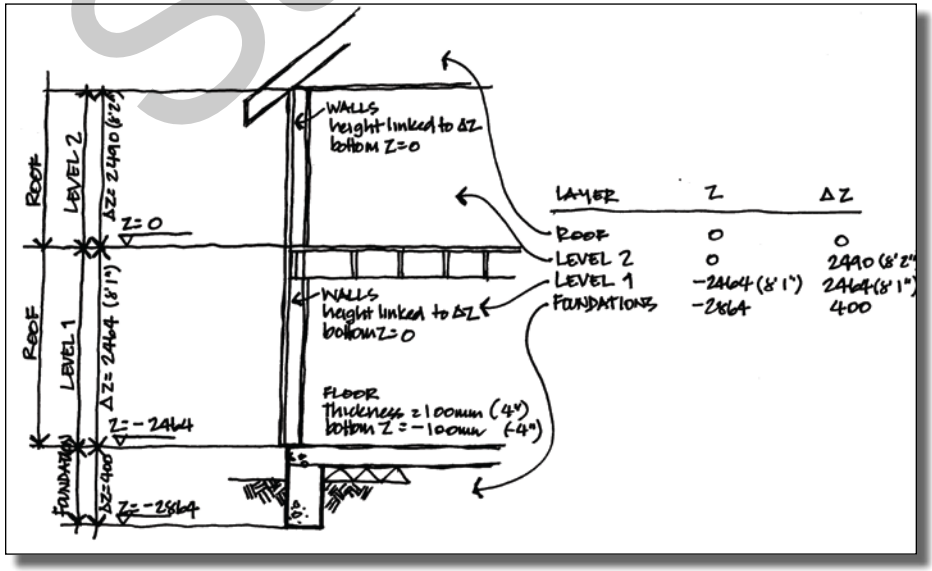
Layer Setup (Model Setup)

We need to break up the project into a series of manageable chunks to make it easier to draw the building. These chunks are called layers, and at the beginning we will have a layer for each storey of the building, a layer for the site plan, a layer for the site survey data and a layer for the contour plan.

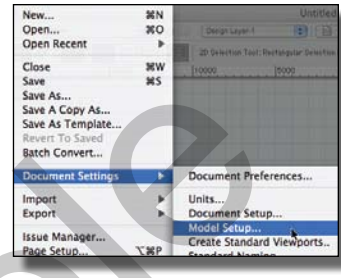
If you are not familiar with layers please refer to the Vectorworks Essential Manual, which has a series of exercises to explain layers.

We can create a few layers now to draw the existing building, then add more layers later as we need them. There is a way to have a file set up with most of the design layers and sheet layers, called Layer and Class standards. This allows you to grab a few layers when you want them. For more information on creating a Layer and Class Standard, refer to the Vectorworks Productivity Manual available from www.archoncad.com or www.Vectorworks.net**.**

One way of creating the layers is to use the Model Setup Command. This will create some of our layers for us and input the correct heights. It's also a graphical way of creating the layers at the right height, so it will make it easier to understand layers and their heights. Our building is similar to this sketch, and we will use these dimensions for our model setup.



- Go to the Menu Bar.
- Choose **File > Document Settings > Model Setup...**

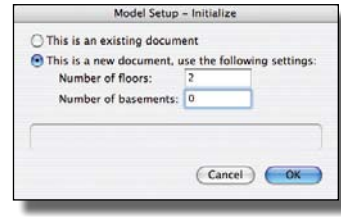


This command is for setting up the project as a model, setting the number of floors, the heights of the floors, etc.

We had a house with foundations (400mm high), ground floor slab (100mm thick), a lower floor with a stud height of 2464mm, an upper floor with a stud height of 2490mm and a roof.

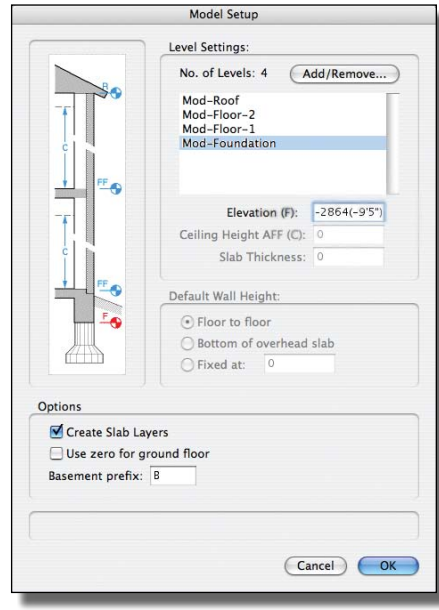
The Model Setup dialog box can be used to set up all the model layers for this project, but we will still need to add other layers to help us make this project. When you use this command on a new file, you get the first dialog box to set up the number of floors.

- 2 floors (the basement will be the lower floor).
- No basements.
- Click on the **OK** button.

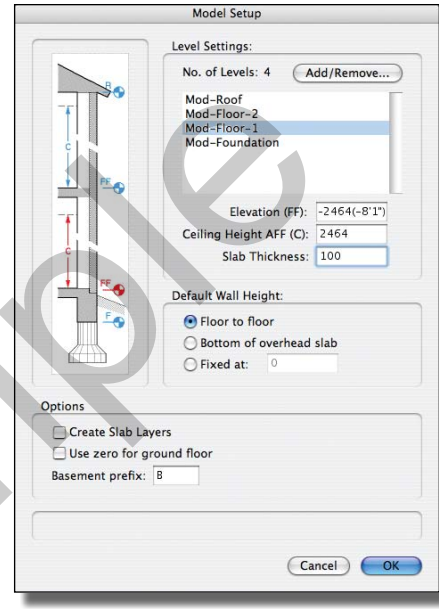


On the next dialog box, set the layer heights for each layer of the project.

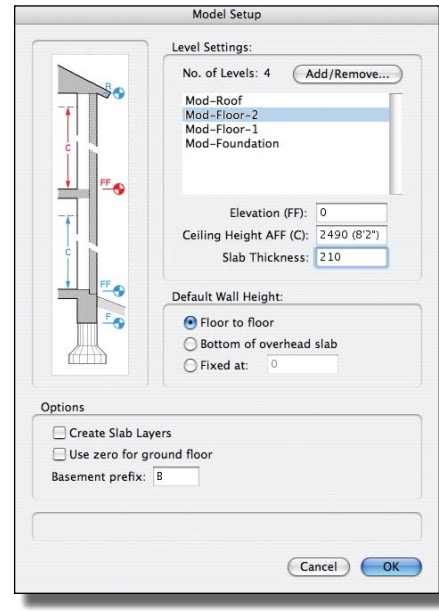
- For this project we will not be using the correct project levels for the layer heights. We will use the upper floor as the main floor. This will be set at **Z=0**, and all the other floors will be related to this.
- The foundation should be below the ground floor slab. The foundations will vary due to the site conditions, but enter an elevation value of **-2864mm (-9'5")** (so that the foundations are **400mm (1'4")** below the lower floor).



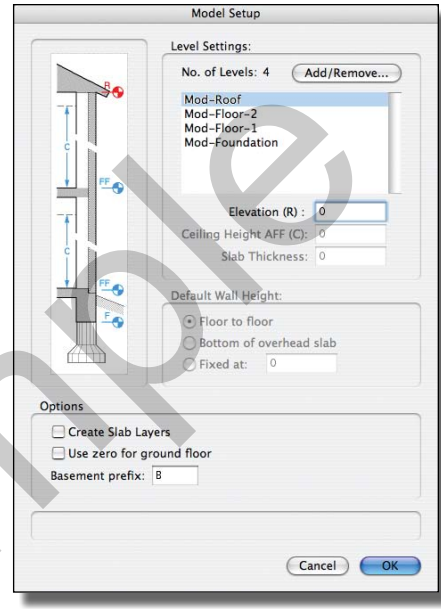
- The lower floor, Mod-Floor-1, has its Elevation set to **-2464mm (-8’1”)** (so that it is below the main floor).
- The walls will go from the top of the slab to the top of the floor above, so the Ceiling Height need to be **2464mm (8’1”)**.
- The slab thickness for this project is 100mm (the floor is a concrete slab).
- Turn off the option to create Slab Layers, which would give us extra layers that we don’t need.



- The upper floor, Mod-Floor-2, is the main floor, and we want to set its Elevation to 0.
- The walls will go from the top of the floor to the underside of the roof above, so the walls need to be **2490mm (8’2”)**.



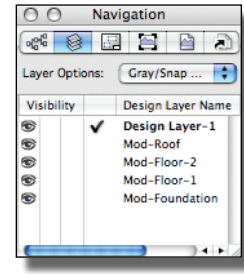
- Finally the roof has its elevation set at **Z=0**. This allows us to use the bearing height of the roof to control the 3D height of the roof.



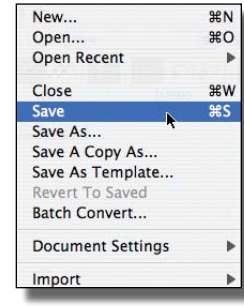
This is the easiest way to control the roof. You can use the bearing height of the individual roof planes to control the height rather than the layer height.

- Click on the **OK** Button.

- You can see all the new layers in the **Navigation** palette.
- We can edit the layers in the Navigation palette, but the Organization dialog box gives us additional information.



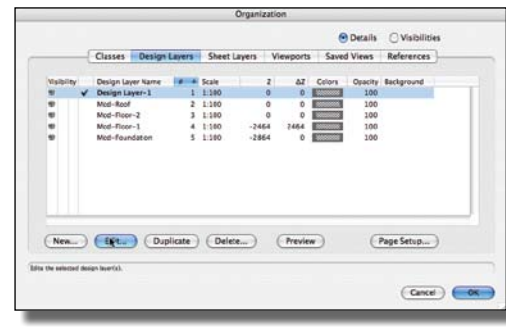
- Before you do anything else, make sure that you save your file. Get into the habit of saving your file on a regular basis.
- From the Menu Bar choose **File > Save...**



- Save the file into a job folder where you store all your other projects.

- Open the Organization dialog box by clicking on the Layer button. The Model Setup command is not perfect and needs some help to set up the project we want to draw.

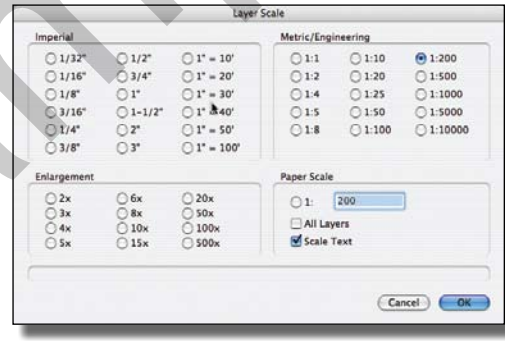
- Notice that for the floor and roof layers there is no ability with the Model Setup to make 2 roofs. If you had a project that needed an upper roof layer and a lower roof layer, you would have to add a new roof layer.



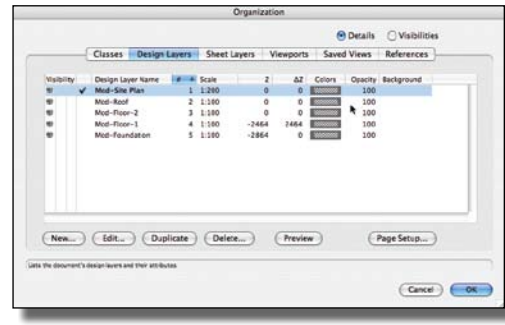
- Select the layer **Design Layer-1**.
- Click on the **Edit** button.
- Type in the name of the new layer: **Mod-Site Plan.**

- Click on the **Scale** button.

- Change the scale to **1:200**.
- Click on the **OK** button.

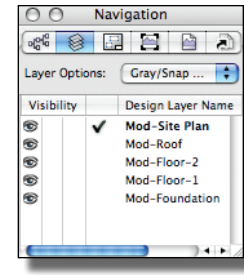


- Now the layers have the settings that we want.
- Click on the **OK** button.



The layer scales can be changed at any time.

- Right mouse click on any layer in the Navigation palette to edit, duplicate or remove layers.

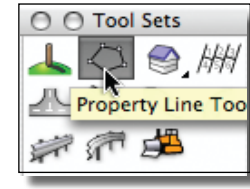


Step 2 Property Line

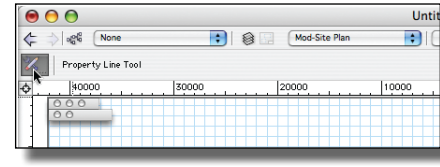
When you want to draw a property line (site boundary) you will notice that surveyors usually use 0º for North while Vectorworks uses horizontally across to the right as 0º.

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**.

- Make sure that the Active Layer is **Mod-Site Plan**.
- Select the **Property Line Tool** to draw the site.



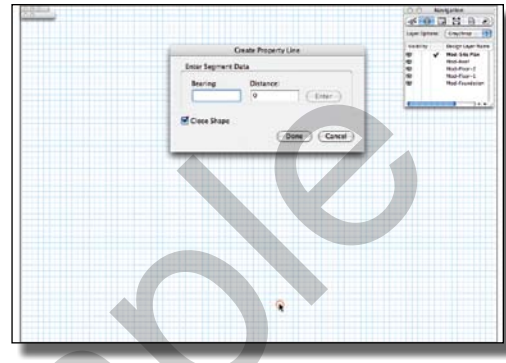
- Go to the **Tool Bar**.
- Click on the **Preferences** button.



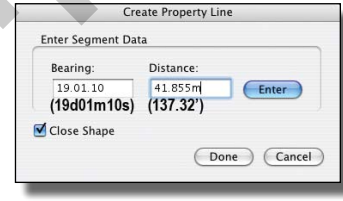
- Choose the **Simple Dialog** option.
- Click on the **OK** button.

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.

- Click once in the drawing area, near the bottom, to start.
- The Create Property Line dialog box will open.
- Type in the surveyors bearings from the plan. You can use a decimal point between the degrees, minutes and seconds, or you can use **DMS** for the degrees, minutes and seconds.

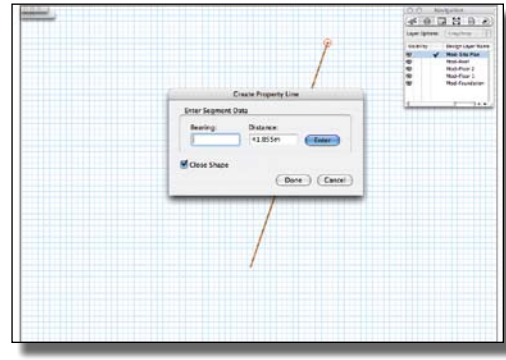


- Type in the bearing, **19.01.10 (19d01m10s)**.
- Type in the bearing length **41.855m (137.32').**

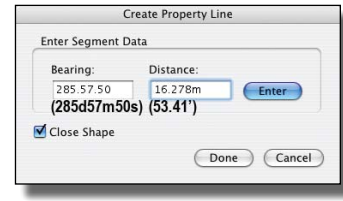


- Click on the **Enter** button or hit the **Enter** key and you should notice a line on the screen.

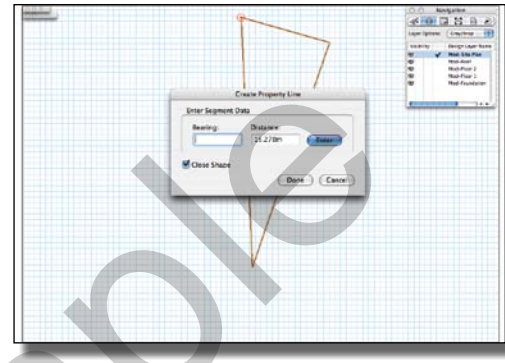
Vectorworks draws the first boundary line.



- Type in the second distance and bearing.
- Type in the bearing, **285.57.50** (**285d57m50s)**.
- Type in the bearing length **16.278m (53.41')**.
- Click on the **Enter** button or hit the **Enter** key.

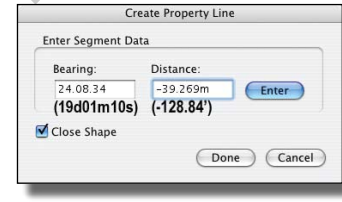


- Vectorworks draws the next boundary line and connects it to the first boundary.

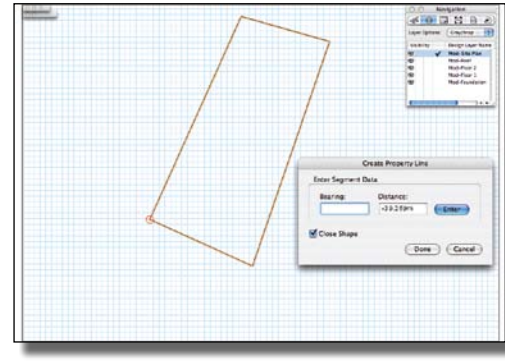


Sooner or later though, you will find that the surveyor has measured the boundary in the opposite direction to the way you are drawing it. Don't worry about this. Type in the bearing normally but type in the distance as a negative distance. You will find that it works out OK.

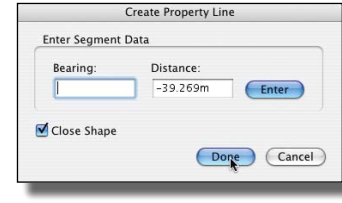
- Type in the bearing, **24.08.34 (24d08m34s)**.
- Type in the bearing length **-39.269m (128.84').**
- Click on the **Enter** button or hit the **Enter** key.



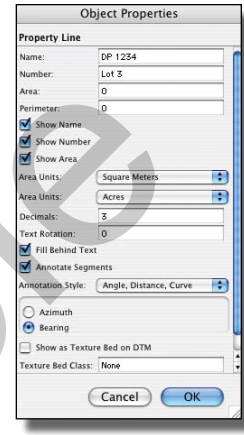
- The site is complete if you click on the **Close Shape** tick box.



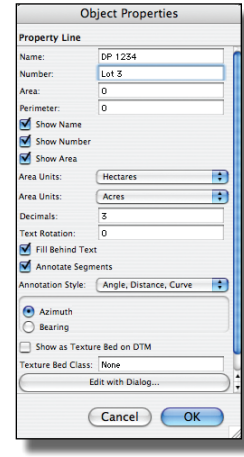
- Click on the **Done** Button.



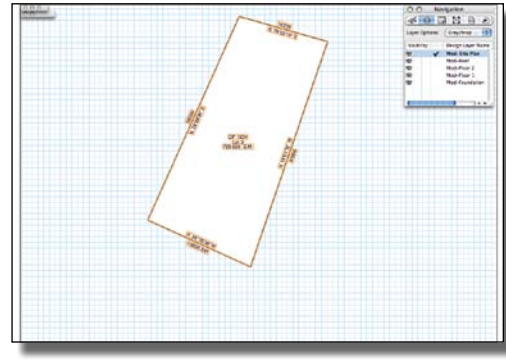
- The Object Properties dialog box appears asking for information about the Site Name and Number.



- Use this as an example of what to enter.
- Click on the **OK** button.



- Your site boundary is completed.



This is an easy way to create the property line. For information on other ways to create a property line refer, to the Vectorworks Productivity manual available from www.archoncad.com.