

SHORT SHARP TRAINING

(monthly) *issue 1009*

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

Refurbishment Projects

If you are working on a refurbishment project, should you model the building, or just draw the building using really simple objects. You should really use walls, because then you can easily add doors and windows. This workshop will show you techniques for working with refurbishment projects. You will find the newer versions of Vectorworks have more abilities when dealing with complex walls.

Extended Podcast 114 - [Click here](#)

How can you control the line weights on plant tags.

Extended Podcast 115 - [Click here](#)

How to reshape walls in 3D.

Beginners Corner 24 - [Click here](#)

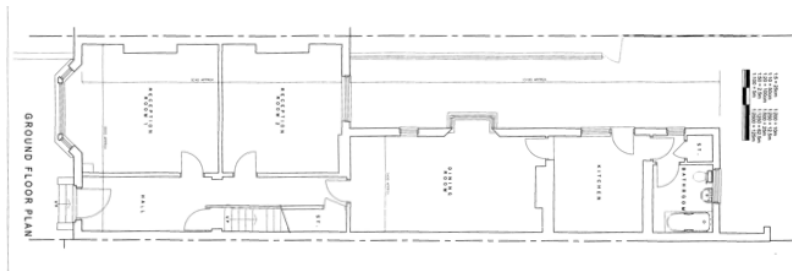
Attribute Mapping tool. This tool allows you to edit attributes on objects.

Drawing a Refurbishment Project

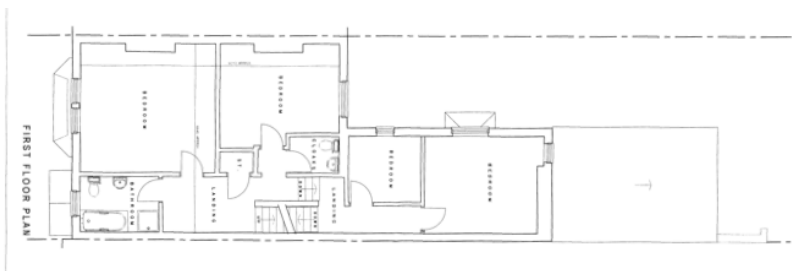
One of the challenges with refurbishment work is drawing up the existing building. Sometimes you can find drawings of the existing plan, but often, the buildings have been modified and do not reflect the drawings. Sometimes, particularly old buildings, they have had so many changes, there are no drawings for the buildings. You will have to measure the up the existing building. Even if you have existing drawings, you should measure the building to make sure that it has been built to match the drawings.

Find any information you can about the old plans.

Existing Ground Floor Plan



Existing Upper Floor



Elevation/Section



You need to have this information before you can start to draw the building or set up the file. Once you have this information, you can set up the layers for the building, then you can draw the existing walls and roofs, then you can draw the proposed walls and create the demolished walls.

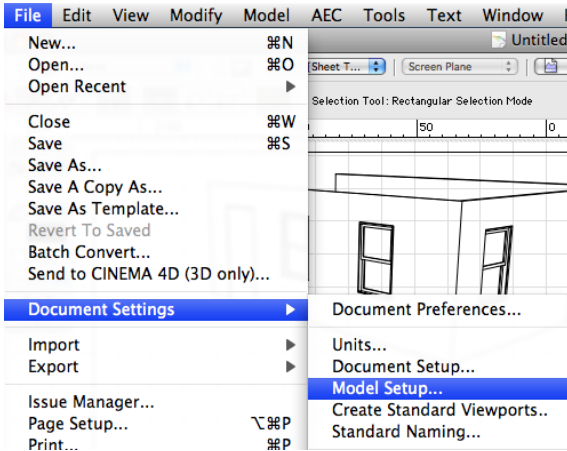
Set up the Layers

Start by setting up the layers for the project. You will need at least one layer for each floor of the building, a layer for the lower roof, upper roof and foundations. Foundations on an old building can be tricky to draw, unless you have some detailed and accurate drawings to work from.

You can use the Model Setup dialog box, or you can use the organization dialog box. The model setup can be used, but you will still need to edit the layers in the Organization dialog box.

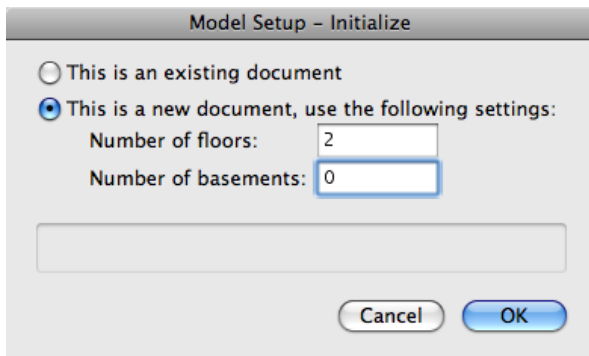
[cadmovie526](#)

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

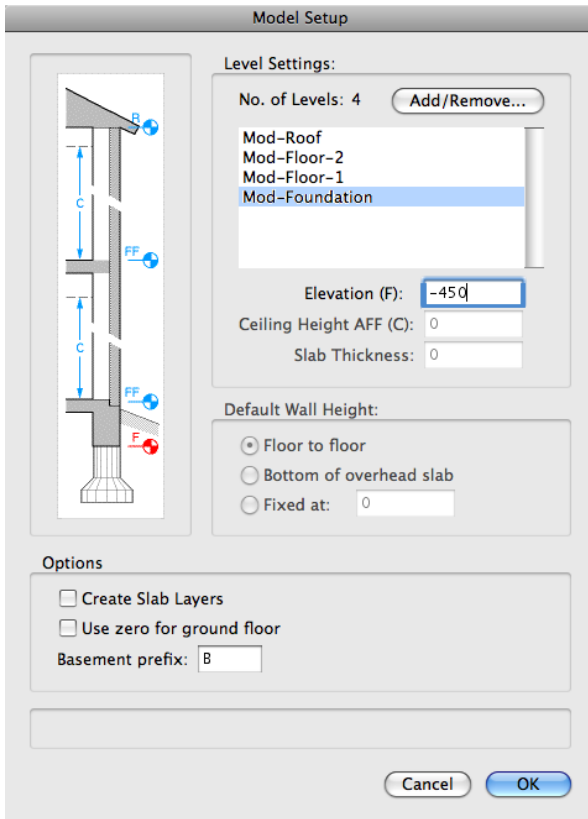


This opens a dialog box where you can choose the number of floors and basements.

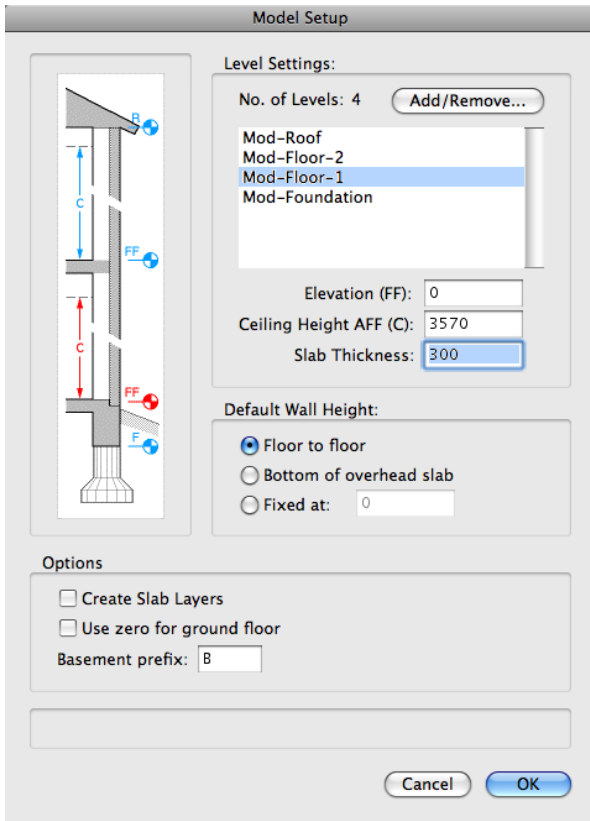
- Enter the number of floors.
- Click on the OK button.



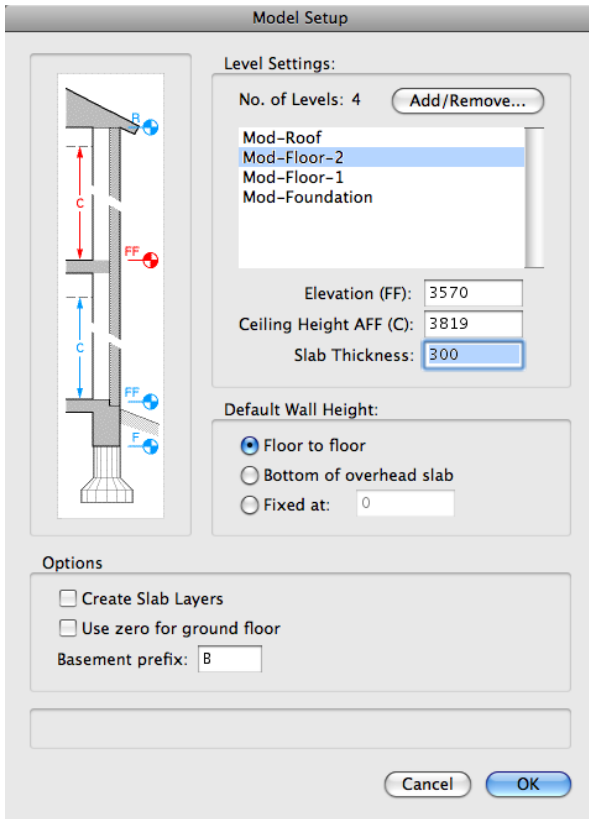
- Start at the foundation. Remember to start the foundation below to 0.



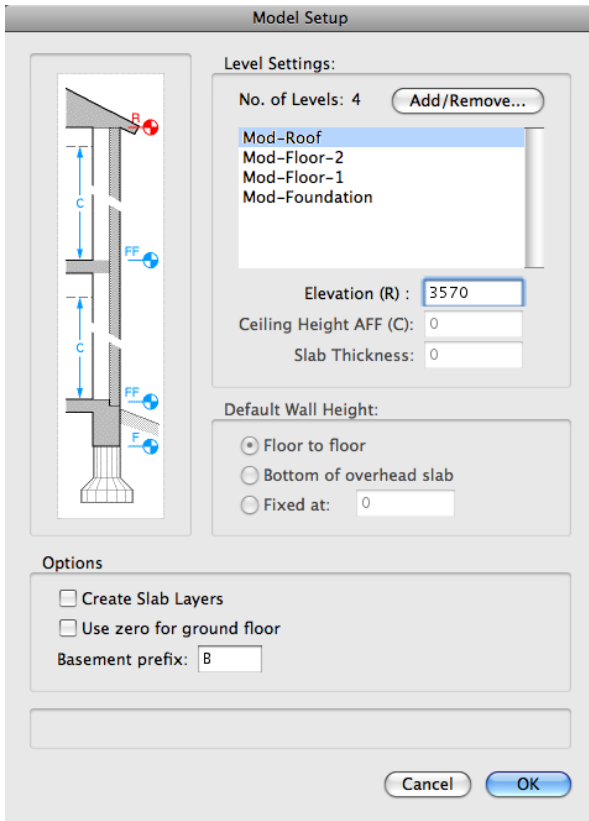
- Then click on the first floor and enter the setting you need. This floor is the datum level (0.00).
- Type in the floor to floor height to the next level. There is an area of floor at a lower level, we can take care of that later.



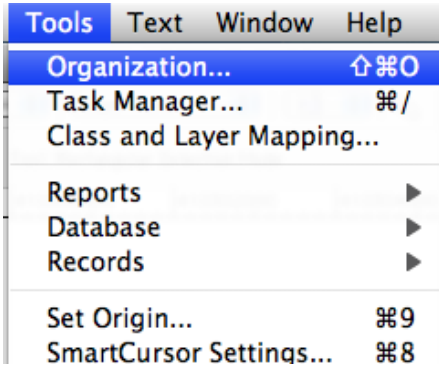
- Click on the next floor.



- Enter the datum level for the floor, the finished floor level.
- Enter the Ceiling height.
- Click on the roof level.
- Enter the datum level for the ceiling, I always use the datum level of the floor supporting the roof.



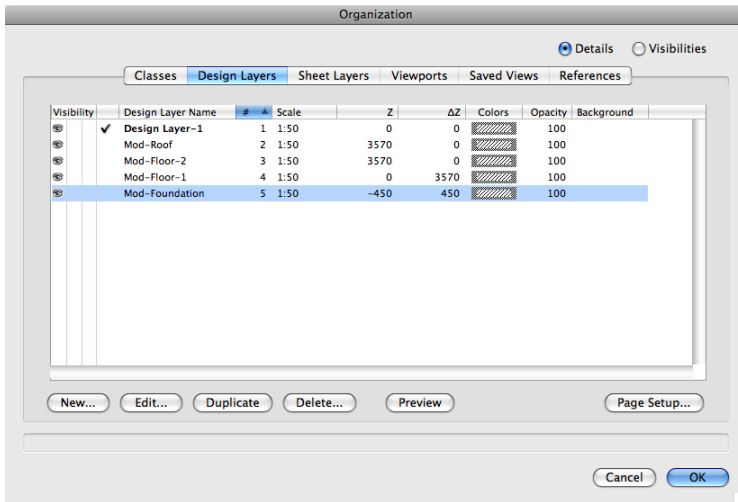
- Click on the OK button.
- Go to the **Menu Bar**.
- Choose **Tools > Organization...**



This will open the organization dialog box. Even though you have used the model setup dialog box, you still need to check the set up of the layers.

It is tempting to set up layers for each of the different floor levels on the upper floor. This will cause trouble when you join walls together on the upper floor. It is easier to have the walls on the same layer, and set some walls down to the correct height. So, you can leave the upper floor, and use the settings from the model setup dialog box.

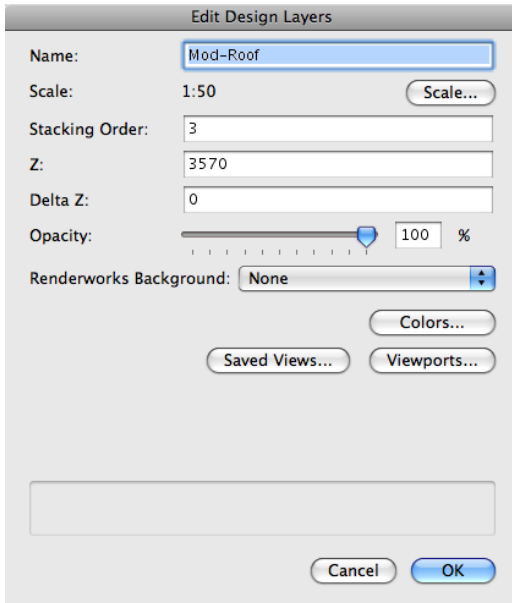
[cadmovie527](#)



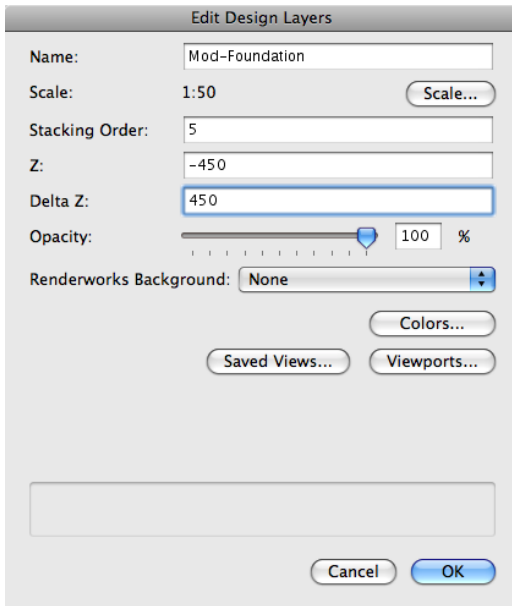
You might notice that the plans and elevations showed a roof at the lower

level, covering a small part of the lower floor. Ideally, this should have its own roof layer, so that we can show the roof when we create the floor plan for the upper floor. The model setup dialog box will not create this roof layer, so you need to create it.

- Click on the **New...** button.
- Name the Layer, and set the Z and the delta Z correctly.



- Check all the other layers and make sure they have the correct Z and delta Z.



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

Importing Information

If you can, import information from a reliable source. Your local council might have plans in digital or paper form. If the plans are paper, you will need to copy them and scan them. If the plans are digital, you are half way there.

Scanned Information

Copy the drawings and scan them on a scanner. I have an A3 scanner and printer. It was not that expensive, so I recommend it. Scanning in A4 and trying to join the scans together is a nightmare, but it can be made easier if you use Photoshop.

Photoshop has a command for stitching panorama photos together. This can be used to stitch together the scans to form one scan.

Drawing from Site Survey

A site survey where you visit the site and take your measurements. This is the tricky part. What should you measure, how should you measure it and how should it be recorded.

One architect I used to work for, would use one sheet of A4 for each room of the project to record all the measurements. This really made it easy to record everything. But remember you will need some overall dimensions to tie all the rooms together.

Some clients use laser tape measures. Some use sonic (but I'm not a fan of these) and some use the old steel or fiberglass tape. Steel tapes have less stretch in them, but they are usually no good for very long measurements. Fiberglass tapes have some stretch, but they are good for very long measurements.

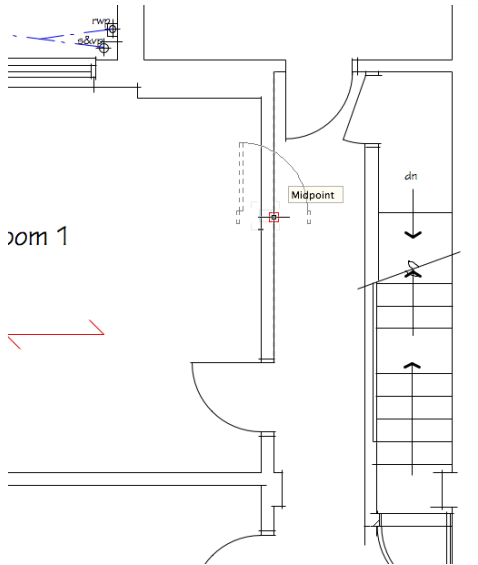
Should you use Lines or Walls.

[cadmovie528](#)

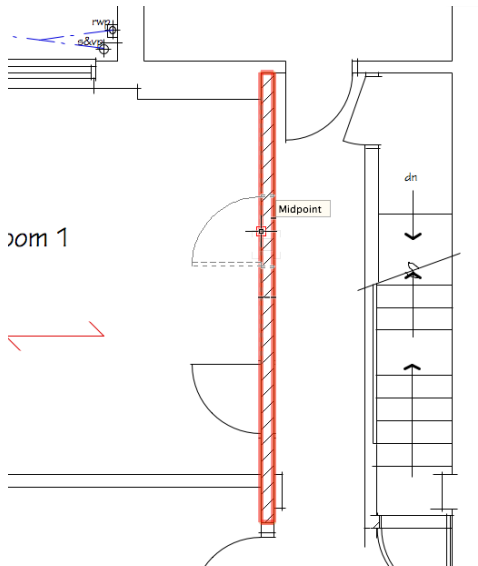
When you finish, you should certainly end up with walls. You can use lines to help get the walls started, and to set up control lines, but the end result should be walls.

The reason we need walls, is that you will need to show demolished walls, proposed walls, additional windows, and new doors. If you do not draw with walls, it will not be easy to show this information, and it will not be as easy to add doors and windows.

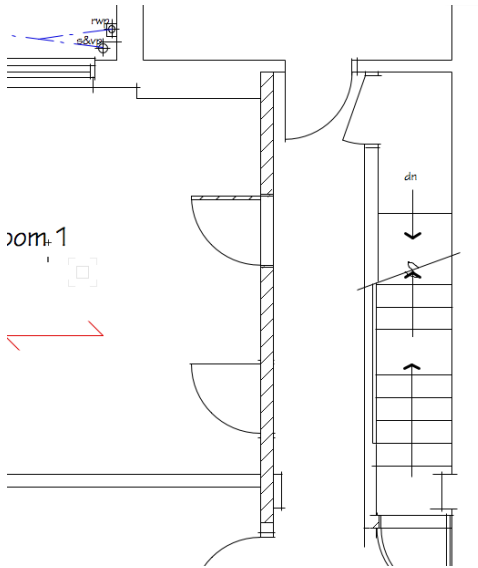
- Here are wall lines drawn with lines. Notice how the door is not rotating to match the wall.



- When you draw walls with the wall tool, the door will recognise the wall and will rotate to suit the wall.



- A door will break the wall, but this will not happen if the wall is drawn with lines.



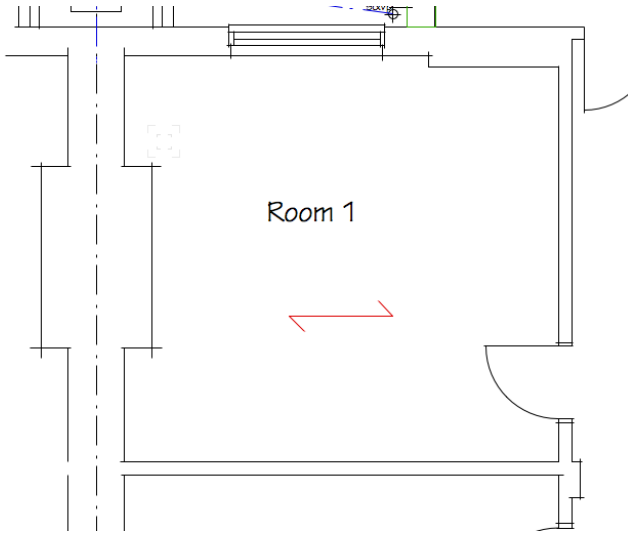
How to make complex walls.

[cadmovie529](#)

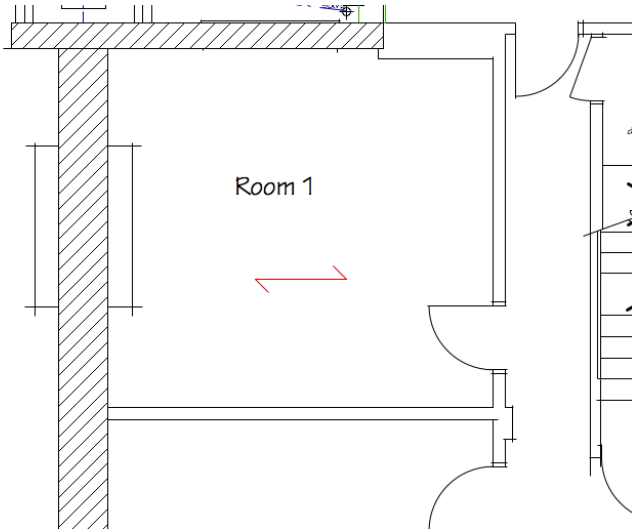
Vectorworks 2010 and 2011 have a wall editing concept called Wall Sculpting. This allows you to create projections and cut-outs in walls. When you look at the plan of the old building, there are old fireplaces, different wall constructions and old blind windows.

If you have an older version of Vectorworks, you can not use Wall Sculpting, so you will have to use walls or walls and pillars. Pillars don't work as well as walls, because you can not insert a door or window into a pillar.

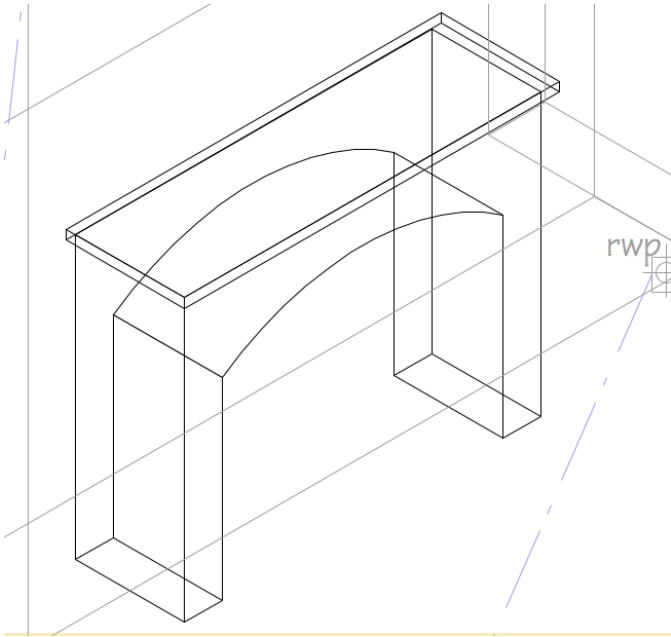
Here is the plan drawn with lines.



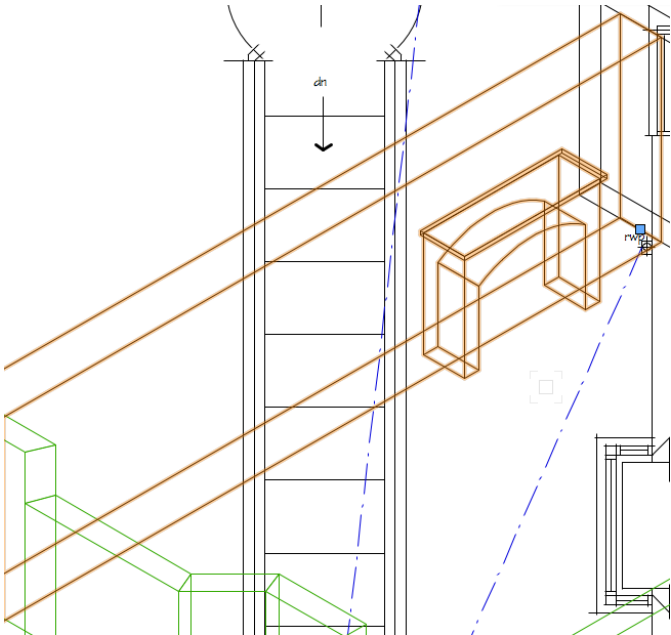
Here is the plan drawn with walls. Notice the old fireplace. We can use the wall projection command to add the fireplace to the walls.



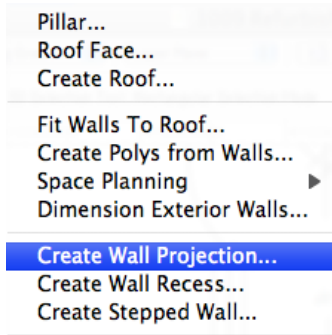
- Draw the model of the fireplace. This is not anything like creating a pillar, the fireplace can be a complete model of the old fireplace.



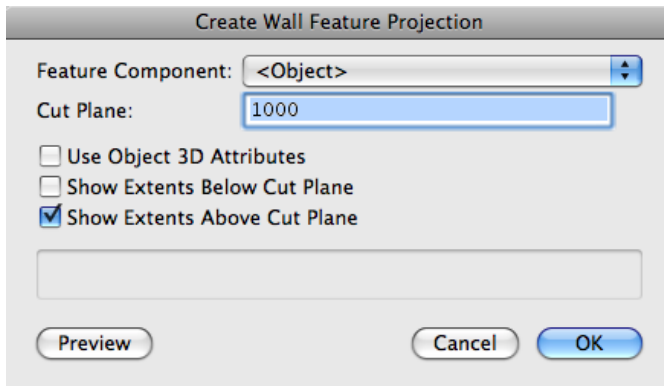
- Select the wall and the fireplace.



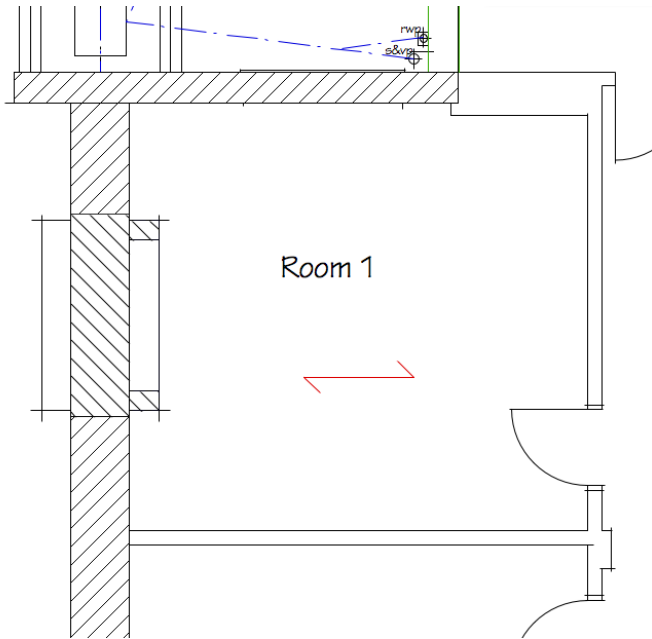
- Go to the **Menu** bar.
- Choose **AEC > Create Wall Projection...**



- Choose the height for the **Cut Plane**. This is the height where the plan view is cut. Typically, you would use **1000mm (3')**, but for the fireplace you might use more, so you see the fireplace below.



- Click on the **OK** button.



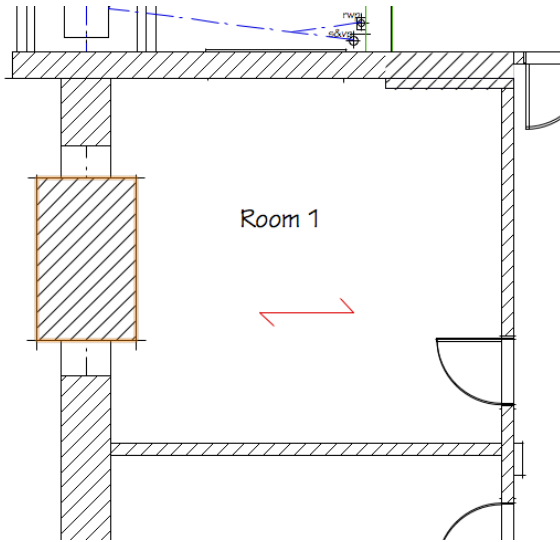
The advantage of these wall sculptings is that they move with the wall, and you can insert doors and windows into them. If you use a Pillar, or a Pilaster, you can not insert a door or window into it, but you need the Vectorworks 2010, or 2011 to do this.

If you have an older version of Vectorworks, you can use walls, Pillars or Pilasters to draw projections.

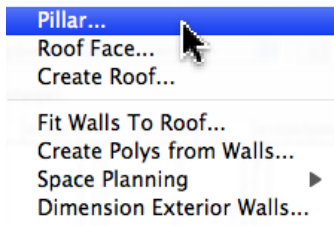
[cadmovie530](http://www.cadmovie530.com)

Pillars are pretty cool, and before we had wall sculpting, this was the way to add projections to the wall. But the pillar is like an extrusion, where it has the same plan shape all the way along its length. So, you can not create a fireplace that stops at **1500mm (5')** above the floor.

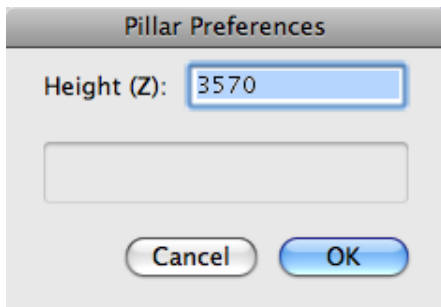
The first step is to draw the plan of the object you want to use as the pillar.



- Go to the **Menu** bar.
- Choose **AEC > Pillar...**

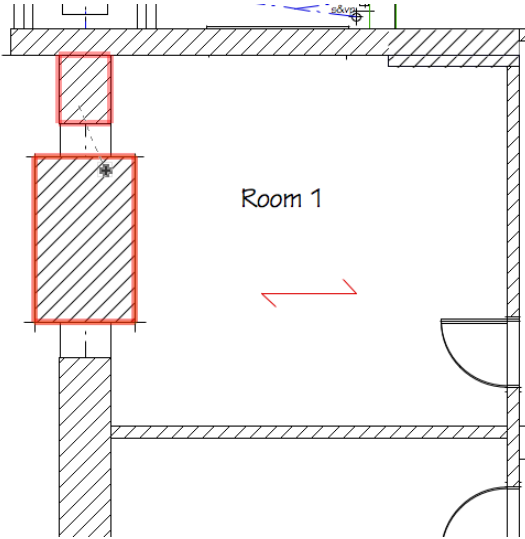


- Enter the height and click on the **OK** button.

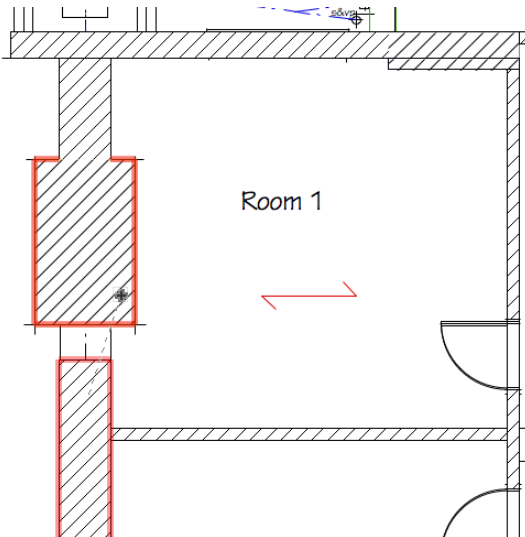


Vectorworks makes this into a pillar. In plan view, the object looks the same as it did before. In 3D, the pillar will be extruded to the height you entered.

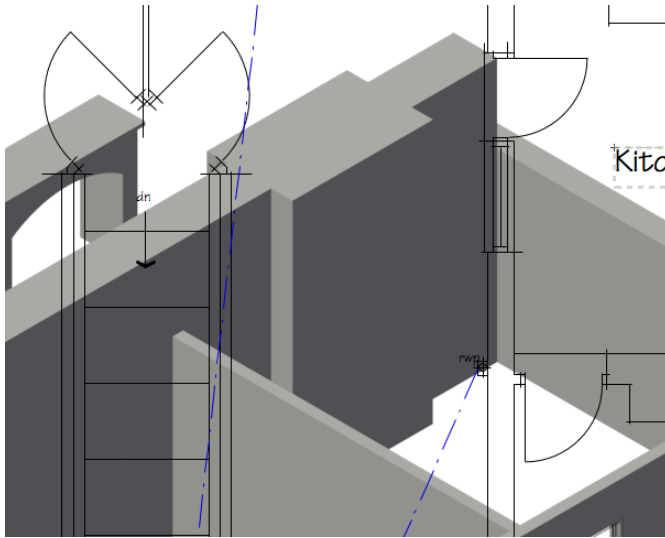
You can use the wall join tool to join a wall to the pillar.



The pillar breaks where the wall joins it.



In 3D, the walls and pillars look like they work well together, and they do work well together. But you can't place a door or wall into the pillar.



[cadmovie531](#)

The Pilaster tool can be used to add projections to walls. They can work well, but you can not add a door or window to the pilaster.

- Go to the **Building Shell** tool set.
- Select the **Pilaster** tool.



- Go to the Tool bar.
- Click on the **Preferences...**
- Fill in the preferences to suit.

Object Properties

Pilaster

Use Center Marks

Center Mark Size: 150

Use Component: Architectural Only

Use Wall Height

Arch Height: 3000

Arch. Comp. Class:

Struct Offset X: 0

Struct Offset Y: 0

Struct Offset Z: 0

Shaft Type: Rectangular

Shaft Width: 1902

Shaft Depth: 290

Shaft Corner Radius: 0

Shaft Taper: None

Taper Width: 350

Taper Depth: 350

Shaft Finish:

Use Capital

Capital Type: Rectangular

Capital Width: 600

Capital Depth: 300

Capital Height: 200

Capital Corner Radius: 0

Capital Finish:

Use Base

Base Type: Rectangular

Base Width: 600

Base Depth: 300

Base Height: 250

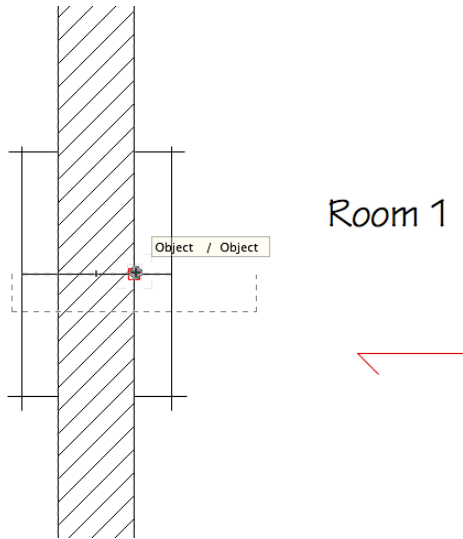
Base Corner Radius: 0

Base Divisions: 1

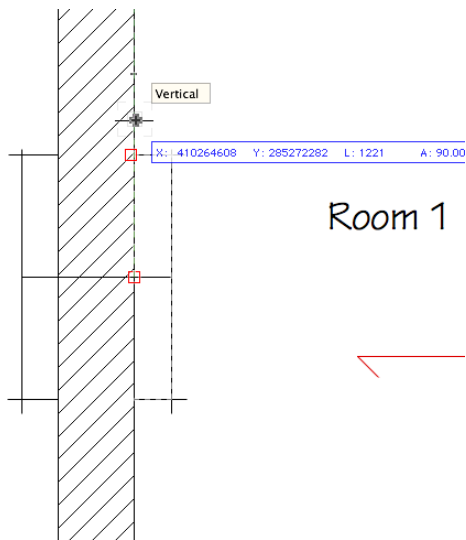
Divider Depth: 50

Divider Height: 50

- Click on the **OK** button.
- Move to the wall.
- Click once.

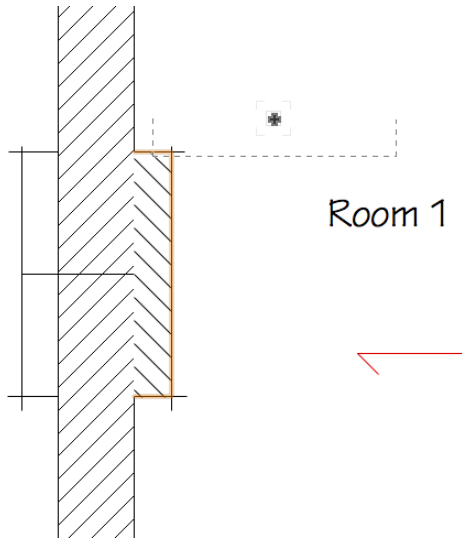


- Rotate the pilaster to suit the wall.

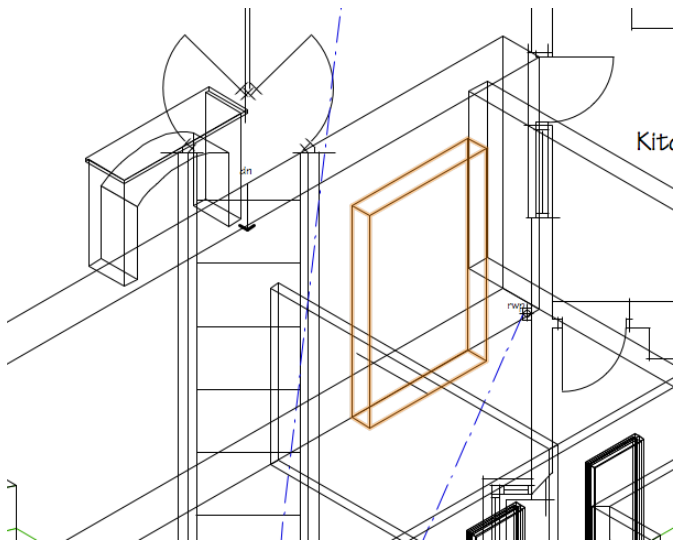


- Click once.

The pilaster looks a bit like a wall in plan view.

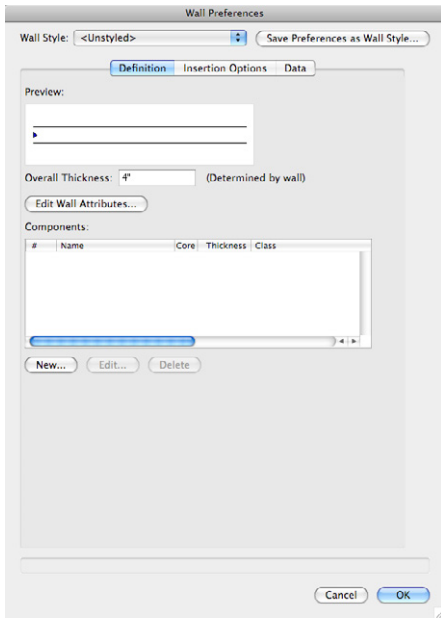


In a 3D view you can adjust the pilaster to have the correct height for the fireplace, but you still can not put windows and doors in the area of the pilaster.

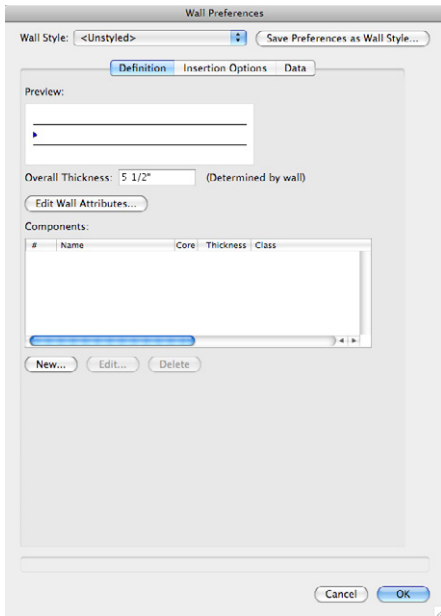


So, instead of five wall styles, we now have ten. What a hassle. It would be better to make all the existing and demolished wall unstyled.

- Select the wall tool.
- Go to the Tool bar.
- Click on the Preferences button.
- Set the wall to be unstyled. Then set the wall thickness.

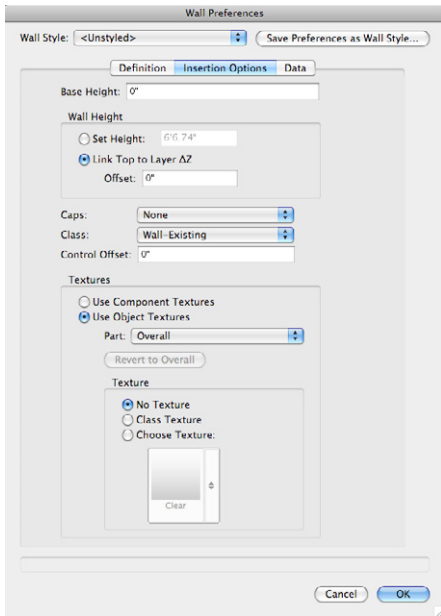


- Now, draw all the walls with that thickness.
- When you want to change the wall thickness, go back to the preferences on the Tool bar and change the wall thickness.

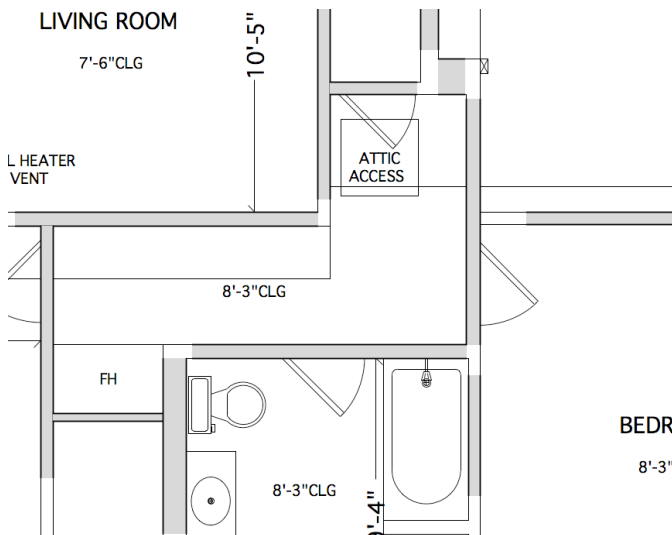


This might seem slow, but for me, it is quicker than making a lot of wall styles, and duplicating the wall styles for the demolition work.

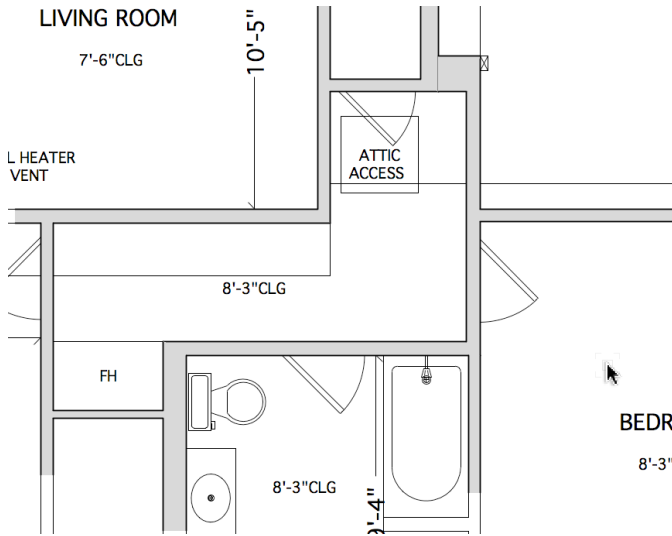
- Don't forget that when you use walls, even unstyled ones, you can still tell Vectorworks what class to assign the walls to.
- Click on the Insertion Options tab to set the wall height and class for the wall. This can save you a lot of time later on.



- I find it quicker to draw parts of the walls, rather than trying to draw the whole wall.



- Use the Wall Join tool to join the walls together.



If you use the classes as I've suggested, you can edit the class definition to control the color and line weight of the walls. This makes it easy for me to see which walls I have drawn, and which walls are left.

Later on, you can change the class definition to make the existing walls less obvious, and you can use the class overrides in viewports to change the color and line weight.

What Classes Should you use

You should be using classes for existing, demolished and proposed. For the walls, you might use classes like, Wall-Existing, Wall-Demo, Wall-Proposed.

Use these classes to help draw the existing walls. Then, set up the classes for Wall-Demo, so the walls look dashed. Set up the class for the proposed walls so they are easy to see, make them graphically different from the other classes.

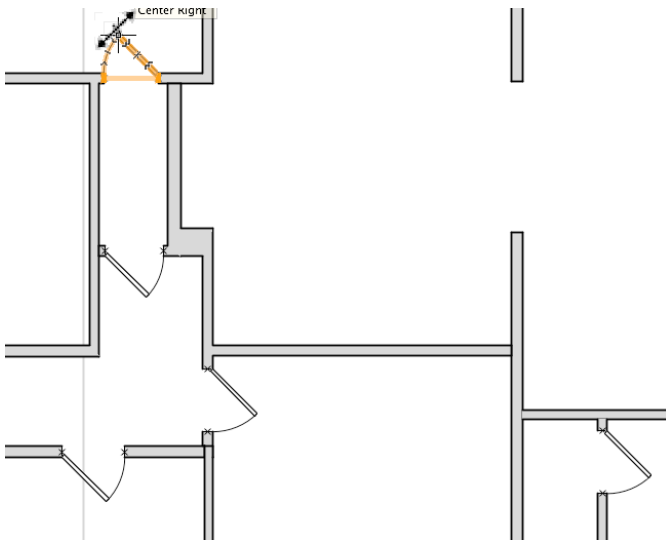
Even when you use unstyled walls, you can still assign them to classes automatically and use the classes to control the graphic style of the walls.

Proposed walls should be drawn using a wall style, especially one that comes from your wall style library.

Demolished Walls

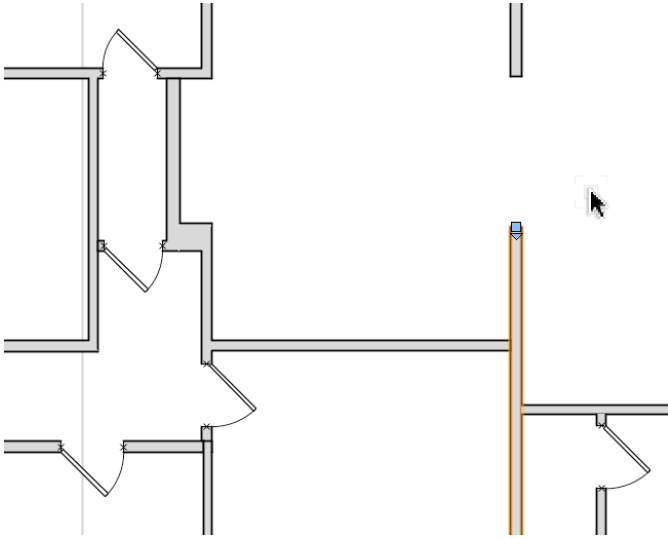
[cadmovie533](#)

Unstyled walls can work well for demolished walls, providing you use classes as I noted earlier. Because the class controls the graphic style of the walls, changing the class of the unstyled wall will change the fill and line weight.

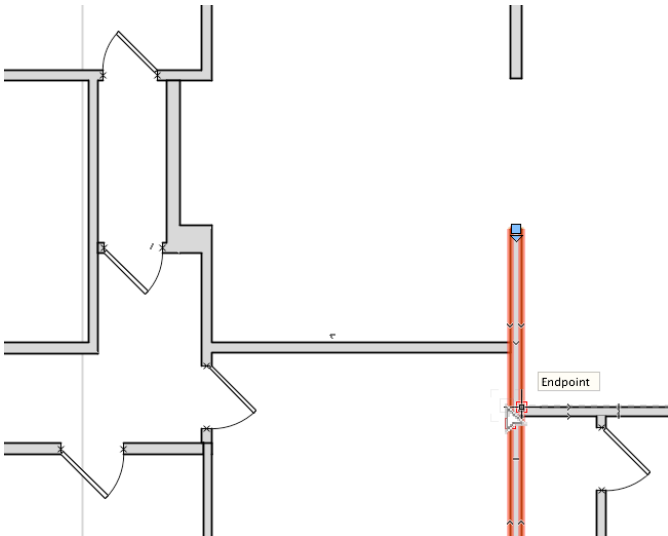


If part of the wall is to be demolished, use the split tool to split the wall into two or more part.

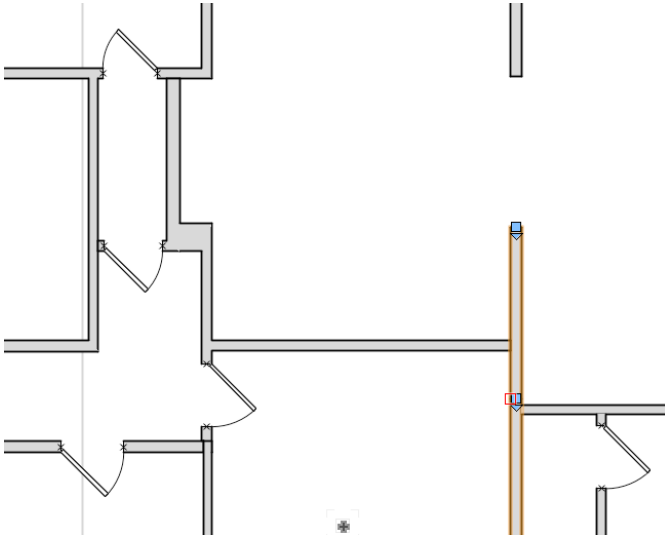
- Select the wall you want to split.



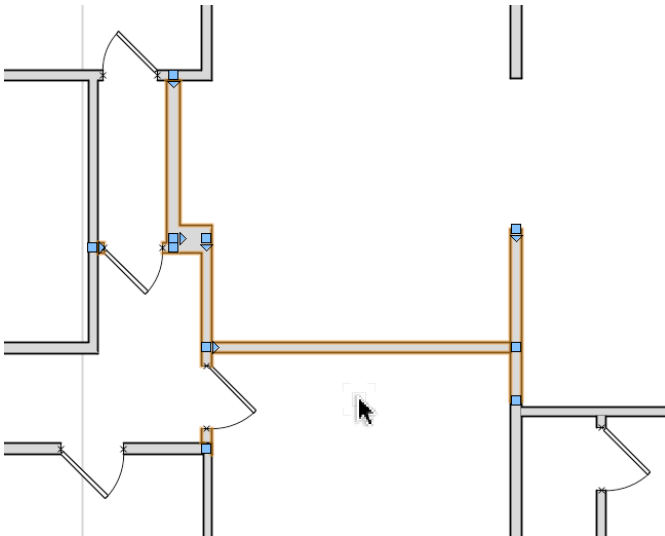
Use the Split tool to split the wall. Split the wall at the start of the demolished wall.



This will give you two walls. Both walls will be selected.

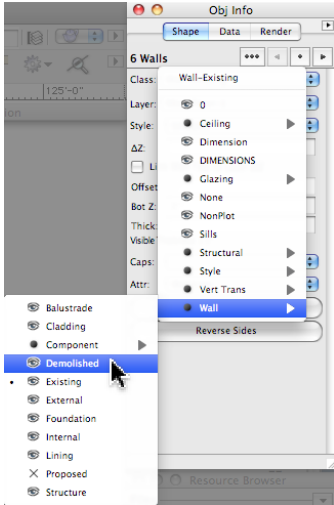


- Select all the walls that should be demolished. If the walls have doors, make sure you select the whole wall, including the door.

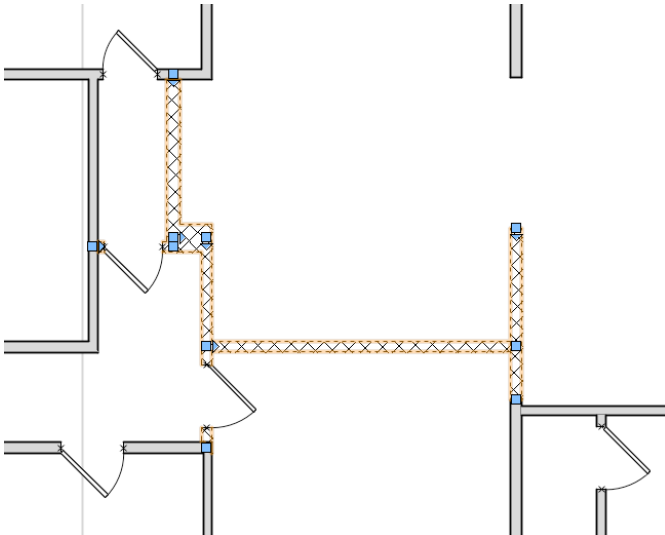


- Go to the Object Info palette.
- Click on the Class pop-up menu and choose the class for demolished

walls.



The walls will change their appearance.



Because we have used classes to control the appearance of the existing and demolished walls, we can override these changes in viewports. One topic

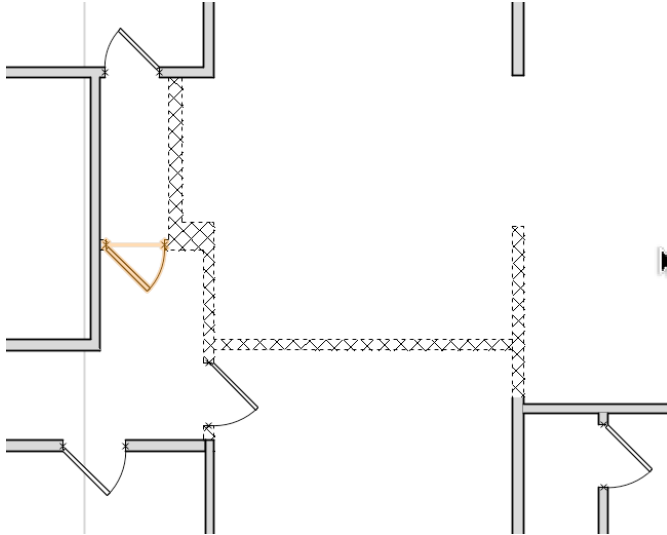
that often comes up is the question of creating existing, demolished and proposed drawings. Several clients use a layer for existing, a layer for demolished, and a layer for proposed. I just find this hard work. If the client makes a change (how likely is that?) you have double work to do. You have to edit the walls on the demolition later and the proposed layer.

Demolished doors and windows

[cadmovie534](#)

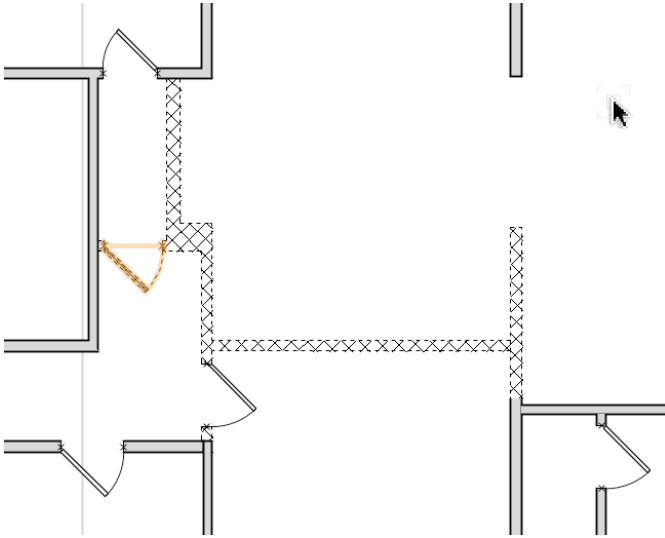
Doors and windows in demolished walls do not automatically look like a demolished object. We have a couple of choices. If you are using the standard Vectorworks window or door, you can edit each door manually, but assigning the object to the Wall-Demolished class. That should make the door or window look the same as the wall. Of course, if you want a special line style, then use a class to show demolished door and windows.

- Select the door or window.

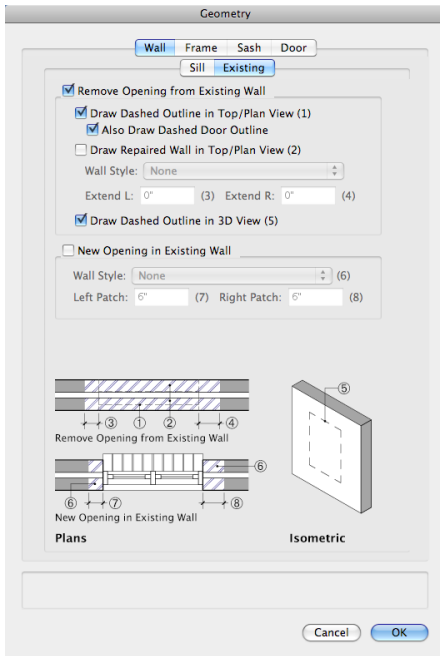


- Go to the Object Info palette.

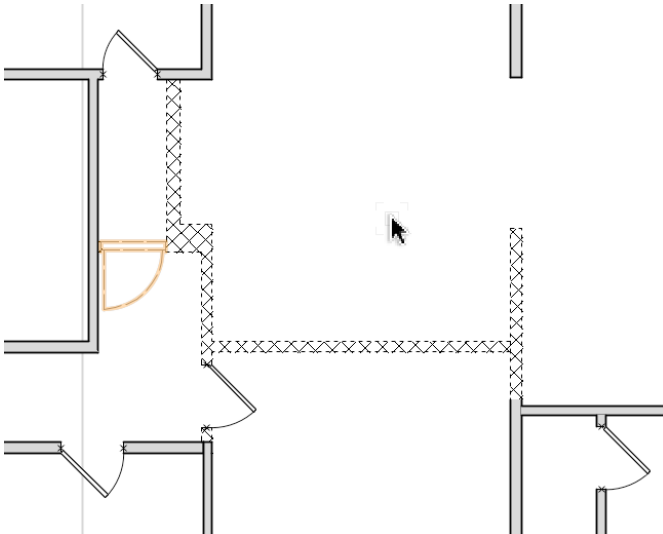
- Click on the Class pop-up menu and choose the class for demolished walls. The door will have the same graphics as the demolished wall. This also means that you can not turn off the door without turning off the demolished wall.



If you have window (http://www.ozcad.com.au/products/window.php) you have other choices. Window allows you to select several setting for existing openings.



Window allows you to make openings in existing walls, demolished doors and even repaired walls to removed doors and windows.



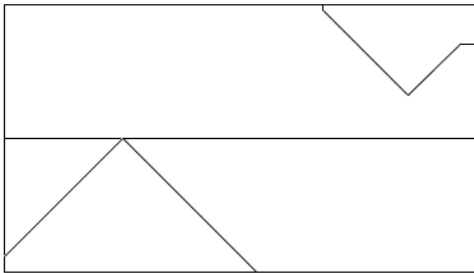
Roofing

[cadmovie535](#)

There isn't anything special to do with roofing, but you must remember to use a class for the existing roof, a class for the proposed roof, and a class for the demolished roof. As with the walls, I prefer to keep all the roofs in the same layer, and use classes to control the visibility and graphic style.

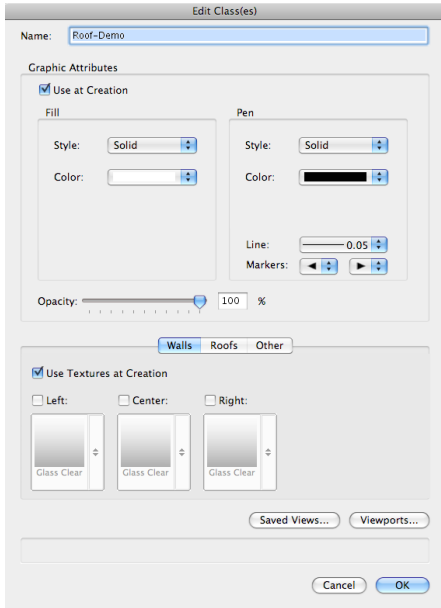
Remember to look at the other manuals on dealing with complex roofs, they will show you how to deal with a complex roof and how to edit a roof.

Draw the existing roof. Make sure you get the roof as accurate as possible. Create the cutouts in the existing roof, and create new roofs for the demolition areas.

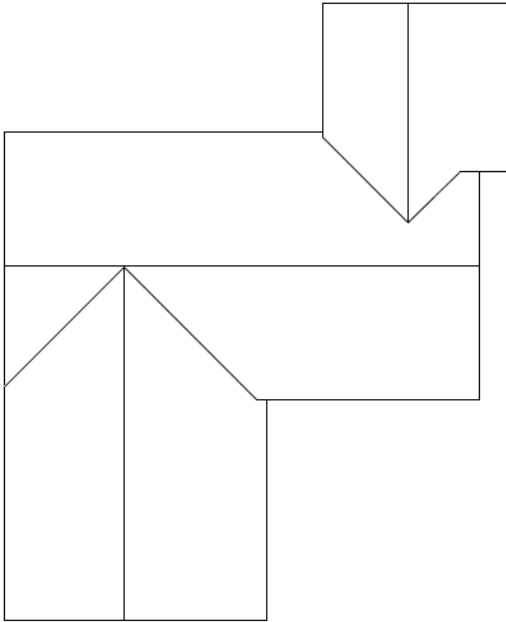


- You should use a class for the existing roof (Roof-Main) and a class for

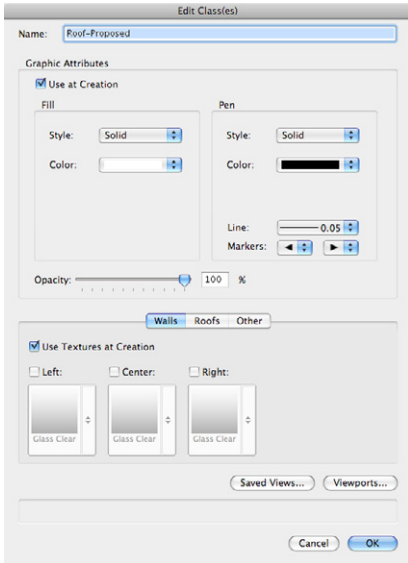
the demolished roofs (Roof-Demo). Set the classes so that they control the graphic style of the roofs. This will allow you to make drawings using viewports, where you can have different graphics for the existing and demolition.



- Draw the proposed roof. Make sure you get the roof as accurate as possible.



- Use a class on the proposed roof to control the graphic style of the roof. This will allow you to make the drawing easier to read later on.



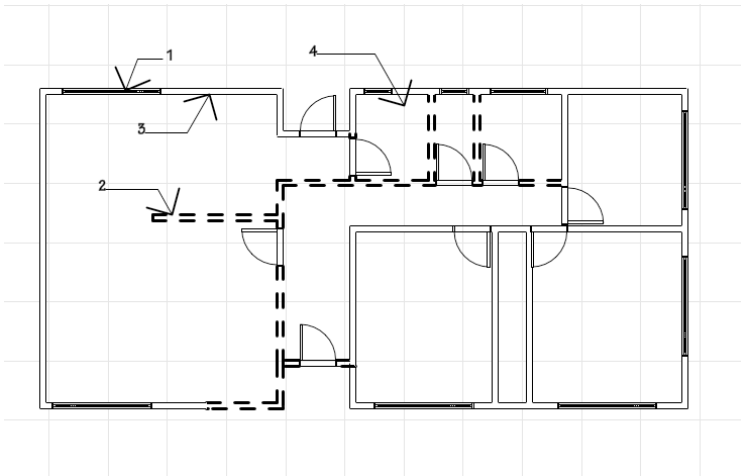
Drawings

Creating the drawings is the easy part, if you have used the layers and classes we have discussed. Use viewports to make the drawings, and use the class overrides in viewports to change the graphic style of the demolished and proposed parts of the building.

Floor Plans

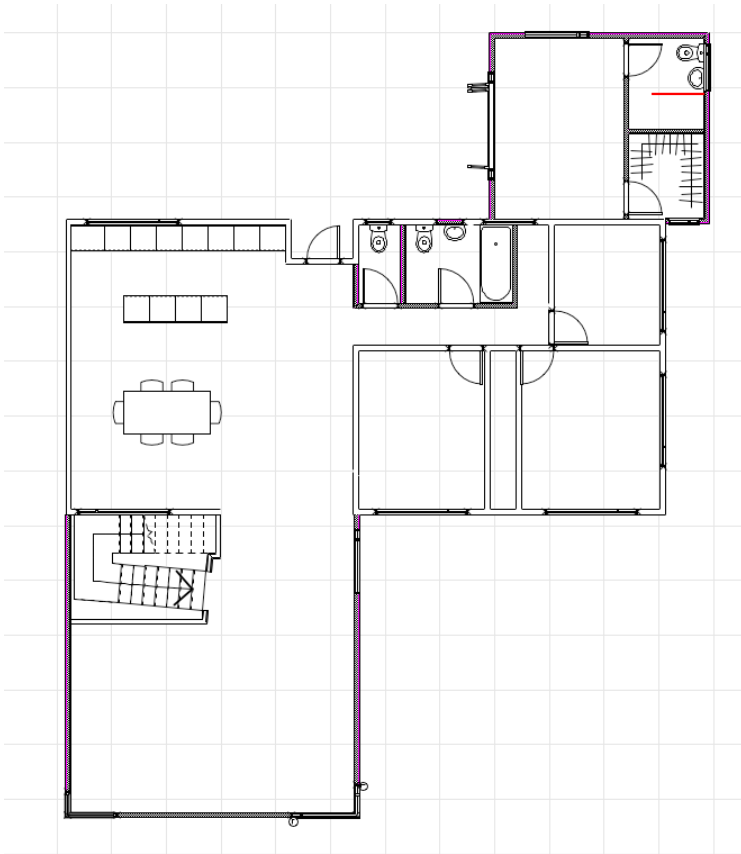
[cadmovie536](#)

- Use the viewport command to create the viewport for the existing building. Make sure you turn off all the proposed information.
- After creating the viewport, go to the Object Info palette and click on the Classes... button.
- Locate the class for the demolished walls and edit the class.
- Change the line weight so the demolished walls are easier to see.



- Use the viewport command to create the viewport for the proposed building. Make sure you turn on all the proposed information, and turn

off all the demolition work.



Roof Drawings

[cadmovie537](#)

Setting up the roof drawings is similar to the floor plans. Create the viewports for the existing and proposed. Change the class overrides so the drawings are easier to read.

I have used a lot of classes to create the walls and roof. Some people do not agree with me, but I find using fewer layers and more classes is a more productive way to work. The classes are the only way to get your drawings

more readable.

