SHORT SHARP TRAINING (monthly) issue 1206

Welcome to this issue of the Vectorworks Short Sharp Training (monthly). This manual is designed to work like a user group meeting. There is a main workshop topic, then extended movies showing tips or techniques and an area for beginners.

Workshop Topic
Referencing

Referencing in Vectorworks is the ability to link your current Vectorworks file to an image, PDF, or another Vectorworks file. What makes this so special is that when you update the original file (image, PDF, or Vectorworks drawing) you can then update the link file. The referencing concept allows you to divide your work with other people to speed up the drawing process. This manual will cover the basic concepts of referencing image files, PDFs, and the techniques for referencing Vectorworks files.

Extended Podcast 152- Click here

BIM Special Interest Group - June 2012

Extended Podcast 153 - Click here

Landmark Special Interest Group - June 2012

Beginners Corner 041 - Click here

Drag and Drop file importing.

For more Vectorworks training information, or to purchase more copies of this book, please email jon@archoncad.co.nz

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Introduction

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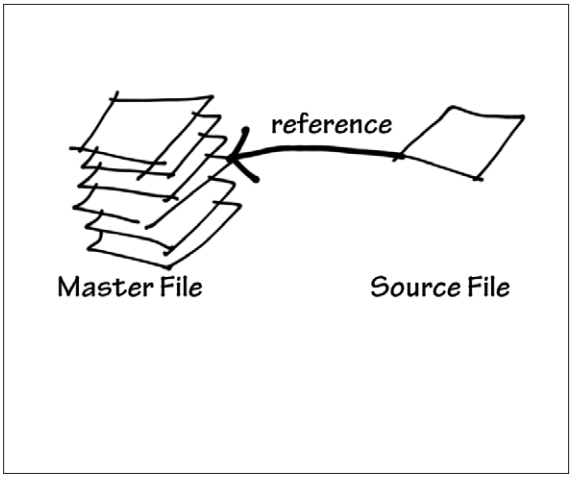
Referencing is where you link one file to your current Vectorworks file. There are several options with referencing. You can reference an image file, a PDF, or another Vectorworks drawing. When you reference between Vectorworks drawings, you have several options how to link these files. This manual will cover the basic concepts of referencing image files, PDFs, and the techniques for referencing Vectorworks files.
Why would you want to do this?

Large projects often need to have several people working on them. Referencing will allow you to have several people working on a project, they can link their files together and they can see when others have updated their drawings.

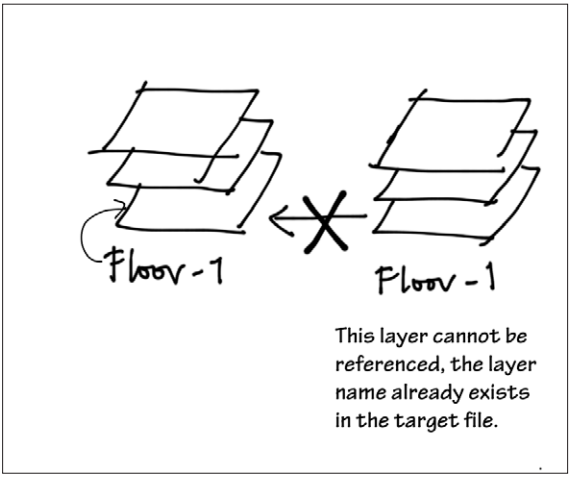


You might also be a sole practitioner that needs to import files from a consultant. For example, a landscaper might need to import drawings from an architect. The chances are that the drawings will change as the project develops, so you need a process that will save you a lot of importing into your project. Referencing allows you to set up a link to the imported file of the architect. When you get the revised drawing, you only have to update the linked file, as the main file will be updated automatically.

The concept of Referencing sounds simple. You link two files together and when you update one file you can see the changes in the other file. If you use Referencing correctly it is simple and robust. However, there are some pitfalls with things you should not do and some things to keep in mind that make Referencing easier.

Referencing Layers

Layer names are very important. You can not have two linked layers of the same name. This means you can't have the same layer name in the target file and in the source file.

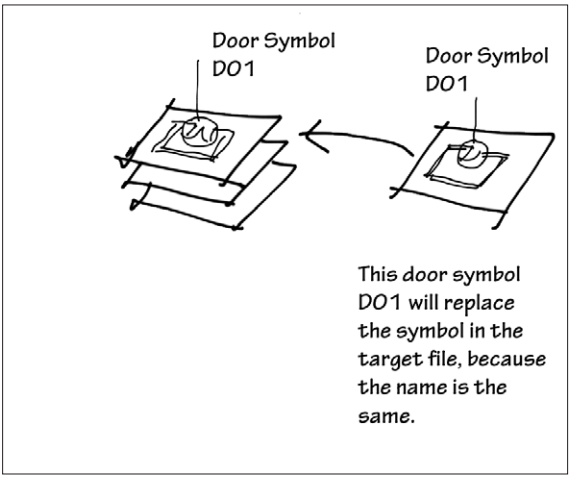


When you Reference you can link several source files to the target file. The source files can not have the same layer names. An easy solution is to have a prefix on the layer names in the source files.

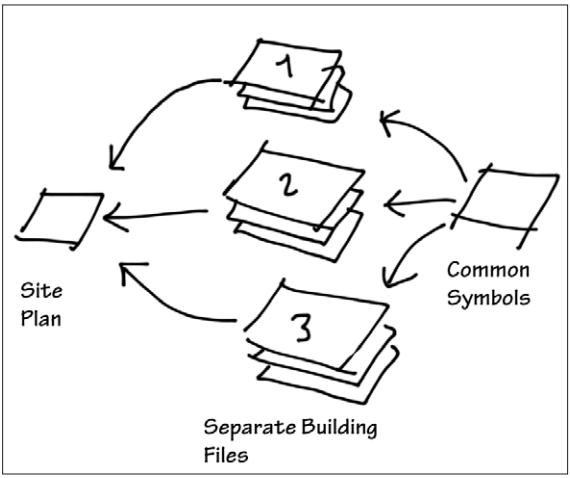
Things to Watch Out for - Symbols

Symbols have to be carefully controlled. You can use symbols of the same name in the target file and source file. However, the symbols have to be identical.

For example, you could Reference three buildings to the site plan. Each building might have a door symbol called D01. As you Workgroup Reference each building to the site plan, the door symbol D01 will be replaced by the new symbol D01. It works well if you want all the symbols with the same name to be identical, but it is a disaster if someone has used this symbol name for something different, say a door elevation.



One way to manage this is to have clear symbol naming convention in your office. Make sure people know what they can do and what they are not allowed to do.



The other method to control this is to have a Reference file that contains all the standard or common symbols. Each new building project references to this file and hence all standards and symbols are kept consistent.

Things to Watch Out for - Circular References

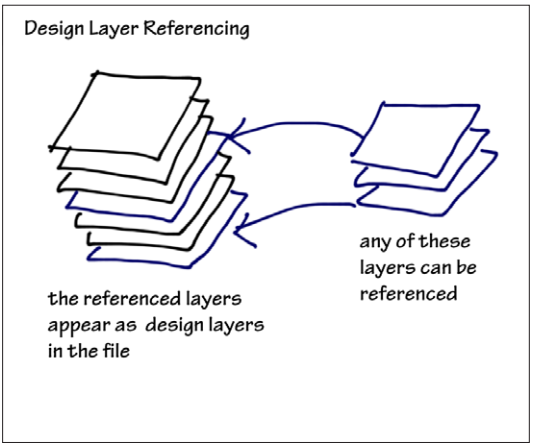
Do not create circular references, i.e. do no link two files in both directions!. That is, do not connect two files together in both directions (back and forth). Does this make sense? How about: do not Workgroup Reference File A to File B, then reference File B to File A.

In the example above, once you have linked the buildings to the site plan, do not link the site plan to the buildings. Vectorworks will accept it, but it may cause troubles later on with circular referenced symbols.

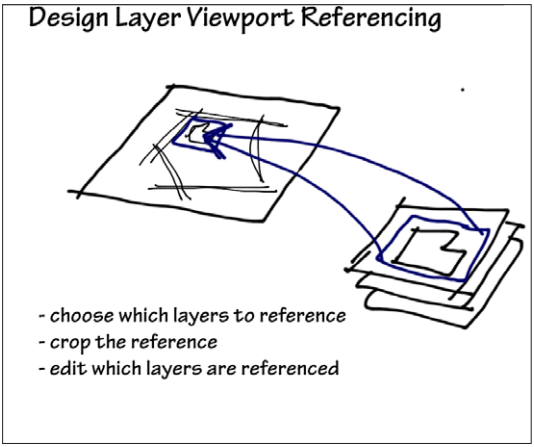
Another problem with circular references is that both file will both display the same information. For example, if you reference the floor plan to a site plan, and then you reference the site plan back to the floor plan, on the original site plan you will see a duplicate of your site plan. This duplicate will be rotated and relocated to suit the floor plan.

Reference Options - Design Layer Viewport or Layer?

When you link files together you have two options. With Vectorworks 12 you can only link layers. Since Vectorworks 2008 you can choose to use Design Layer Viewports to reference files. The problem with the Vectorworks 12 mode (layers) is that the linked layers appear as design layers. I have had several clients trying to work on the linked layers, only to find that the information is lost when they update the Reference.



The Design Layer Viewport mode allows you to see the referenced layers, but you cannot edit or make changes to them directly. This process avoids confusion and makes it clearer where the data should be edited.



Absolute Path/Relative Path

When you reference files into your current Vectorworks file, you have to decide whether to use absolute or relative path names.

The absolute path for your reference is the name of your computer followed by the directory structure (folders) and finally to the actual name of the file. This can work in some situations, but it does not work if you have to move the file to another computer, or if you are storing it online and other people want to share it.

The relative path is the location of the referenced file relative to the current Vectorworks file. This works extremely well when the two files are in the same folder. If you copy this folder to another computer, the files are still relative to each other and so the references will not be broken. For most situations it is best to keep all the referenced files together and use relative referencing.

Referencing Image Files

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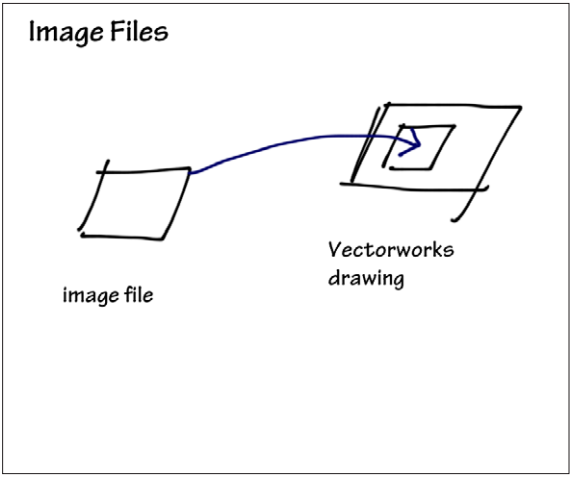
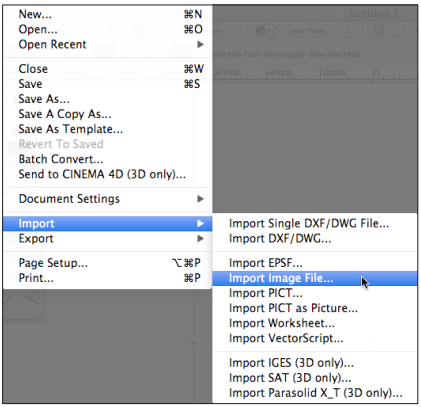


When you import an image file you can choose to have the image file placed directly in the drawing, or you can choose to reference the image file. Why would you prefer one method over the other?

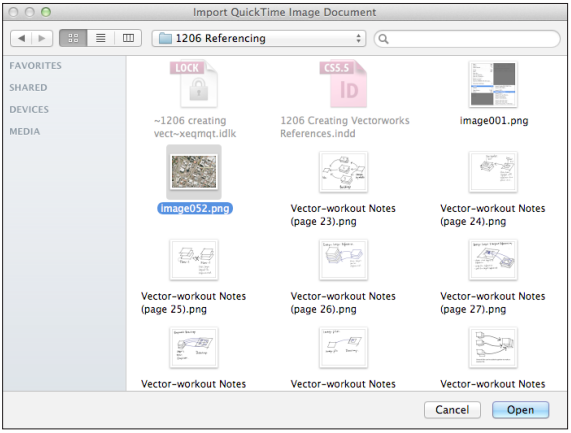
If you are working with others and they are updating the images files, referencing the image files would allow you to update the images files easily.

You can import image files by using a menu command or you can drag and drop the files into your Vectorworks drawing. You will still be allowed to reference files if you use drag-and-drop.

- Go to the **Menu** bar.
- Choose **File > Import > Import Image File…**



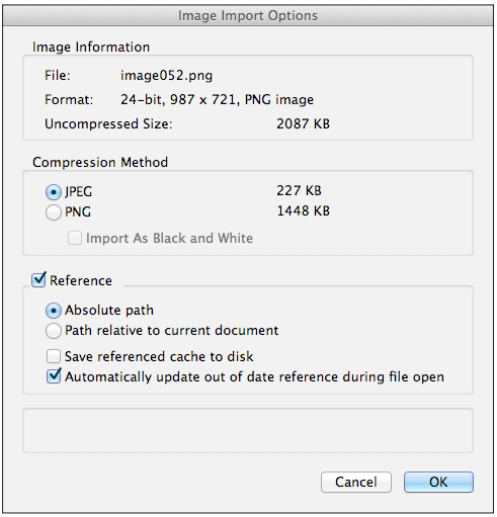
- Navigate to the image file you want to import.



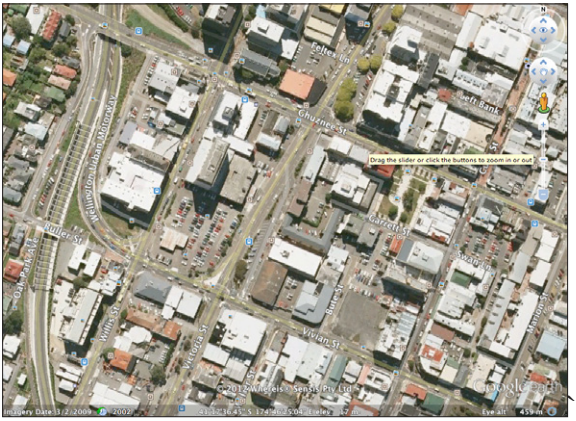
- Double-click on the image file you want to import.

If you drag and drop an image into aVectorworks file or if you use Import Image File… you will see this dialog box. This dialog box allows you to turn on the referencing of the image.

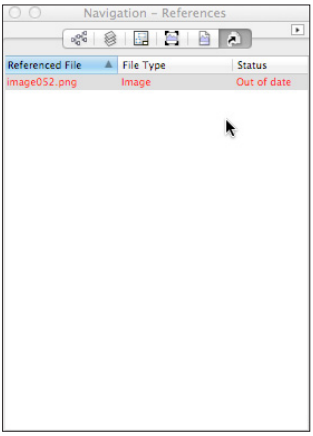
- Click on the **Reference** option.
- If you have saved your file, and your image file is in the same folder as your Vectorworks file, then Vectorworks allows you to select **Path relative ....** otherwise only the **Absolute path** option is enabled.



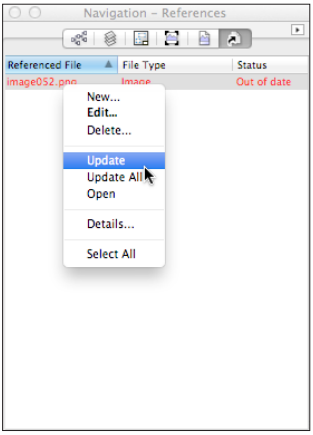
- Click on the **OK** button to import your image file.



- References are shown on the last tab on the **Navigation** palette. When the original image is updated and saved, Vectorworks will use the navigation palette to show that the referenced file is out of date.



- To update a reference, right-click on the reference in the **Navigation** palette.
- From the contextual menu, choose **Update**.



When you choose update, Vectorworks will import the image file again. Any changes made to the image file will now be visible.


Ghuznee St
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Garrett St
Swan
Burke St
Vivian St
Willis St

Referencing PDF Files

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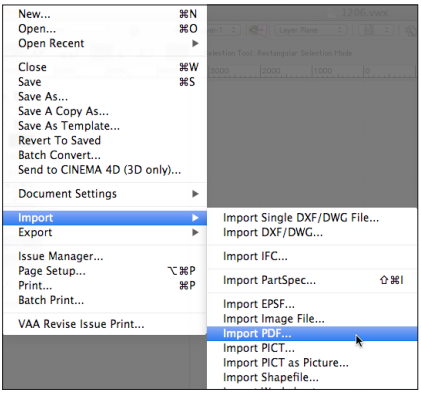
As with image files, PDF files can be drag-and-dropped into a Vectorworks file, or you can use the Import PDF… command. In either case when you import a PDF file, you have the choice of whether to import the file directly or whether to reference the file.

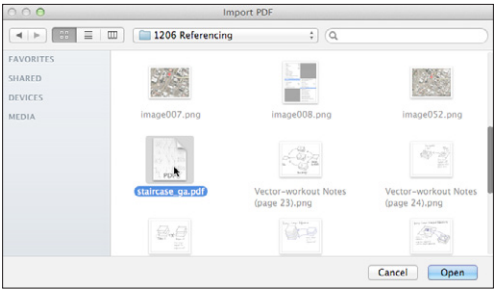
If you are certain that the PDF will not be updated you can import the file directly. But if you are working with a structural engineer for example, the drawings might get updated due to unforeseen circumstances. So for importing consultants drawings, it is better to use referencing.

Another good example is when you want to import general construction notes. Many people have the general construction notes in another program such as Pages or Word. Both of these programs allow you to export as PDF. In Vectorworks you can then reference your general notes from the PDF files. Whenever you update your general construction notes in your Pages or Word document, you only have to save the PDF again. Next time you open your Vectorworks file it will load the latest general construction notes.

- Set the scale of the layer to the same scale as the PDF file you want to import.
- Go to the **Menu** bar.
- Choose **File > Import > Import PDF…**



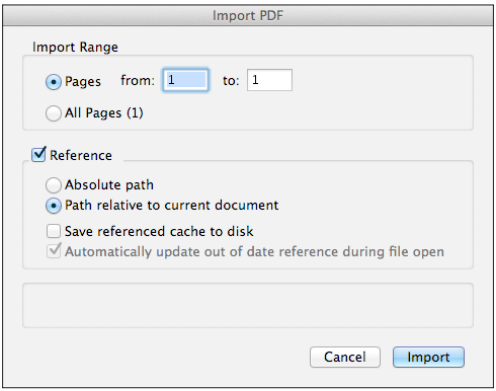
- Navigate to the image file you want to import.



- Double-click on the image file you want to import.

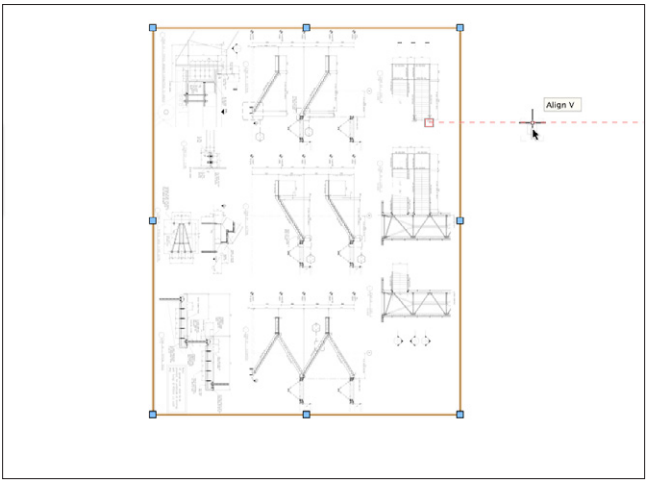
If you drag and drop a PDF onto your Vectorworks drawing or if you use **Import PDF…** you will see this dialog box. This dialog box is where you choose to create a reference to the PDF.

- Click on the **Reference** option.
- If you have saved Vectorworks your file and your PDF is in the same folder as your Vectorworks file (recommended), then choose **Path relative to current document**. Otherwise, choose Absolute path.

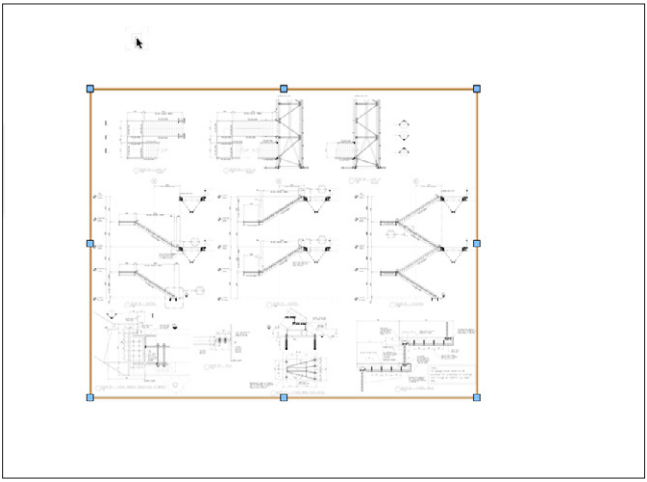


- Click on the **Import** button.

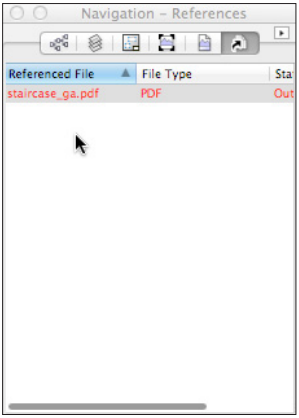
Your PDF file will now be imported into your drawing. If you choose to import more than one page from your PDF you will see several PDFs stacked one on top of the other.



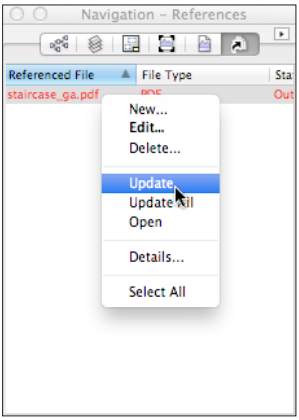
- You can now move your PDF files and even rotate them. They will remain linked to the original PDF.



- When you receive updated drawings from your consultant, store these drawings with the same name, in the same location as the original PDF files referenced.
- When you check the **Navigation palette**, you will see that your referenced file is now out of date.



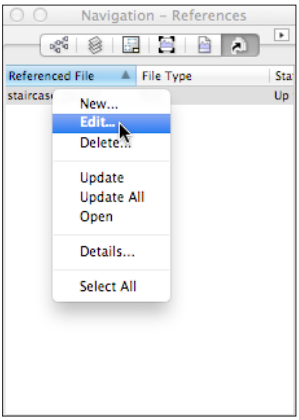
- Right-click on the out of date referenced file and choose **Update**.



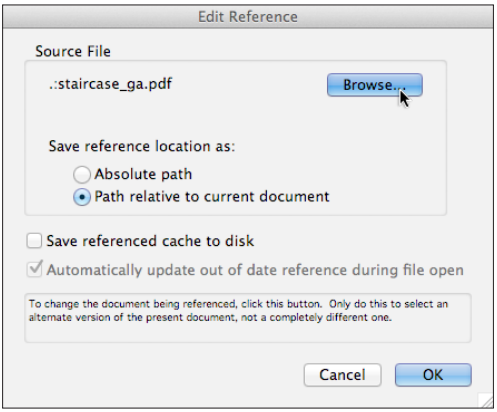
- This will update the referenced file.

Another instance can occur when the consultant changes the name of the drawing, e.g. because of substantial changes. You can now use the **Navigation palette** to edit the already linked reference file to the new drawing.

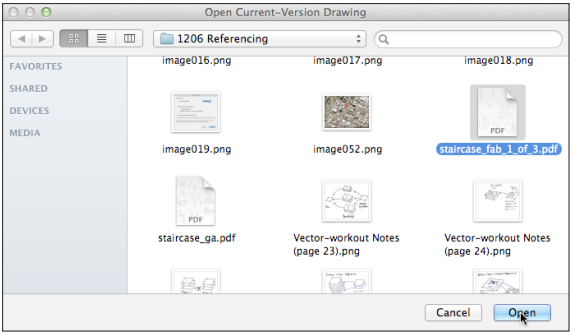
- Go to the Navigation palette.
- Right-click on the referenced file.
- Choose **Edit…**



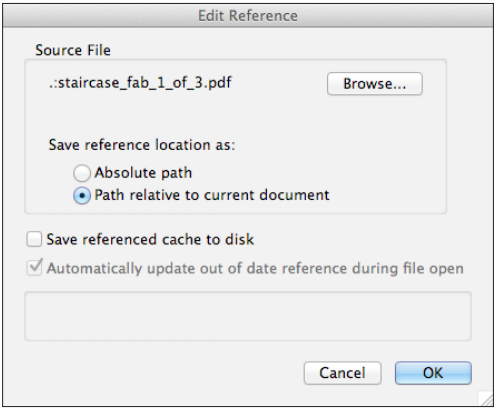
- Click on the **Browse…** button.



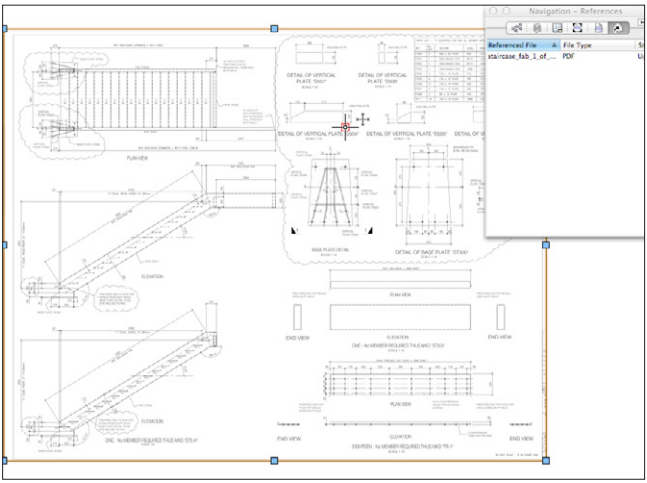
- Locate the new drawing.



- Double-click on the new file that you want to reference, or click on the file once and then click on the **Open** button.



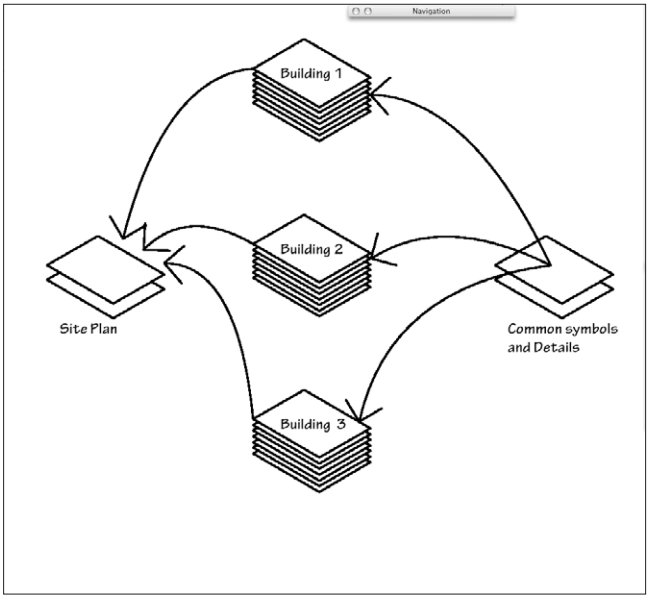
The previous PDF file will be replaced by the new one. If you have used the PDF to create viewports, they will also be updated.



Referencing Three Buildings onto a Site

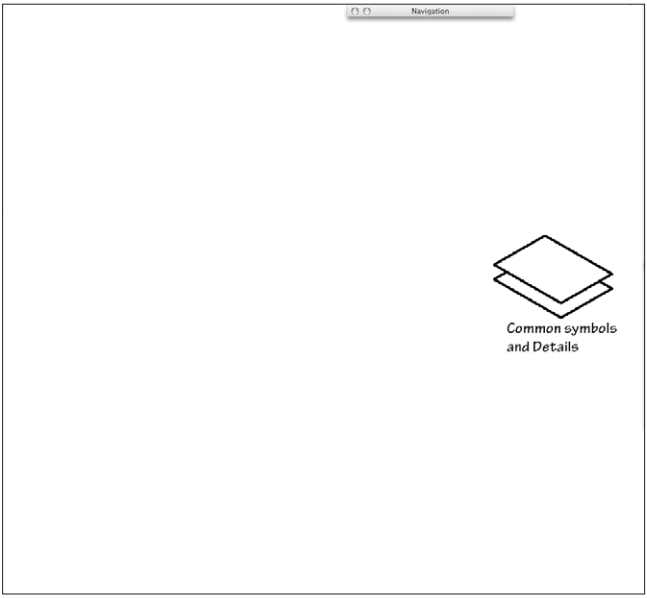
The first step in setting out a project is to decide on areas of responsibility. You can not have every team member working on all parts of the project, so decide who will be working on which part. Then each person has a part of the project as a separate file. The more people you have on a project the more files you need.

In this example we have three separate buildings on one site. An easy way to sort out responsibilities would be to have one architect in charge of all the drawings for each building. This example will not need a lot of Referencing to link the buildings together, but there will be a small amount of referencing to get common symbols and details for each building, and a reference from each building to the site plan, where you want to show the latest building outline on the site plan.



Stage 1

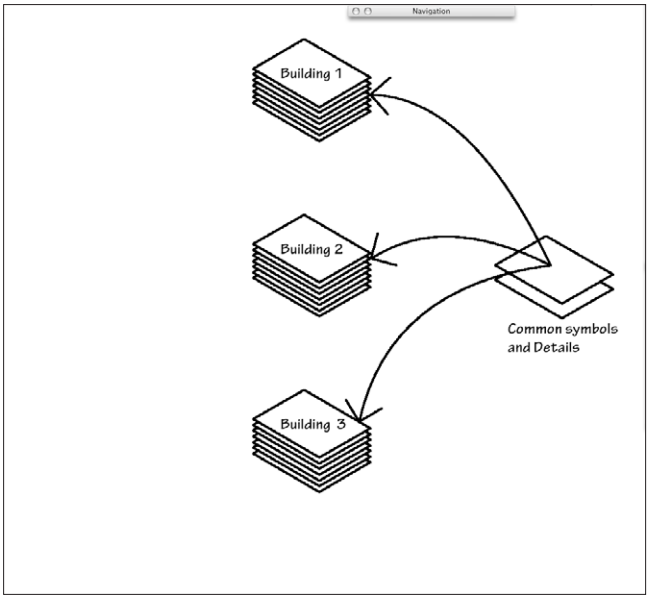
Set up the common symbols for these buildings. You don't have to set up the details yet, but setting up some common symbols will save time for all members of the team.



Stage 2

Start three drawing files for the three buildings. They can all reference to the common symbols for doors, windows and so on from the common file. That will save them time and maintain consistency.

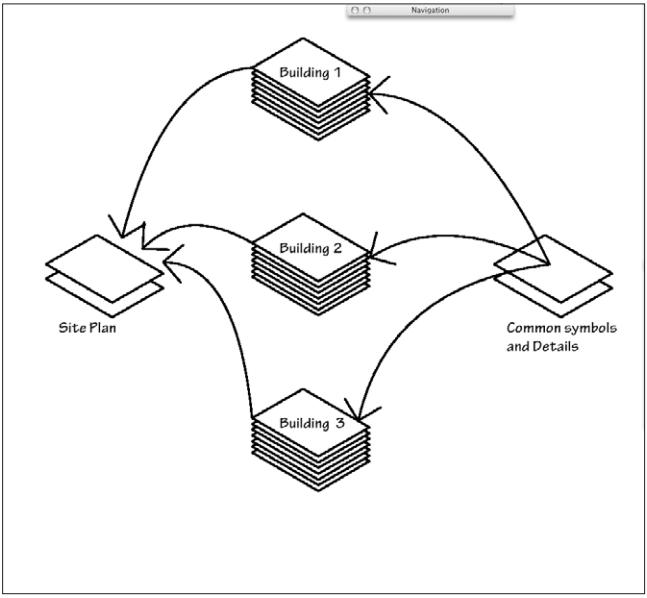
As the three buildings develop and move into detailing, the standard details can be drawn in the common file so each building can reference them. This will save each architect time, and it will save errors in the drawing, because the details are only drawn once.



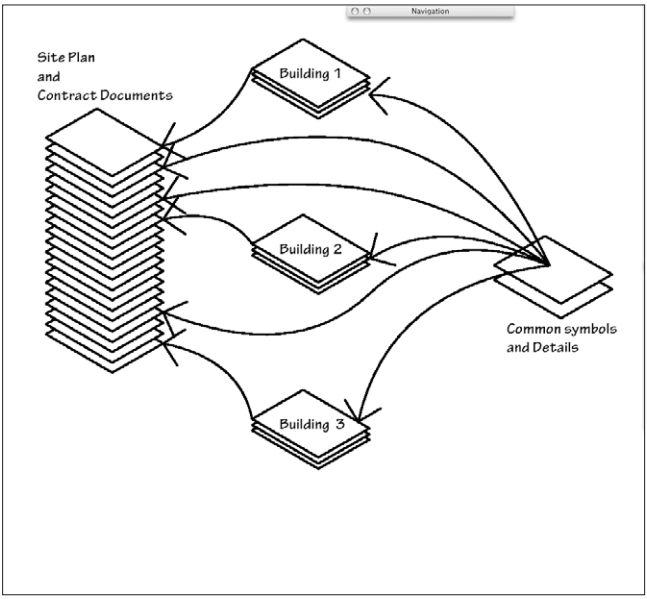
Stage 3

At any time you can link the three Buildings to the site plan. You can choose which stories of the building to reference, and once referenced you can move them around on the site plan.

This is a different way of organising the drawings. By having all the drawings separated into three buildings, you have lost the ability to have one person responsible for drawing issues.



If you wanted to have one person to be in charge of all the drawings, you could slightly change the organisation of the files. This would let each architect create all the information for the building, then reference this to the contract documentation set.



Later versions of Vectorworks allow you to print all drawings from one folder, which avoids the issue of having to print all the drawings from different files. This means that you can still have one person responsible for printing all the drawings but you would not have to put all the drawings into one single file for that to happen.

Referencing 1 - Large Building

cadmovie826

This demonstration is only a quick look at Referencing a large building. If you require detailed help, please contact me directly.

The first step in setting out a project is to decide on areas of responsibility. You can not have every team member working on all parts of the project. Then each person has a part of the project as a separate file. The more people you have on a project the more files you need.

In this example we have several people actively working on the project. As I noted earlier the first step is to sort out the responsibilities. This project is a single large building. You could divide up the project in several ways, either by zone, or by stories of the building, or by building elements. Each way of dividing up the building will change the file structure.

For this example I will divide the project in areas of responsibility based mainly on the building elements:

- Architect 1 - Base drawing, walls, doors and windows, columns and grid
- Architect 2 - Floor Finishes and floor detailing
- Architect 3 - Ceiling, lighting and ceiling details
- Architect 4 - Site Plan
- Architect 5 - Sections
- Architect 6 - Elevations
- Architect 7 - Drawing output (printing)

Site Plan

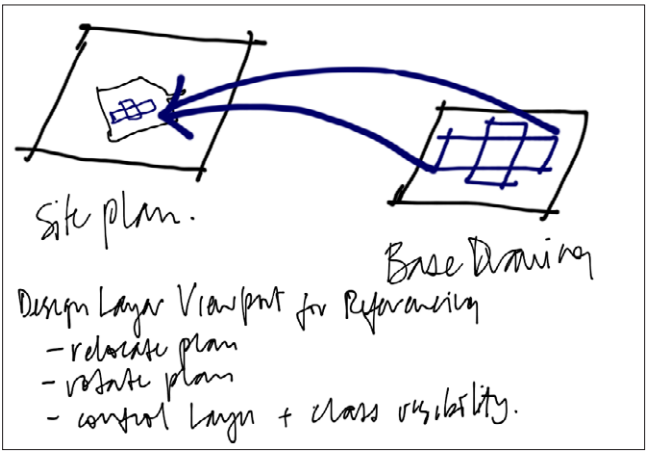
Now that the project is broken up we can start to set up the files. We could start with the site plan or the base plan. We want to separate the site plan and the base plan so we can have two people working.

The site plan needs to have a survey file imported, so organise the surveyor. Whilst you wait for that file you could start the base drawing.

Your surveyor may not have Vectorworks, so you should expect to import a DXF/DWG file into your site plan. Remember, when you import a DXF/DWG file you should be importing it into a completely new file, do not import it into your existing base plan.

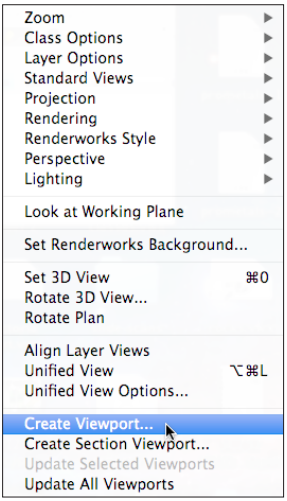
When the survey plan has been imported, and checked for size and scale, it should be saved. It can then be linked to the base plan and the other drawings.

Here is the conceptual sketch.



After the base drawing has been started, you can link it to the site plan, to check site coverage, boundaries, drains and so on, using a **Design Layer Viewport**.

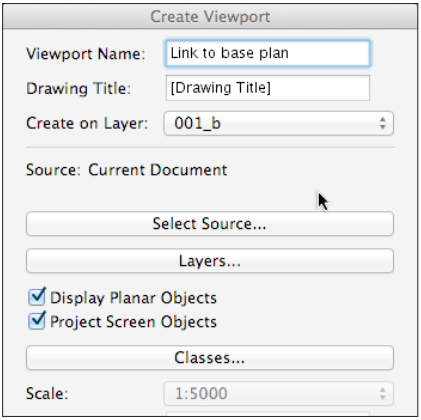
- Go to the **Menu** bar.
- Choose **View > Create Viewport...**



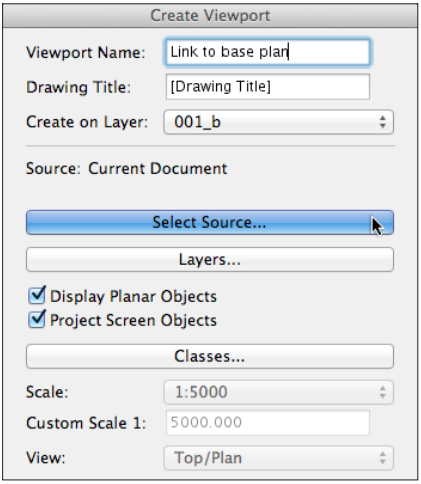
- Type in the **Viewport Name**. If you have several reference files, a concise viewport name will help you to locate this design layer viewport.

You do not need to enter a drawing title for this viewport.

- Choose the design layer you want to place this viewport on.

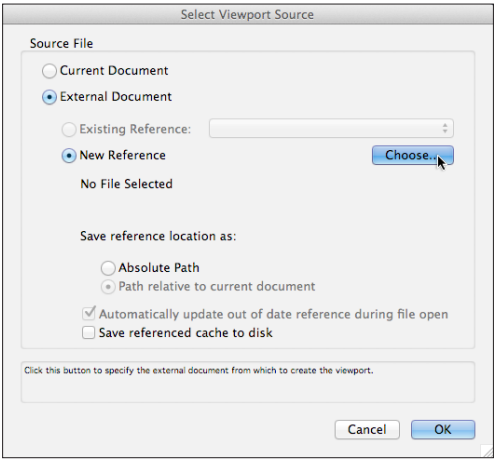


- Click on the **Select Source…** button. This is to choose your reference file

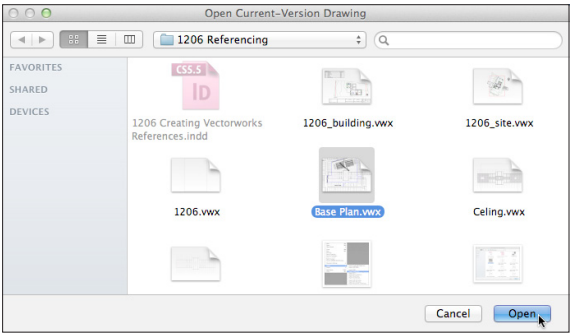


- You can choose a layer from the current, or from an external document, as a reference.
- Click on **External Document**.
- If it is not already selected, click on **New Reference**.

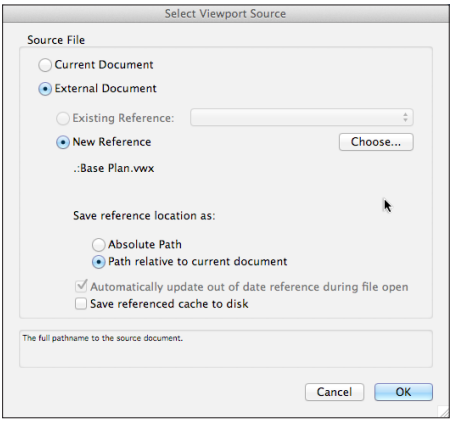
- Click on the **Choose…** button



- Locate the file you want to reference.



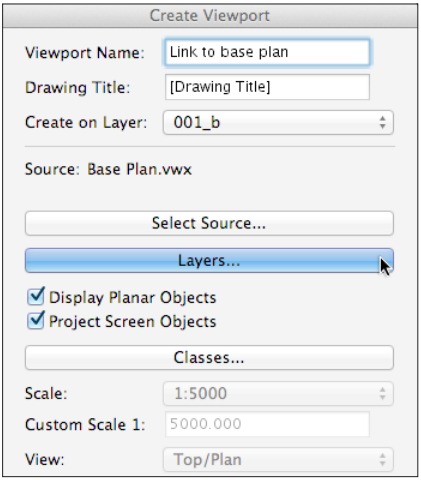
- Double-click on the new file that you want to reference, or click on the file once and then click on the **Open** button.
- If you have saved Vectorworks your file and your PDF is in the same folder as your Vectorworks file (recommended), then choose **Path relative to current document**. Otherwise, choose Absolute path.



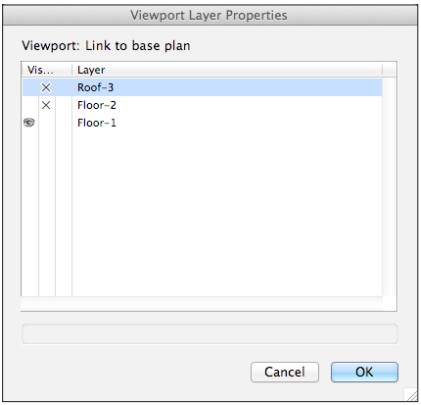
- Click on the **OK** button.

This takes you back to the **Create Viewport** dialog box.

- Click on the **Layers…** button.

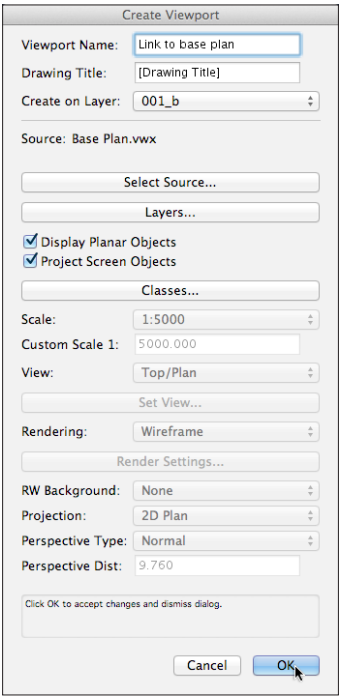


- Check the layers that are available from your reference file. Click in the visible column for the layers you want to see, click in the invisible column for the layers you do not want to see.



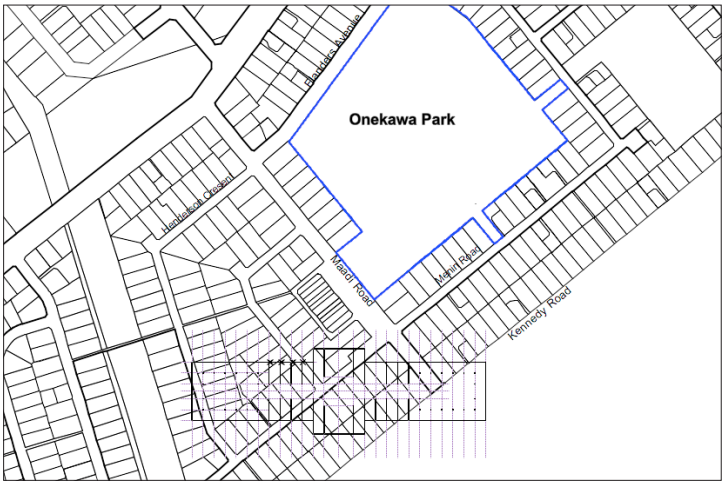
- Click on the **OK** button to return to the **Create Viewport** dialog box.
- You can also click on the **Classes…** button to change the visibility of classes in your viewport.

The visibility of layers and classes in your design layer viewport can be changed at any time by using the **Layers…** and the **Classes…** buttons on the **Object Info** palette.

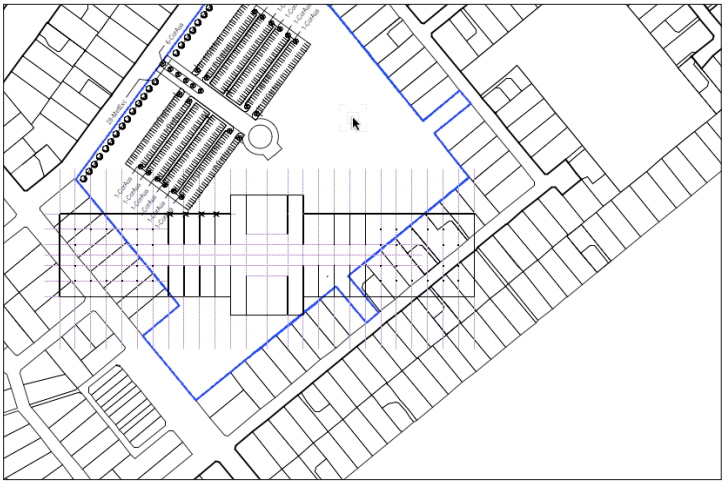


- Click on the **OK** button to finish creating your viewport.

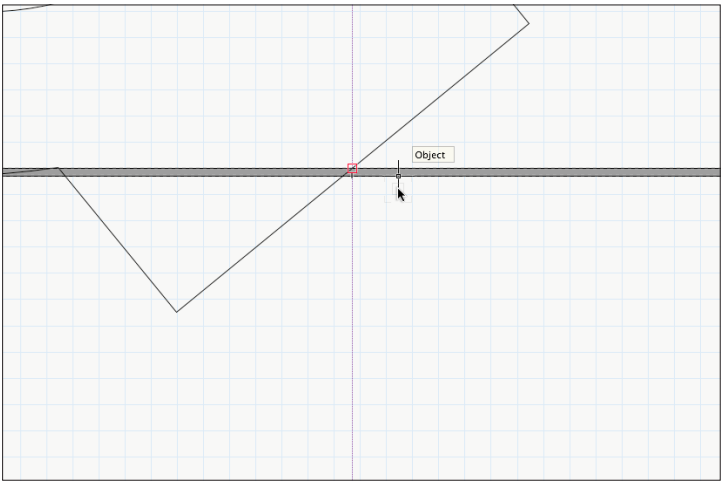
The viewport will not arrive in the correct location on the site, so you have to move it. You might also notice that the orientation of the viewport does not line up with the site plan. The advantage of using a **Design Layer Viewport** to reference your other file is that you can then rotate the design layer viewport and move it to fit the site.



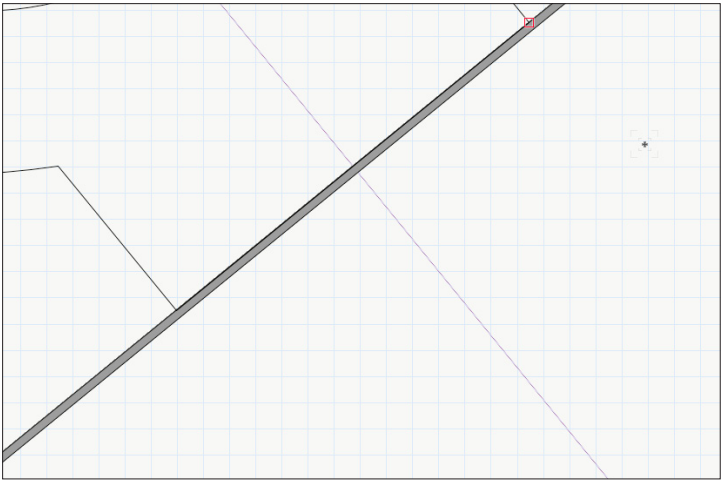
- Use the **Selection** tool to relocate your **Design Layer Viewport**.



- You will find it easier if you zoom in.
- Make sure you use something that you know lines up between the floorplan and the site plan.

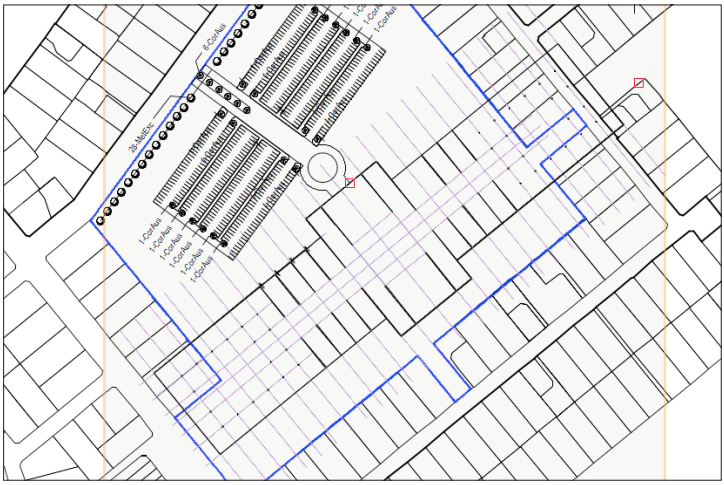


- The **Design Layer Viewport** can be rotated without affecting the original file.

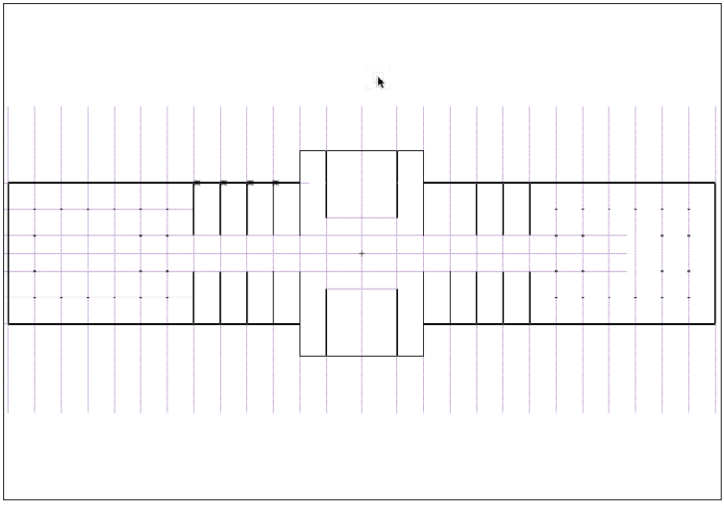


- This allows the other architects to draw the building orthogonally, while the site plan shows the building correctly located.

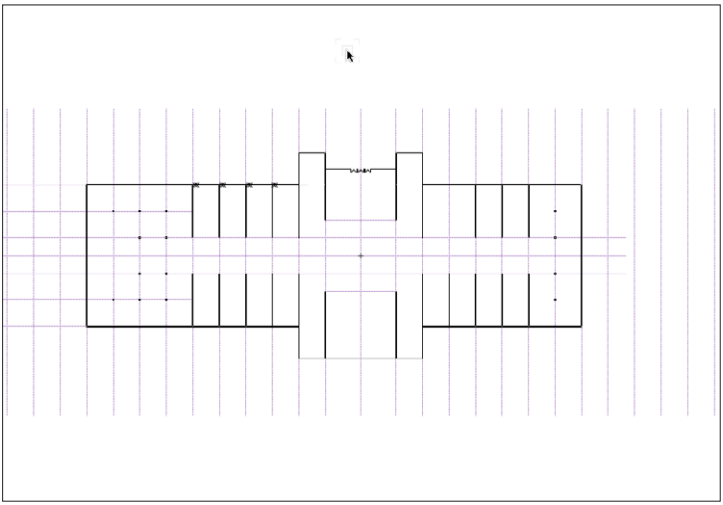
In the image below you can see that the plan of the building is too big for the site.



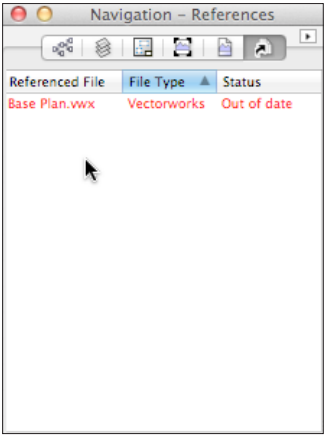
If another user opens up the floor plan file, it can be edited at the same time that the site plan is being worked on. This is what makes referencing so powerful, allowing several users to work on the same project at the same time.



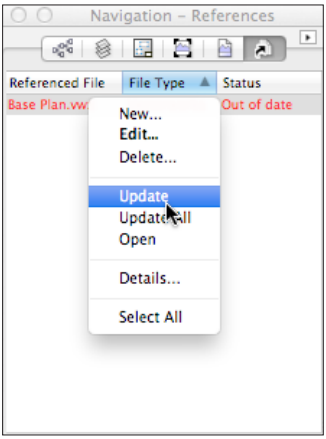
- The floor plan can be updated by another architect to suit the site conditions.
- The revised file must be saved before it can be updated on the site plan.



- After the revised floor plan has been saved, the referenced file will be shown in the **Navigation** palette as **Out of date.**



- Right-click on the referenced file and choose **Update**.



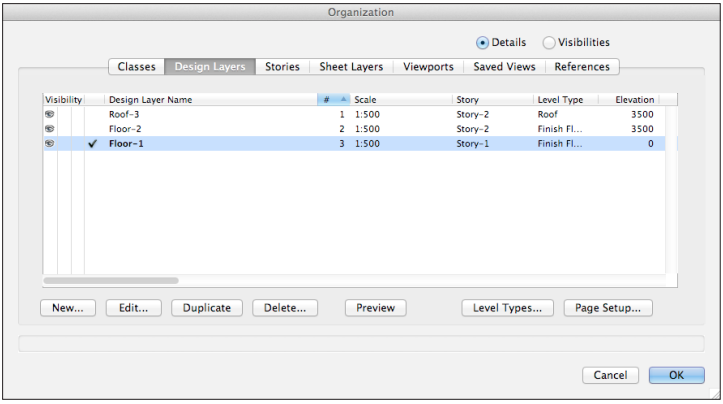
The site plan will now show the most up-to-date information from the floor plan file.

Base Plan

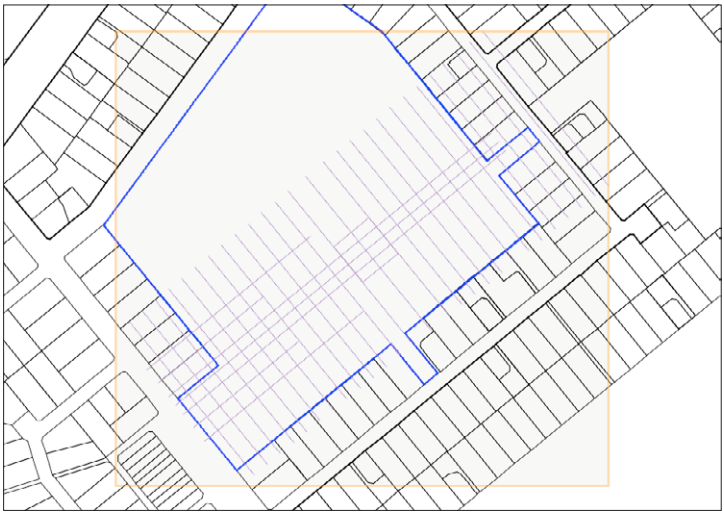
The base drawing will control the setting out of the project e.g. the overall grid, walls, doors and windows and any structural components. It is important that the layers and classes follow an agreed system or standard. An agreed system will make it easier for everyone working on the project.

The base plan may not have references from other parts of the project, but it will certainly be referenced to many other parts. The base plan should be carefully structured so that it uses classes, layers, and stories correctly.

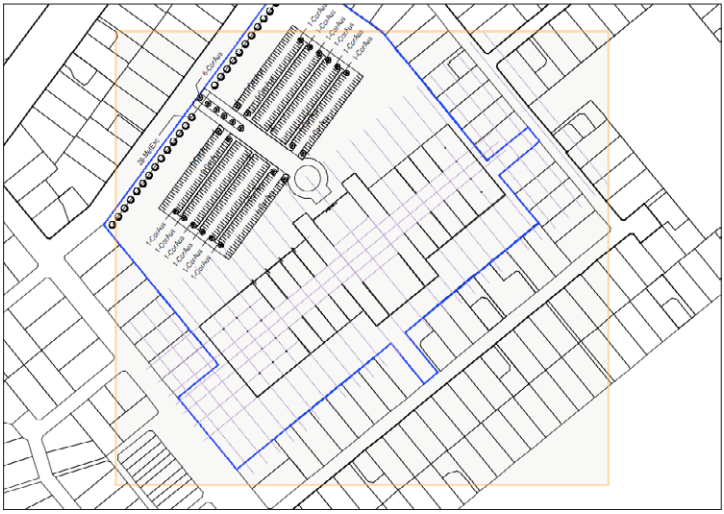
Use the organization dialog box to set up the layers and stories for the project.



When the building grid is correctly drawn, the base drawing can be referenced to the site plan.



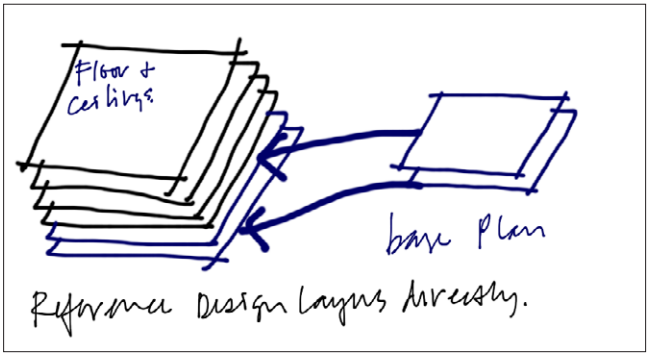
As the base plan develops, the site plan just needs to have its reference updated for it to show the latest information.



Ceilings and Floor Finishes

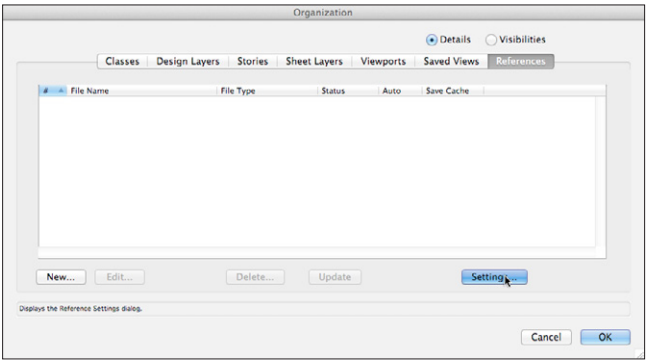
The next step is to start the Ceiling and Finished Floor Drawings. These drawings may be in the same file but they could easily be separated and have one file for the ceiling drawings and one file for the floor finishes. The structure is the same in either case.

Here is the conceptual sketch.

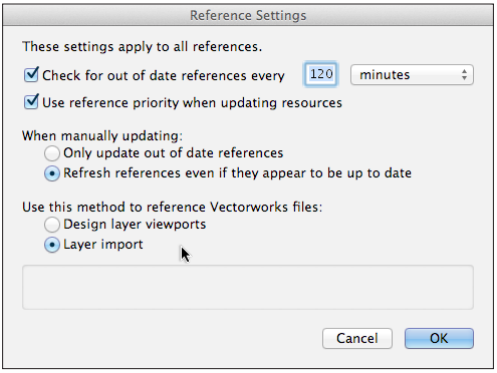


For the site plan **Design Layer Viewport Referencing** technique was used, which allows the relocation and rotation of the floor plan to suit the site. For the next stage of the works you want to make sure that your ceiling and floor finish drawings line up exactly with the base plan. For this reason you will not be using viewport referencing, use **Layer Referencing**.

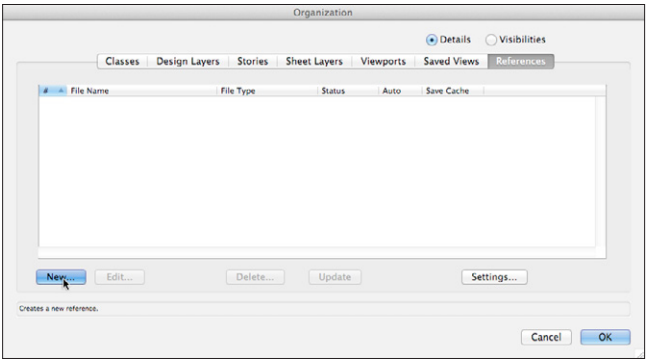
- Go to the **Menu** bar.
- Choose **Tools > Organization...**
- Click on the **Settings...** button.



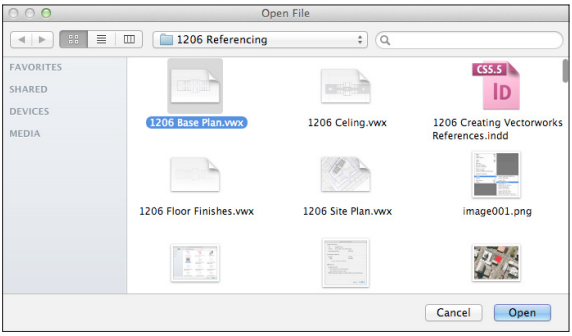
- Click on **Layer import**.
- Click on the **OK** button.



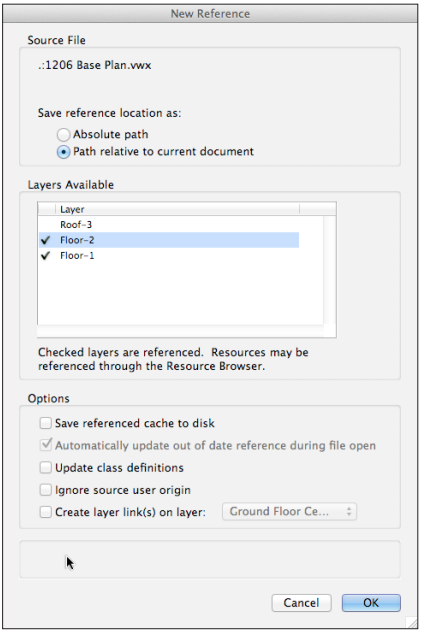
- Click on the **New...** button to create a new reference.



- Locate the file you want to reference.

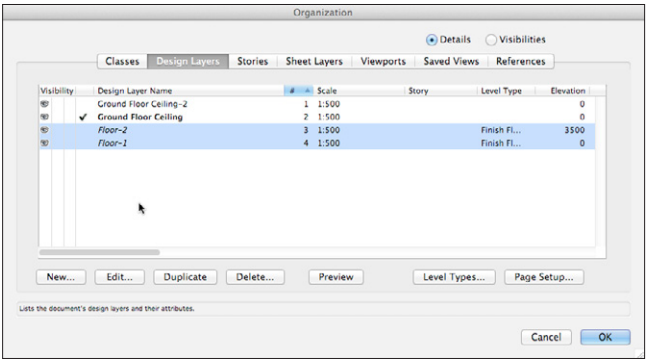


- Double-click on the new file that you want to reference, or click on the file once and then click on the **Open** button.
- If you have saved your file, and your source file is in the same folder as your Vectorworks file (recommended), then choose **Path relative to current document**. Otherwise, choose Absolute path.
- Click on the layers that you want to use.
- Click on the **OK** button.

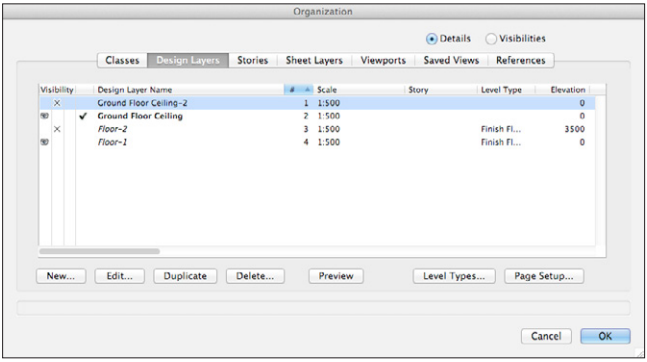


- Click on the **Design Layers** tab to see the referenced layers. Notice that

the referenced layers are shown in italics.

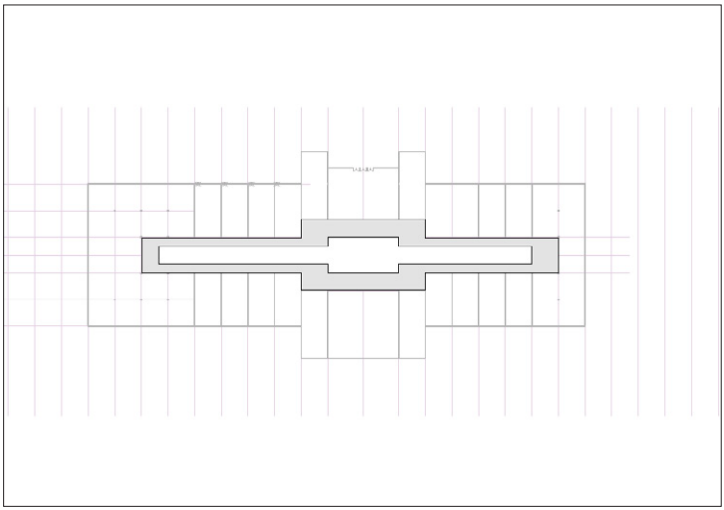


The referenced layers can be turned on and off and the **Layer Options** can be changed like any other layer.



- Click on the **OK** button to close the **Organization** dialog box.

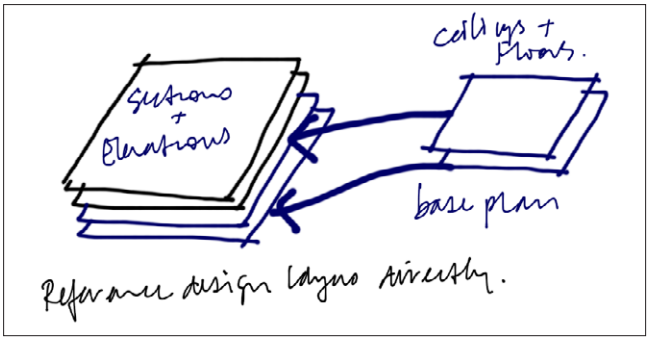
The ceiling and floor drawings can be drawn on the correct layers, snapping to the referenced layers.



Sections and Elevations

The next stage might be the sections and elevations. The sections need the ceiling plans and maybe the floor plans as well as the base plans. These should be referenced to the section and elevation files as we did for the ceiling and floor files.

Here is the conceptual sketch.



Printing

Documentation is the last stage. One way of completing the documentation is to reference all the other files to a contact document file. You could then have one person who would be responsible for making sure the drawings are in order, complete, correctly annotated, dimensioned, referenced and so on.

Reasons to keep all the drawings in one file:

- you can batch print the drawings from one file
- you can batch PDF the drawings from one file
- you can control all the revisions from one file
- you can control drawing issues more easily.

When you create a Reference in Vectorworks 12 you copy the complete layer from the source file to the target file. In a project like this, you might have hundreds of layers in the contract documentation file. In Vectorworks 12 this will make the file huge.

When you create a Reference in Vectorworks 2008 and beyond you can choose to not copy the complete layer, instead you can choose to reference it. This will make the contract documentation file much smaller and easier to manage.

The Vectorworks Architect version for Austraiia and New Zealand offers a useful tool for drawing borders, called the VAA Title Block. This tool is more useful than the standard Vectorworks Drawing border. It allows you to add revisions and issues to selected drawings, you can batch print drawings and you can customise your title block symbols. But the best part of this tool is the ability to create a **Document Transmittal** form. This will list all the drawings, the revision, who you issued the drawings to and when the drawings were issued. At the end of the project you have a complete list of all the drawing issues.

The example I have used allows seven people to work on this one project. Any alterations on the base plan will be shown on the floor and ceiling drawings and documentation. Any changes to the sections, elevations or the other files will update in the documentation file as well.

Landscape Examples

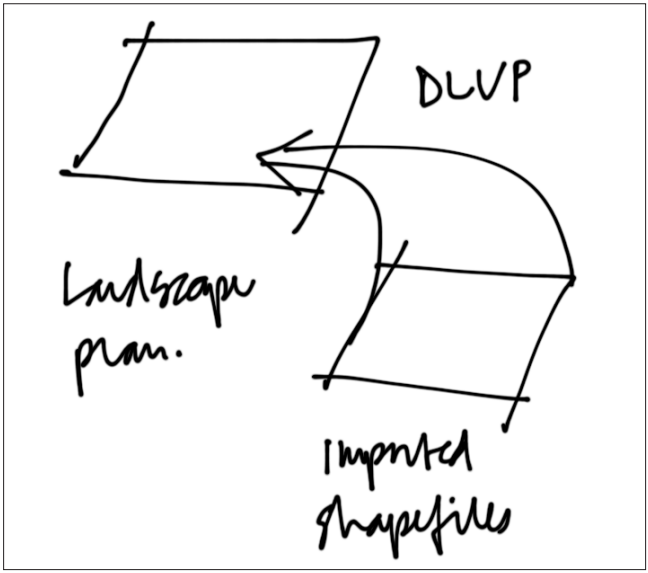
In this example we have a landscape plan. We want this to tie in to the overall site plan. The challenge is that the architect and road engineer keep making changes to the plans. If you import the drawings from the architect, then complete your planting and hardscaping, how can you make sure that you are working on the current file?

Working with Shapefiles

Import the drawing and check it for accuracy. Then reference the imported drawing into your project.

When you get a revised drawing, import it into the referenced document and save it.

When you open your drawings, you will see the new work. This will allow you to easily update your drawings.

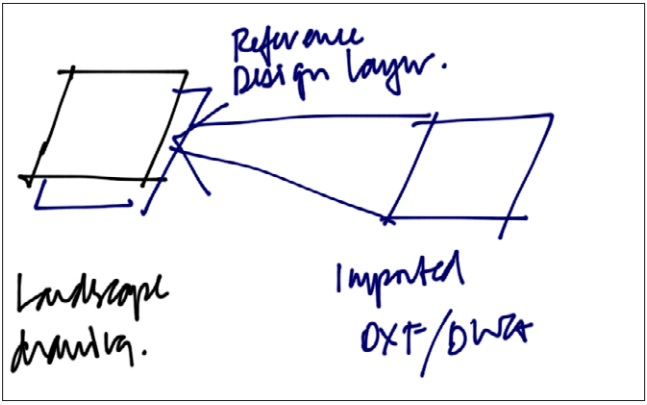


Working with DXF/DWG Files

Import the drawing from the consultant. Check it for accuracy. Then reference the consultant drawing to your project.

When you get a revised drawing, import it into a new document and save it with the same name as the old consultant's drawing, overwriting the old file.

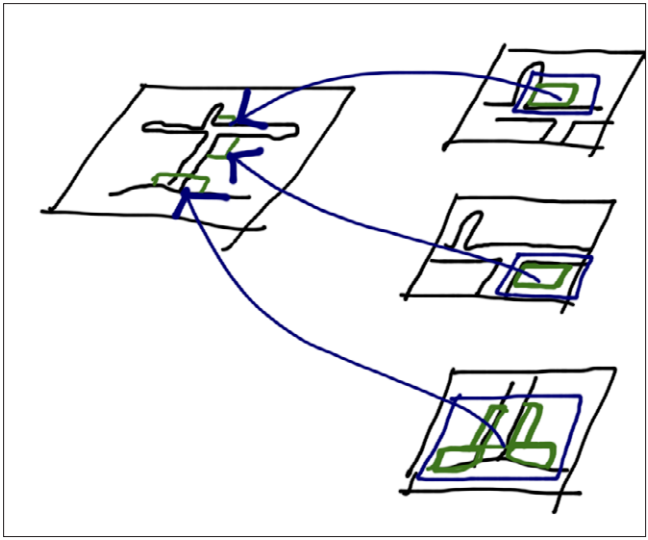
When you open your drawings, you will see the new work from the consultant. This will allow you to easily update your drawings.



Subdivision Drawing

In this example you might have more than one designer working on the project.

You might divide the file into three or four files, and reference these files to the master plan to create the complete project.



Thank you

We trust that you have enjoyed working through this manual and that it has been informative and constructive.

For more information, please visit: http://www.archoncad.co.nz/. If you just want someone to help you learn Vectorworks, to carry out some Vectorworks contract work, or you want someone to make Vectorworks easier, contact us, as this is a service that we also offer: jon@archoncad.co.nz.

Thank you again,
Jonathan Pickup
June 2012