

VECTORWORKS ARCHITECT

EIGHTH EDITION TUTORIAL MANUAL

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For more Vectorworks training information or to purchase more copies of this book, please visit www.Vectorworks.net/training, or call us at (410) 290-5114.

There are several people I would like to thank: Mike Moore, Steve Scaysbrook, Roger Williams, and Bill Vincent. Without them, none of my manuals would be as good as they are.

A big thank you to my wife, Marie, and my kids. I need your support and understanding to spend the hours required to create these manuals.

Jonathan, January 2016

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Introduction: How to Use this Manual

Here are some tips that will help Vectorworks users to get started and trained quickly:

1. Work right through the manual. Some of the exercises may not seem appropriate. Don't worry about that; try them anyway. The information in this manual will not find its way into your head if you don't complete the exercises.
2. While reading the manual is good, reading the manual and watching the movies is better. However, reading the manual, watching the movies, and completing the exercises has the best results. Watch the movies, try the exercise, and then play the movie again.
3. Allow yourself two weeks to work through this manual. Some of my clients allow their new workers two full weeks to work through this manual. They are expected to complete the manual in one week and then repeat the exercises. In the second week they should be able to repeat the exercises a couple of times. I have been told that, at the end of this time, the workers are up to speed and are useful Vectorworks technicians.
4. This manual covers a lot of ground, and you might feel that there is too much content to absorb. It's all there for a reason. This is what you need to know to use Vectorworks well.

Measurements are shown in both metric and imperial. Metric measurements are shown first, followed by imperial measurements in parentheses. If you are using metric, don't type in the imperial measurements; if you are using imperial, don't type in the metric measurements. Just use the measurements inside the parentheses.

This manual comes as a hard copy with one DVD. There are two exercise folders on the DVD. One is called "Architect Exercises," and the other is called "Completed Exercises." Copy both folders to your computer. Copy the exercise folder to a location that will make it easy for you to find. Save any training files that you work on to your exercise folder.

When you want to play a movie that is shown in the printed manual, insert the DVD into your computer and open the file on the DVD called "Architect Tutorial Manual.pdf." This is your electronic copy of the manual, and it contains links to all the movies. Make sure that you open the PDF with Adobe Acrobat Reader. Other PDF readers may not play the movies correctly.

To play a movie from the electronic copy of the manual, move your cursor over the movie icon (the cursor will change shape) and click once. When the movie is finished, it will automatically close. Use Adobe Acrobat Reader to read the manual and play the movies; use Vectorworks to do the exercises.

Comments and discussions are shown like this.

- Instructions for you to complete are shown like this.

Tips: Useful tips are shown like this.

This manual builds on the Essential Tutorial Manual, which is designed to show you basic concepts of Vectorworks, such as simple drawing, simple modeling, and basic file organization. If you are unfamiliar with these concepts, you should get this manual and complete it before you go any further.

New Ways of Drawing

When you are drawing in Vectorworks, draw the objects to the correct real-world sizes regardless of the scale of the layer that you are working on.

It is much easier to maximize the potential of Vectorworks by using objects to draw with because they can be easily edited (for example, doors, windows, rectangles, etc.). You could say that Vectorworks is designed to draw with objects.

When you want to draw shapes, you may be tempted to use lines and arcs to draw the shape. Always try to draw with solid shapes, rectangles, and polygons. I have created a series of exercises that show you how to make complex shapes out of simple shapes by adding the shapes together or by clipping a portion of a simple shape away to make a complex shape.

It's very important that you use these new drawing methods to draw your buildings, landscapes, or engineering models.

Vectorworks Architect Workflow

In this manual we will be working through a domestic project for a client. Even though we are using a domestic project, Vectorworks is designed to be used for commercial and industrial work as well. The concepts we cover in this manual are useful in domestic and commercial work.

One of the main concepts in using Vectorworks Architect is called Building Information Modeling (BIM). This means is that as you draw a wall in Vectorworks, it is more than a plan representation of a wall. The wall has texture, knows when a window is inserted, and can have information attached to it. Many parts of the Vectorworks drawing are much more than they seem. A door, for example, is more than the plan representation of the door. It has a model part, and you can attach information about the door, door hardware, or even the supplier and cost of the door. This information can be generated as a report whenever you want it.

Live sections and elevations are a development of the Building Information Model that allow you to keep the sections and elevations up to date as you change the form of the building.

In this manual we will start with an empty drawing file and work through the steps needed to create a concept design, developed design, and contract documents.

Most times, you will start with a blank file, so that's how we will start. This will give us the opportunity to look at document setups: the page setup, the units setup, the dimension settings, and text styles.

Our first task is to draw the existing site. We start with the property line. The property line is the site plan, which you can draw from information like the certificate of title, Google Earth, and so on. We will start using the information from the surveyor.

Then we will create a site model, which is a model representation of the spot levels on the survey drawings. This allows us to see the constraints on the site as models in order to turn the model around and look at the constraints from many different views.

We will create our concept model using spaces. Spaces are great. They allow you to make a model of your concept in a very short time. We can link this to our site to see how the concept relates to the site constraints. This is an important step because we can easily make changes to the concept model and see how the changes relate to the site constraints. We could check the recession planes, solar studies, the effects of the neighbors, and so on. We can use this to make better design decisions.

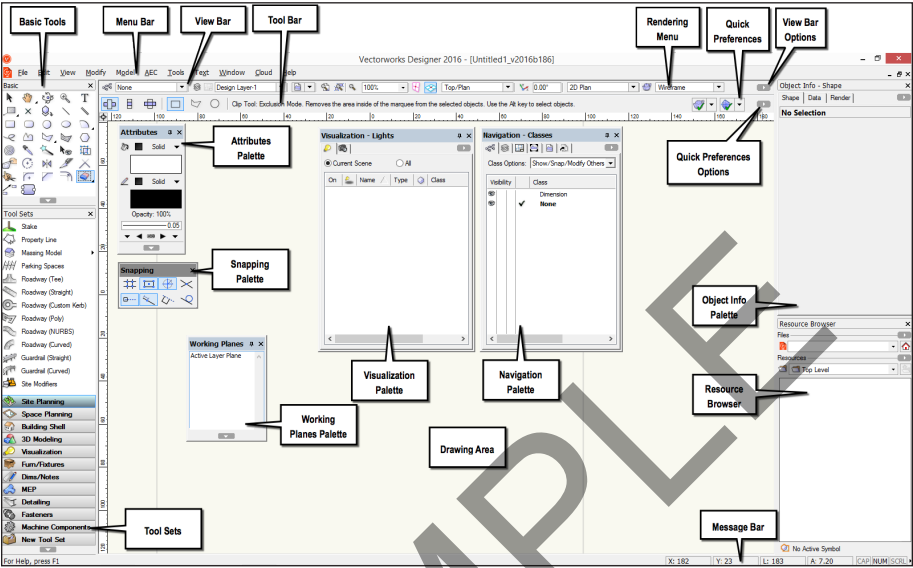
You could show the client the concept drawing at this point with the form of the building. Showing the clients a model of the concept will help them to understand your visions, and it will help to develop trust with your clients. Using BIM, we can then use the model to create the drawings.

We will assume that the clients approve the design, so we can look at design development. This means taking the concept and turning the spaces into walls, doors, windows, slabs, roofs, and so on. We can copy the concept drawings and edit them to show the developed design with very little extra work.

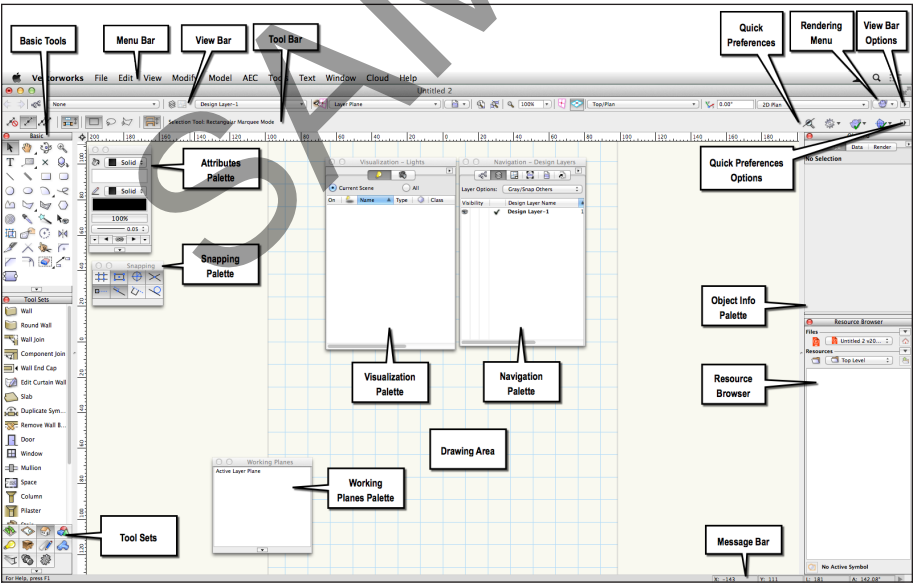
We will finish off the manual with a section that discusses ways of creating the contract documents. There is more than one way to create the drawings, so we will look at the concepts around creating the drawings, which will allow you to make your own choices.

When you finish this manual, you will have a file with most of the layers, classes, viewports, and so on that you need for most two-story projects. This file can then be saved as a template file, or you can use the file to start your next project by using the Save As... command from the File menu.

When you start Vectorworks Architect, it looks like this on a Windows machine:



When you start Vectorworks Architect, it looks like this on a Macintosh:

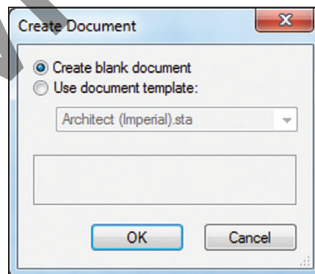
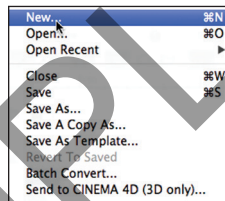


Step 1 File Setup

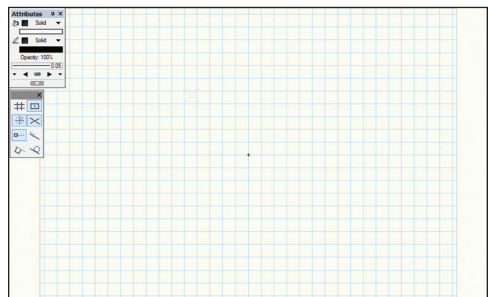
Document Setup

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.

- Go to the Menu bar.
- Choose **File > New...**
- This opens a dialog box for you to choose **Create blank document**.

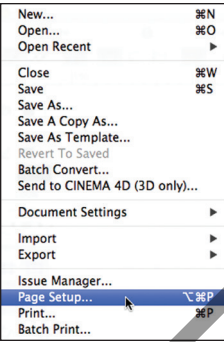


- A blank file opens with a layer scale of 1:1 and a letter-size page.
- We should set up our page first.



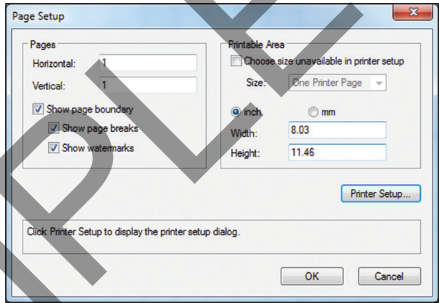
- Go to the **Menu bar**.
- Choose **File > Page Setup...**

This opens a dialog box for you to set up the page size.



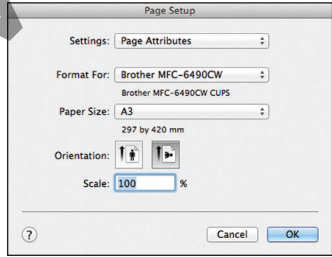
This dialog box allows you to set up the printer that you are using.

- Click on the **Printer Setup...** button.

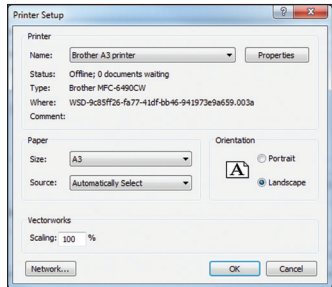


This dialog box will vary depending on your printer.

- 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.



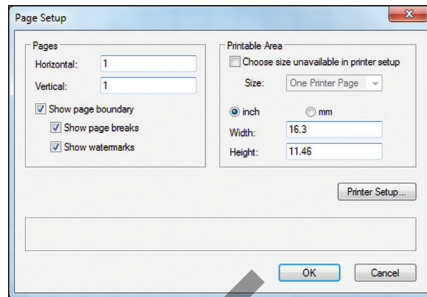
- On a Windows machine, the dialog box will look similar to this picture. Set the printer, page size, and page orientation.
- Click on the **OK** button.



This takes you back to the Page Setup dialog box.

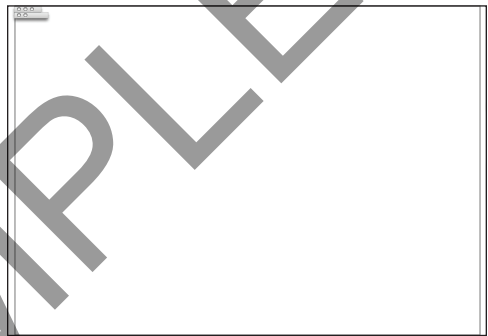
Our drawings are going to be set up using Viewports, so the page boundary won't be meaningful on our design layers.

- Turn off **Show Page Boundary**.
- Turn off **Show Page Breaks**.
- Click on the **OK** button.



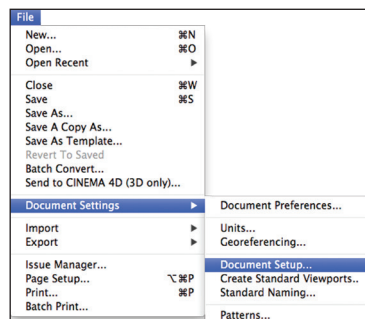
Vectorworks shows the new drawing area.

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



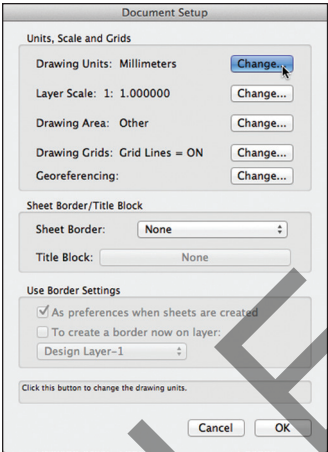
- Go to the **Menu** bar.
- Choose **File > Document Settings > Document Setup...**

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

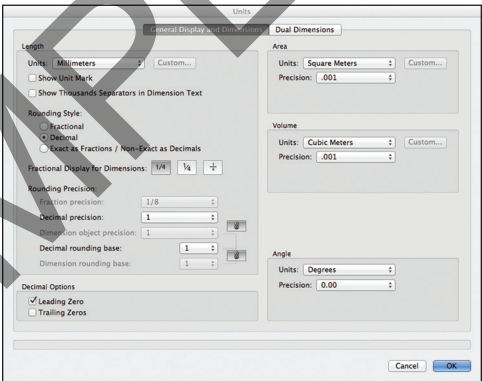


In this dialog box we get the opportunity to check the setup of the project as a whole: the units, layer scale, drawing area, grid setting, and the title block size.

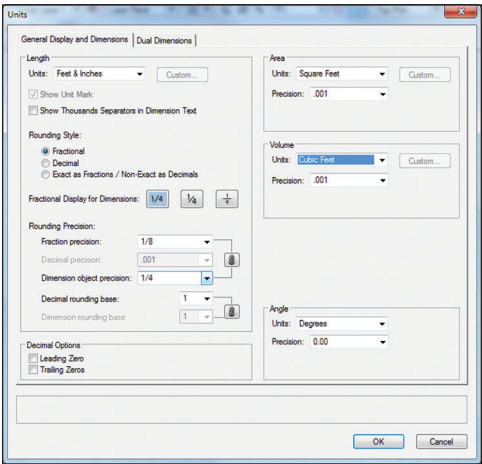
- Click on the **Drawing Units:** **Change...** button. This will open the Units dialog box for us to set up the drawing units, primary dimensioning, secondary dimensioning, and area and volume units.



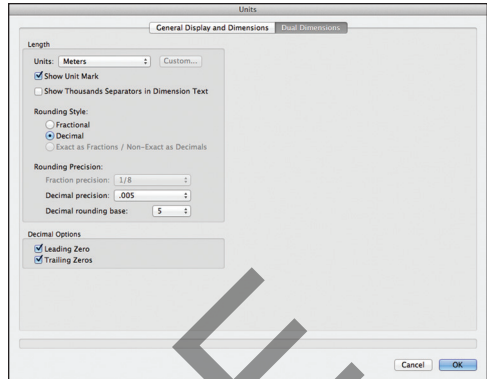
- Set your **General Display and Dimension** units to the settings that you want.



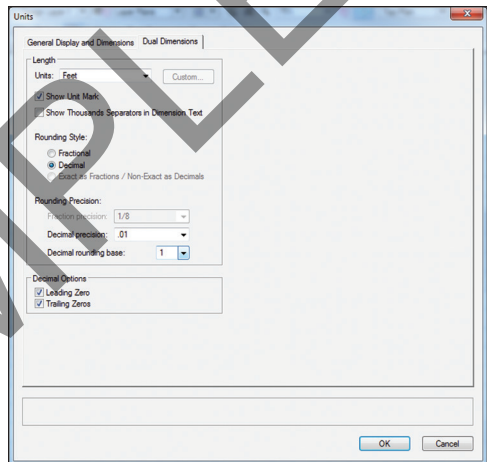
The settings might be in feet and inches.



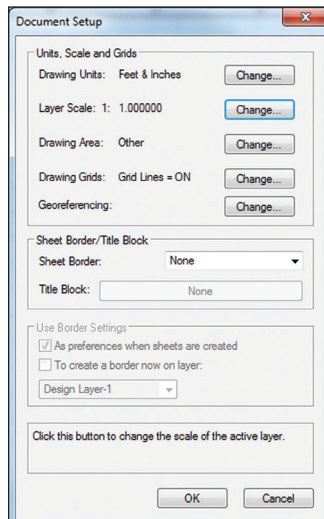
- Set the **Dual Dimensions** (secondary units) to the settings that you want.



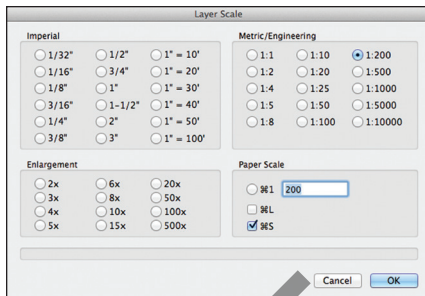
- You can mix the dimensions types with the Dual Dimensions.
- Click on the **OK** button.



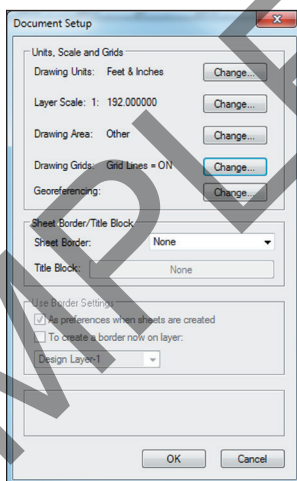
- Click on the **Layer Scale: Change...** button. This will open the Layer Scale dialog box for us to set the scale of the current layer.



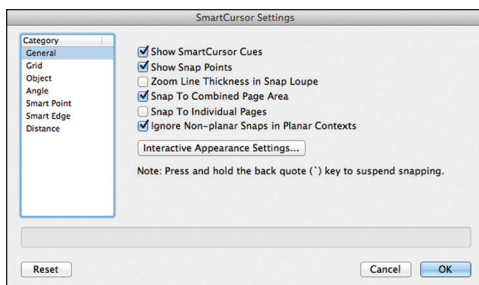
- Set your Layer Scale to **1:200** for metric drawings or **1/16 (1:192)** for imperial drawings. We will start by drawing the site plan, so this scale should be suitable.
- Click on the **OK** button.



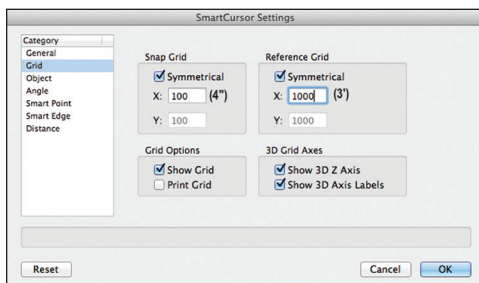
- Click on the **Drawing Grids:** **Change...** button. This will open the Set Grid dialog box for us to set the snap and reference grids for our file.



- Choose **General** on the left-hand side.
- Set the option as shown on the image.



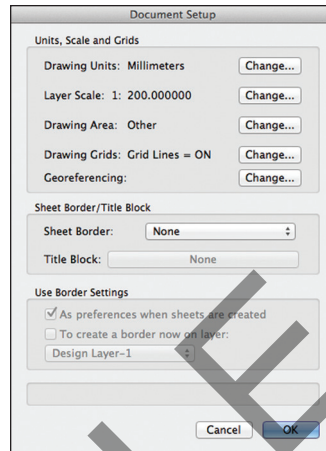
- Choose **Grid** on the left-hand side.
- For metric drawings, set the snap grid to **100 mm** and the reference grid to **1000 mm**.
- For imperial drawings, set the snap grid to **4"** and the reference grid to **3'**.
- Click on the **OK** button.



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.

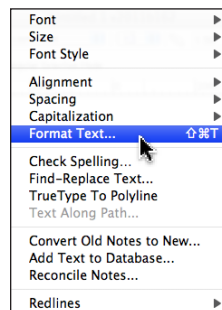


Text Styles

Text styles allow you to create settings for the text you want to use, like paragraph styles in a word processor. This will allow you to define the text settings for a particular style of text and save it. Then you can apply the same style to other text that you want to look the same. When you edit the text style, all the objects with the same text style will update.



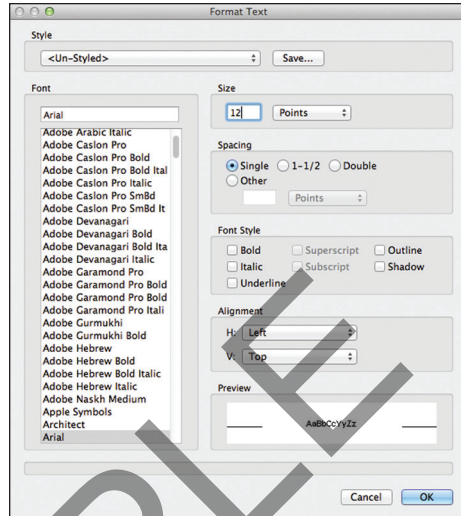
- Go to the **Menu** bar.
- Choose **Text > Format Text...**



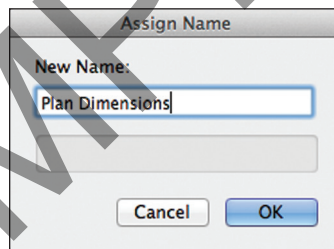
- Chose the font, size, and other text settings you want for a dimension. Text styles allow us to assign these settings to our dimensions.

It is easier if you create the text style first.

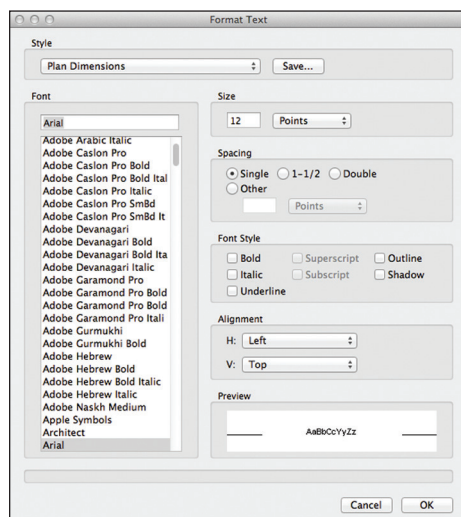
- Click on the **Save...** button.



- Name the text style to make it easy to find.
- Click on the **OK** button.



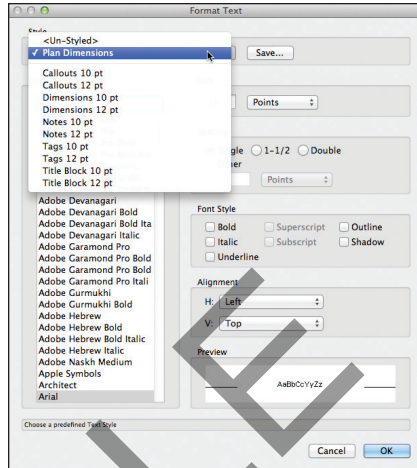
You can see the name of the text style at the top of the dialog box. If you make a mistake, do not worry: I'll show you how to edit the style later.



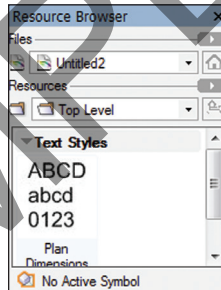
- Click on the **Style** drop-down menu.

The text styles above the gray line are in the current file, and the text styles below it are default text styles that come with Vectorworks.

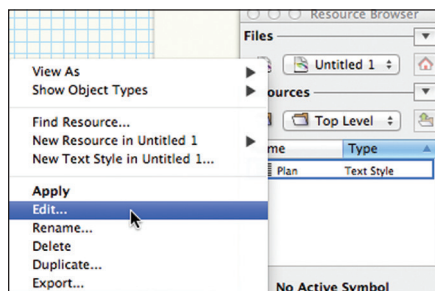
- Click on the **OK** button to finish.



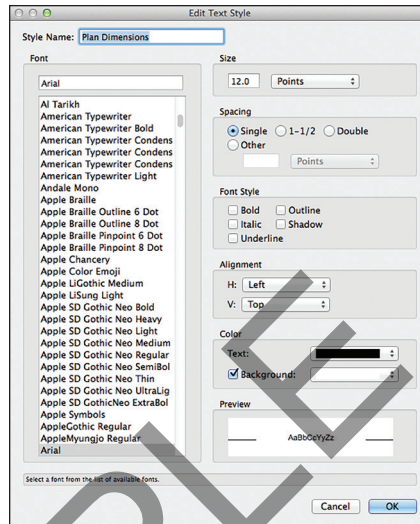
Text styles appear in the Resource Browser.



- Right-click (Control + click) on the text style in the Resource Browser to modify a text style.
- Choose **Edit...**



- Make any changes you want.
- Click on the **OK** button to confirm the changes. Every object that uses this text style will update.



Custom Dimension Standard

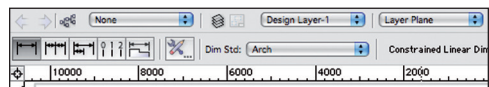
Vectorworks comes with several typical dimension standards. That is fine if you like the standard settings, but if you want something custom, you can make it.

- Go to the **Dims/Notes** tool set.
- Click on the **Constrained Linear Dimension** tool.

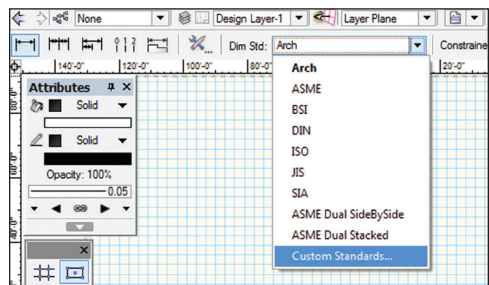


- Go to the **Tool** bar.

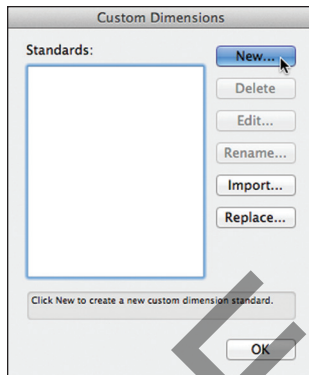
The current dimension standard is shown on the **Dim Std:** drop-down menu.



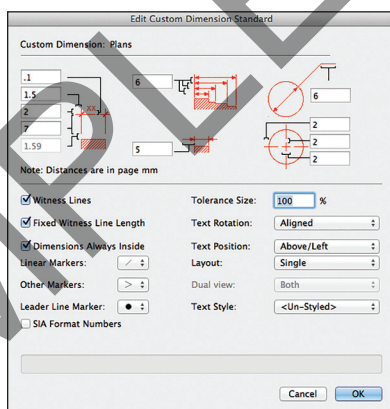
- Click on the drop-down menu.
- Choose **Custom Standards...**



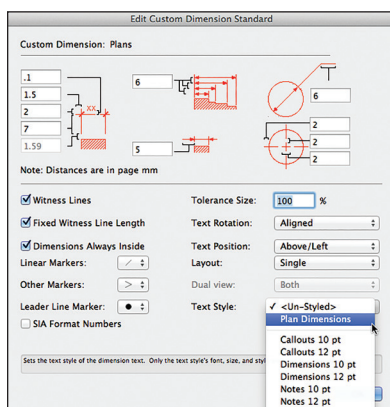
- Click on the **New...** button to create a custom dimension standard.
- Name the custom dimension standard.
- Click on the **Edit...** button to edit the standard.



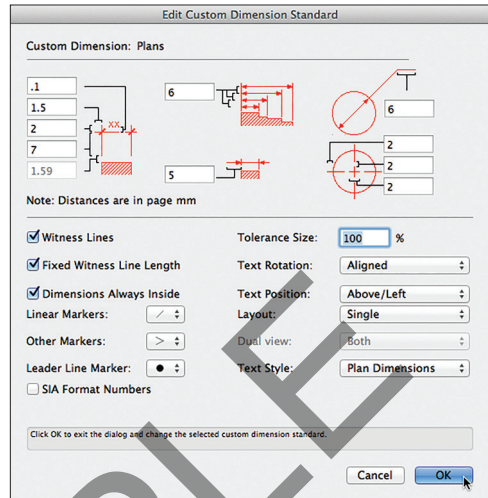
- Change the dimension settings to suit your drawing style.



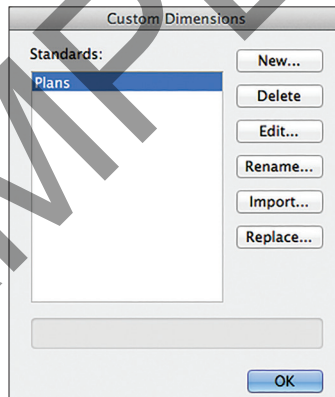
- Click on the **Text Style** drop-down menu.
- Choose the text style we created for dimensions.



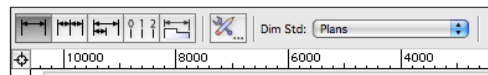
- Click on the **OK** button to return to the Custom Dimensions dialog box.



- Click on the **OK** button.



- Go to the **Tool** bar.
- Choose your new dimension standard from the drop-down menu. From now on, every time you place a dimension, you will be using your text style and dimension standard.
- To save your file as a template, go to the Menu bar and choose **File > Save as Template...**





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WRITTEN WITH VERSION 2016

ABOUT THE AUTHOR

Jonathan Pickup is an architect trained in New Zealand and in the United Kingdom with more than 25 years of experience. He received his Bachelor of Architecture (BArch) degree from the University of Auckland in New Zealand. He later spent more than eight years in England where he learned to use several CAD packages, including MiniCad, and began teaching this forerunner of Vectorworks. Upon returning to New Zealand in 1997, he established archoncad, a Vectorworks training and consulting company. He has written several Vectorworks training manuals for architects, landscape architects, educators, and design students. He organizes the New Zealand Vectorworks User Group and provides its main direction.

VECTORWORKS ARCHITECT is a powerful addition to the Vectorworks family of design software. This tutorial manual is based on Jonathan Pickup's successful Vectorworks Architect course taught in New Zealand. The feedback from this course has been very positive and has helped many clients to use Vectorworks Architect and, just as importantly, to develop an office drawing system based on Vectorworks organizing concepts.

This exercise-based tutorial manual covers

- Basic concepts of layers and classes and how they relate to developing your office layer and class standard.
- Creating an office library.
- Using the Property Line tool.
- Creating and manipulating site models and using them for height-to-boundary analysis.
- Walls and the wall type library.
- Stairs and vertical transport.
- How to make a quick model of a project using spaces for bulk and location analysis.
- Using annotation tools, title blocks, and the note database to quickly annotate your plans.

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