Working with Page Layouts in Rhino 4

General Recommendations for Importing an AutoCAD Drawings

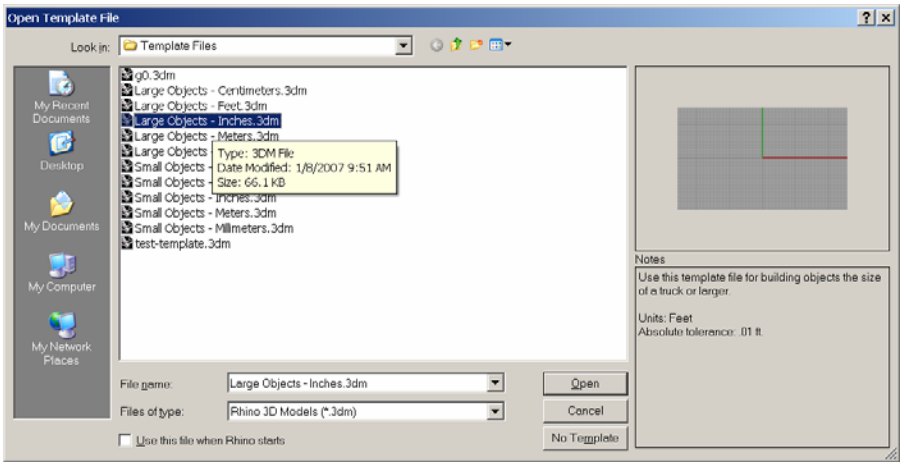
If possible, open the drawings in AutoCAD and rename the Standard dimension style to something unique. In AutoCAD, use the DDIM command for renaming the style. This will prevent Rhino from ignoring the Standard style when importing multiple drawings with the default Standard style.

IMPORT the DWG in Rhino, instead of INSERT. Currently there is a bug with the INSERT command that incorrectly resets the insertion point of nested blocks in the DWG. Use IMPORT until SR1 for Rhino 4 is available.

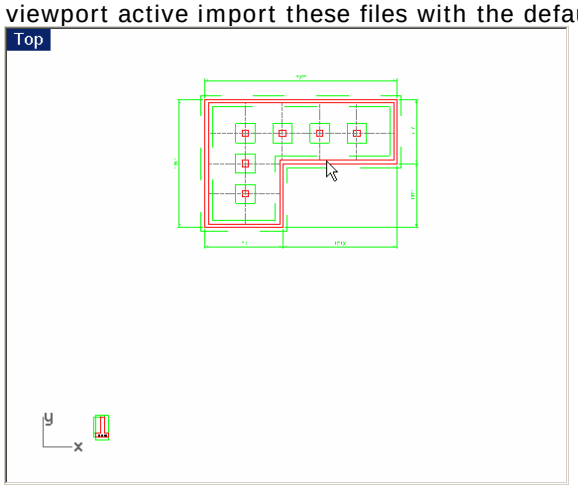
You will need the Working_with_layouts_in_Rhino4.ZIP for the models that this tutorial refers. Unzip and place files in a working Rhino folder. You will be asked to import or insert them in the following exercise.

Importing the Models

1. Begin a new Rhino model using the template ***Large – Inches***.
   This is an architectural drawing using architectural units, where the base unit is 1 inch.



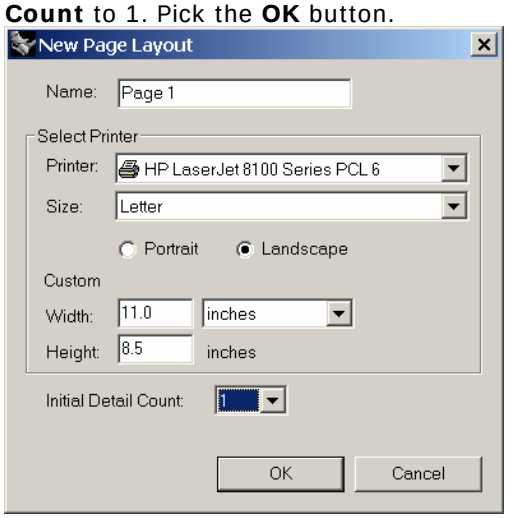
2. Import **PLAN-LAYOUT.DWG** and **SECTION-LAYOUT.DWG**. With the Top viewport active import these files with the default Import options.



3. Layout space is used to arrange the model for plotting. This placement is acceptable.

Setting up and Editing the Sheet Layout

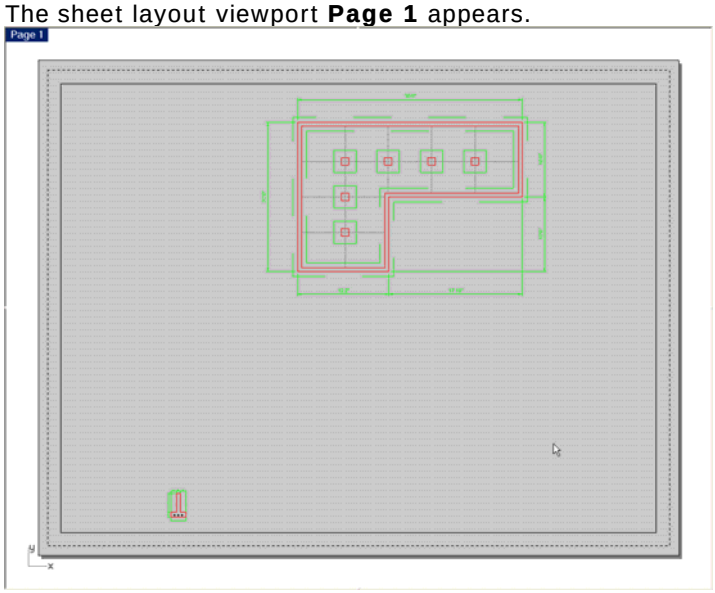
1. Type ***LAYOUT*** at the command prompt. For the first layout, use the default Windows printer, and 8.5x11 landscape orientation. Change the **Initial Detail Count** to 1. Pick the **OK** button.



Note: The printers on the Printer list are Windows printers that were add to the Windows operating system from Start -> Printers and Faxes.

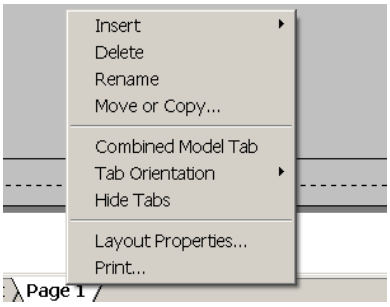
---

2. The sheet layout viewport **Page 1** appears.

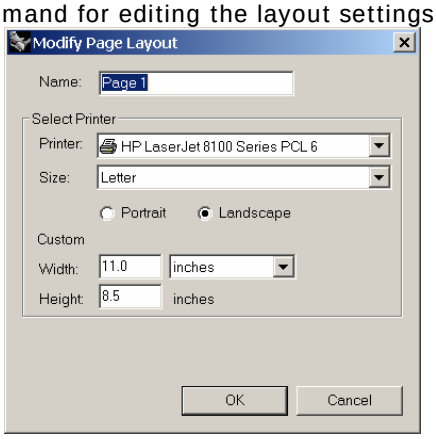


Note: The tabs below the Rhino drawing area switch between model viewports and layout viewports.

3. Right-click over the **Page 1** tab will bring up a menu. On this menu, you will find commands that manage the Page Layouts like Rename and Delete. You will also find the Layout Properties command for editing the layout settings



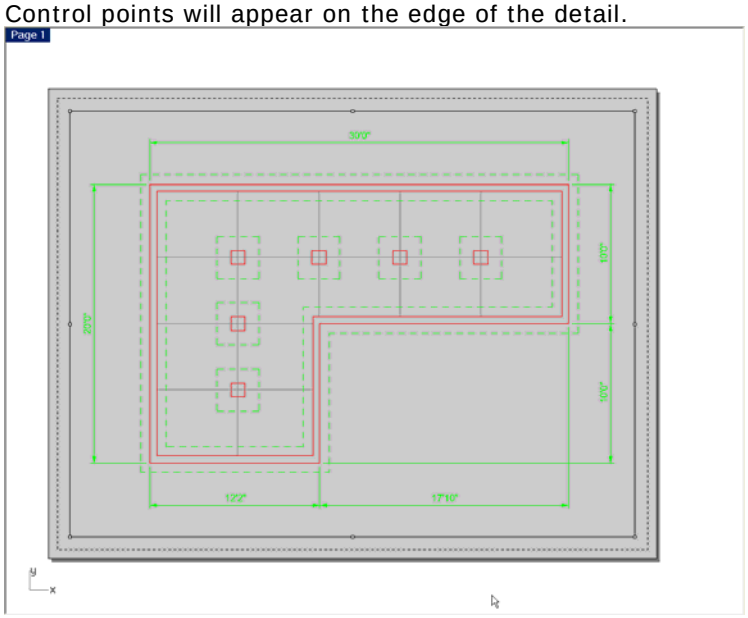
Right-Click Menu



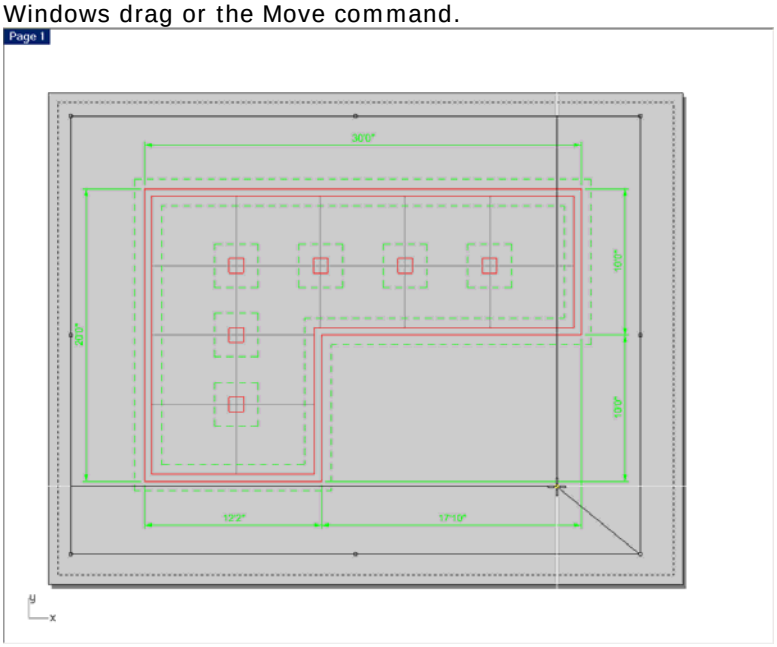
Layout Properties command

Arranging the Layout

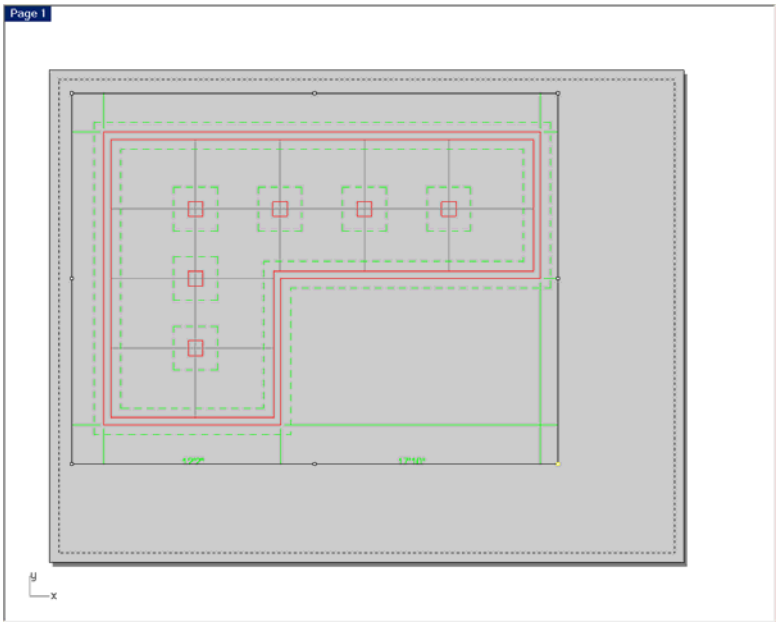
1. Highlight the edge of the detail. Type ***POINTSON*** or press the **F10** key. Control points will appear on the edge of the detail.



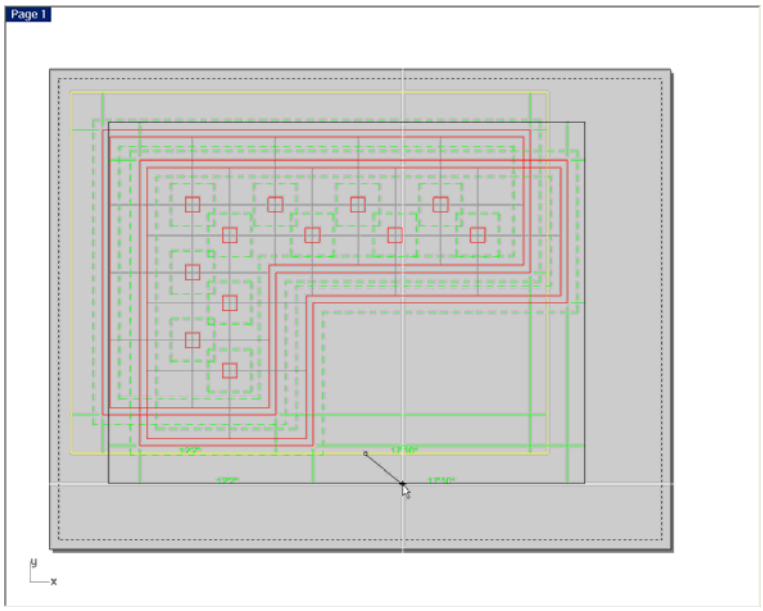
2. To resize the viewport, pick on the control point at one the corners. Press and drag it to a new location. The detail will resize. To move a detail you can use Windows drag or the Move command.



Drag the control to a new location.

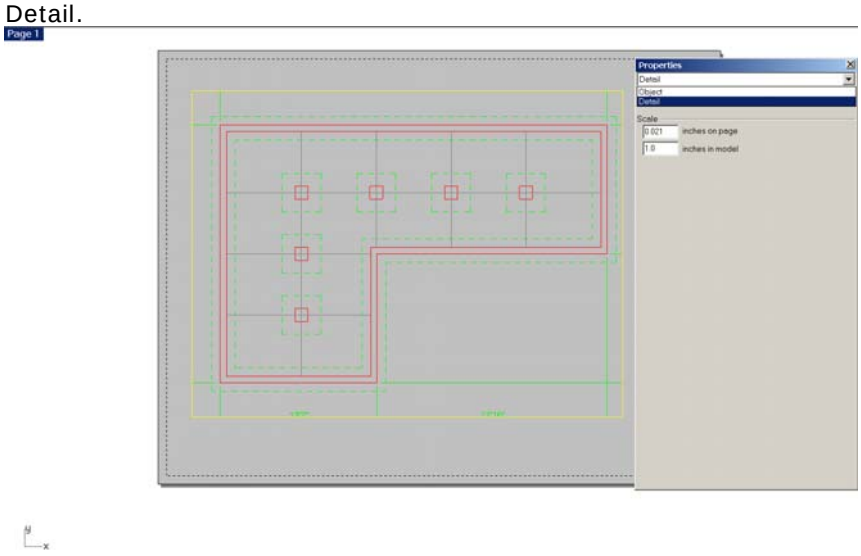


This resizes the detail



ESC to turn off the Control Points. Pick on the edge of the detail to highlight. Press and drag and detail to a new location

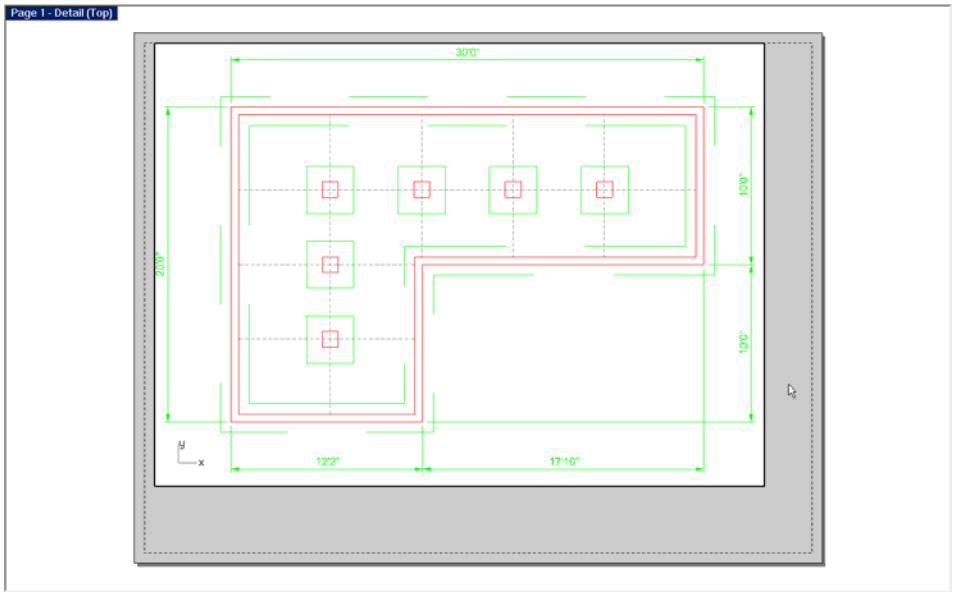
3. To set the scale to the detail, highlight the detail. Press **F3** to open the ***Properties***… command. In the Properties dialog, under the Object list, pick Detail.



4. Type **1** at **Inches on Page** 1 and **48** at **Inches in Detail**. This will simplify to **.021** and that is ok. Here we are telling Rhino to display 48 model units or 4' of model units for every 1 unit on the page. This is equivalent to 1=48 or ¼"=1'-0. There are 1'-0" of model units in every ¼" on the paper. This is another way of expressing the same 1=48 scale.
5. Last, resize the viewport with control points to show the entire plan.

Note: By default, **F10** is set to the **POINTSON** command while F11 is set to the **POINTSOFF** command. To use this but make sure the paper is active (not the detail.) Highlight the edge of the detail. Press F10. Pick on the corner control points to activate and drag to new position, resizing the detail.

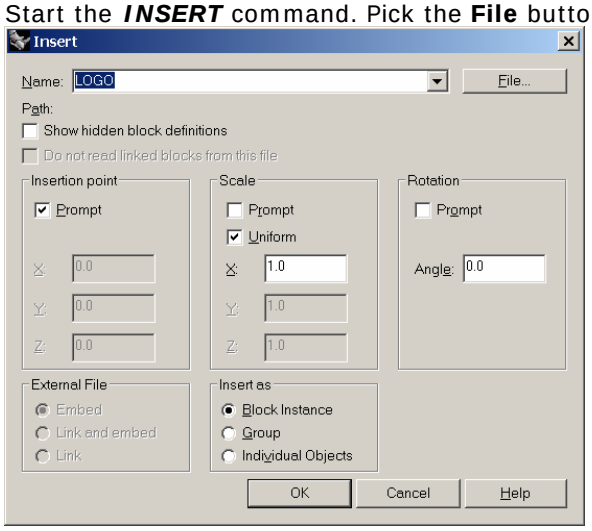
6. If panning is necessary, make the detail active by double clicking on it. The background in the detail will turn white and you will be able to pan and zoom the model.



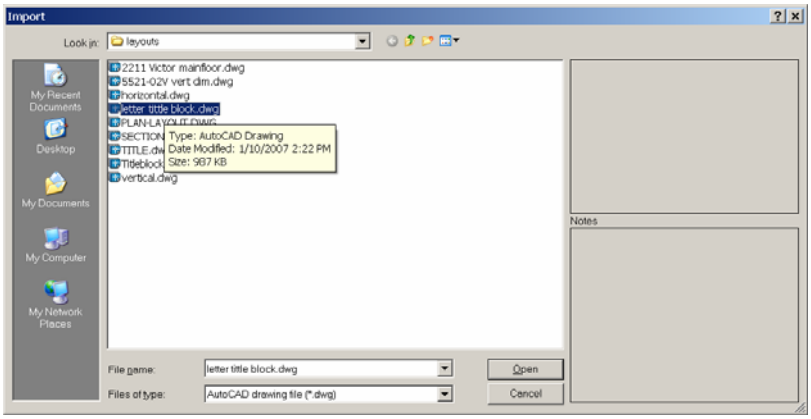
Note: Panning and zooming are available until the detail is Lock in the Properties dialog.

Adding a Title Block and Notes

1. Start the ***INSERT*** command. Pick the **File** button:



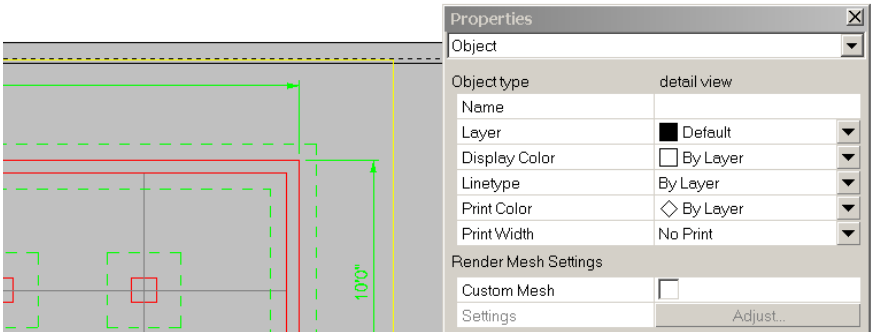
2. From the file dialog navigate to the tutorial files and select the file ***Letter Title Block.DWG*** Use the defaults of prompt for rotation and scale of 1 and place the title on the sheet



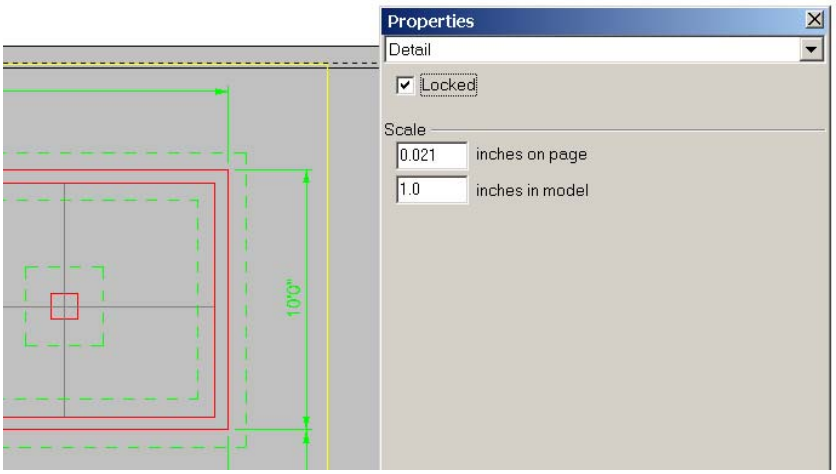
Note: If **File of Type** is set to **3DM**, pick DWG to insert the file ***Letter Title Block.DWG***.

---

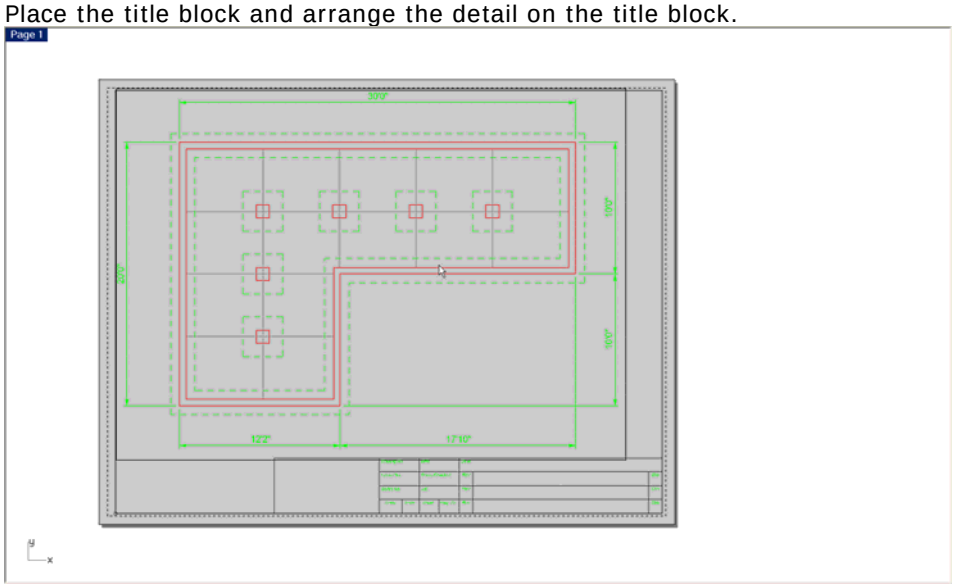
3. The edge of the detail should be set to ***No Print*** under the ***Print Width*** in ***Properties***. You can check this in ***Properties*** in the ***Print Width*** field.



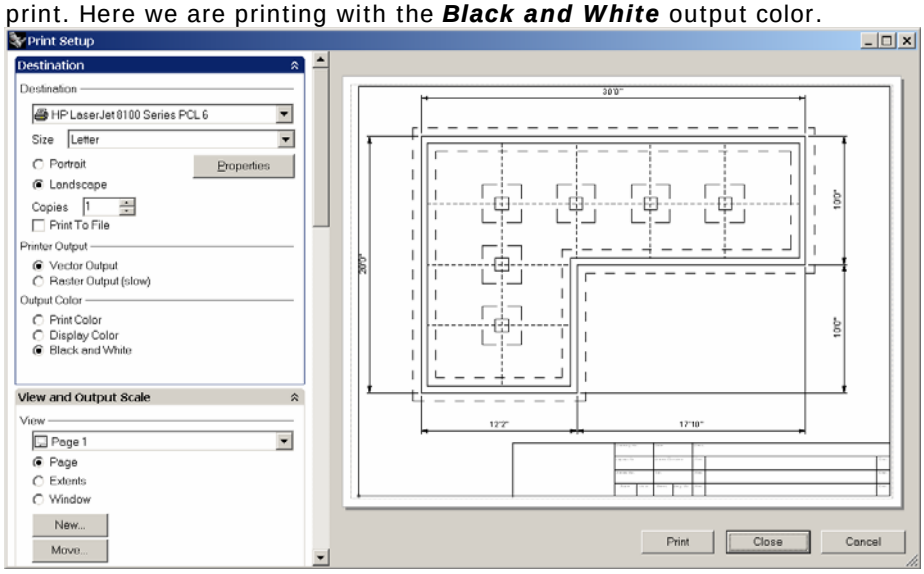
4. Lock the detail to protect for accidental zooming. Highlight the detail, in **Properties** from the Detail list, check **Lock**.



5. Place the title block and arrange the detail on the title block.



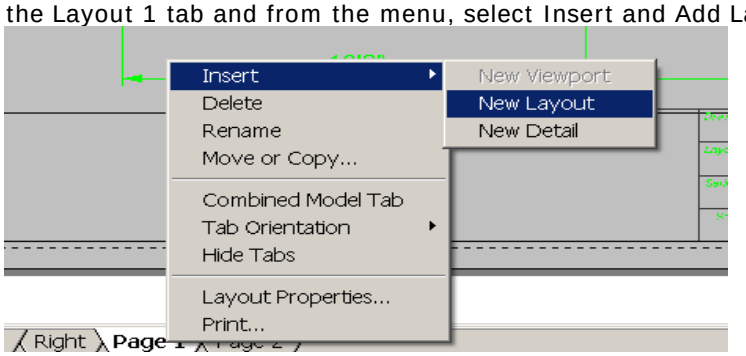
6. Pick ***Print*** from the ***File*** menu or the ***Print*** button. The layout is ready to print. Here we are printing with the ***Black and White*** output color.



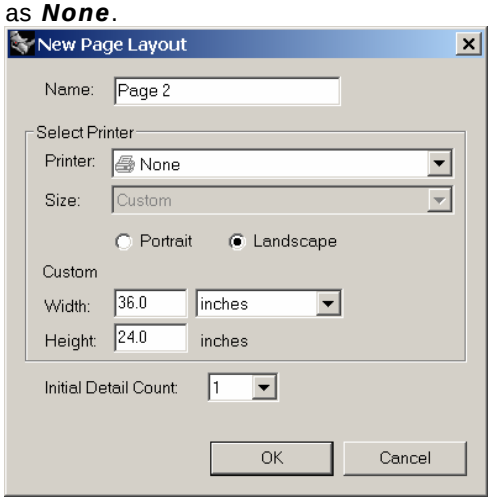
7. Print a test.

Adding Another Layout

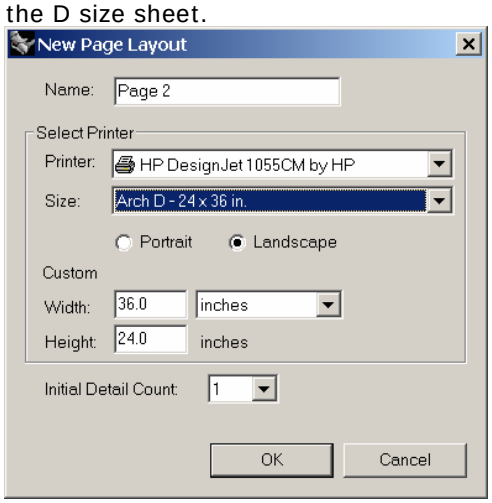
1. Let us add a new layout that uses a D size or 36x24 sheet. Right click over the Layout 1 tab and from the menu, select Insert and Add Layout.



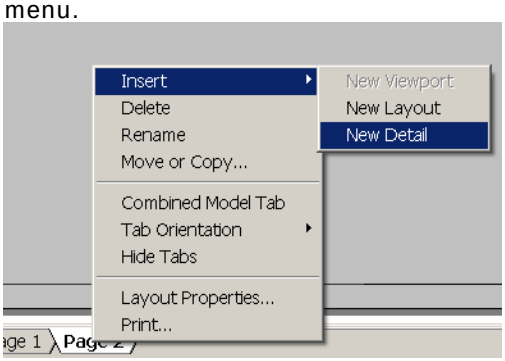
2. If you do not have a plotter that supports the larger sheet size, pick **Printer** as ***None***.



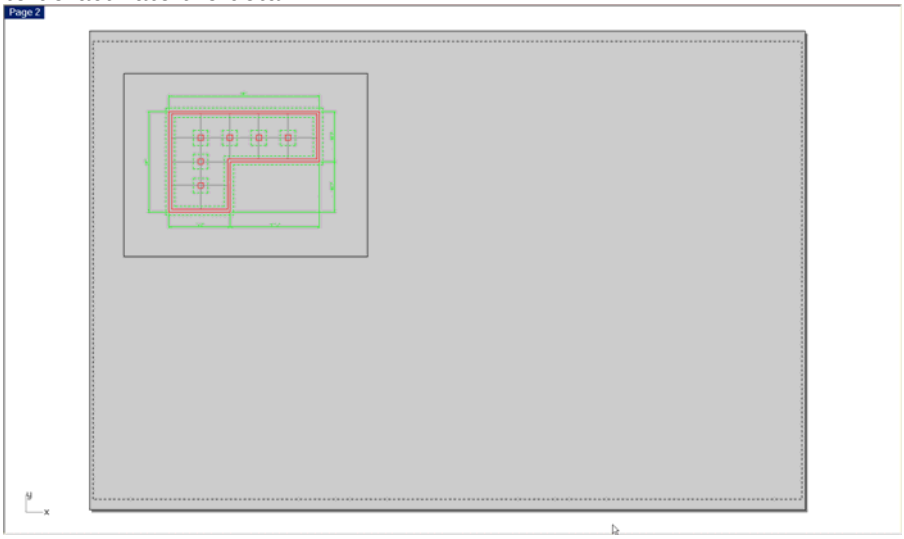
If you have a large format plotter as a ***Design Jet***, pick the plotter and select the D size sheet.



3. Right click over the ***Layout 2*** tab, and pick ***Insert*** and ***New Detail*** from the menu.

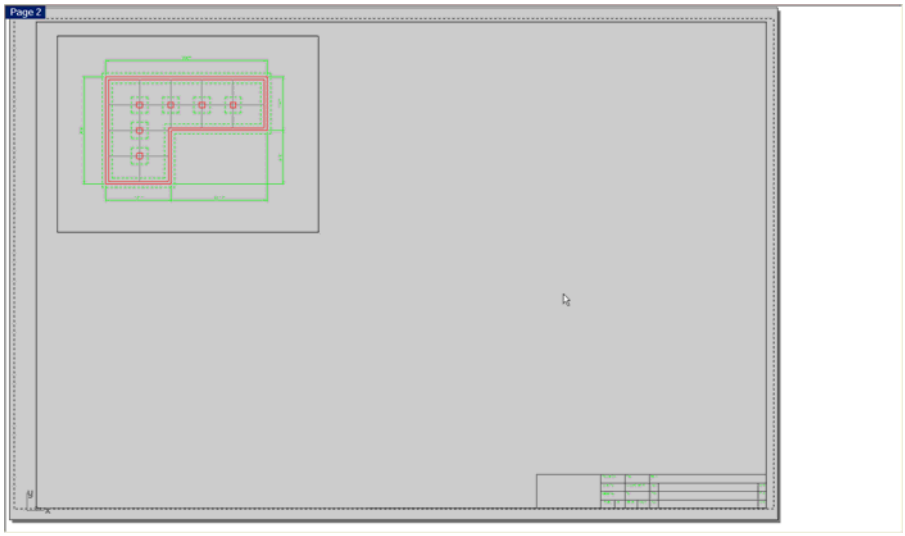


4. Pick two diagonal corners as shown below. Double-click to activate the viewport and zoom in on only the detail. Double click back on the sheet layout to de-activate the detail.



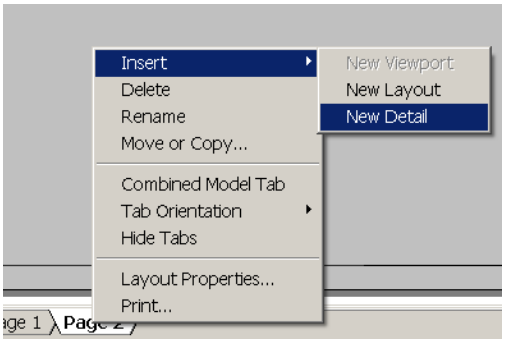
5. Resize and scale the viewport to 1 paper unit per 48 model units or.021 paper unit over 1 model unit. For help see previous section ***Arranging the Layout*** for details.

6. Type the ***INSERT*** command. Pick the ***File*** button and browse to the tutorial folder and select ***D Title Block.dwg***. Place it in the lower left corner of the sheet layout.

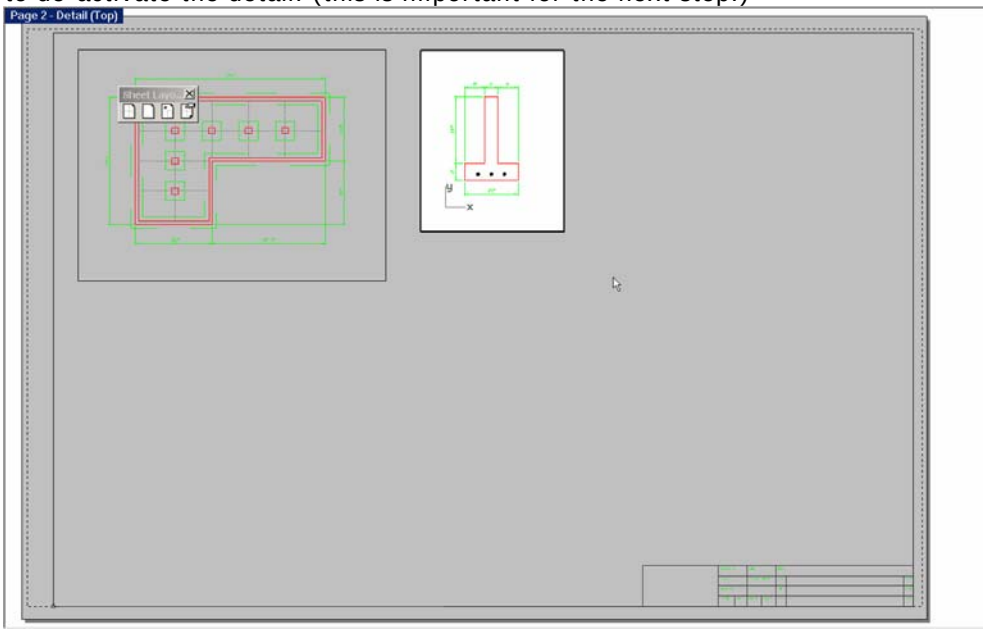


Adding Additional Details

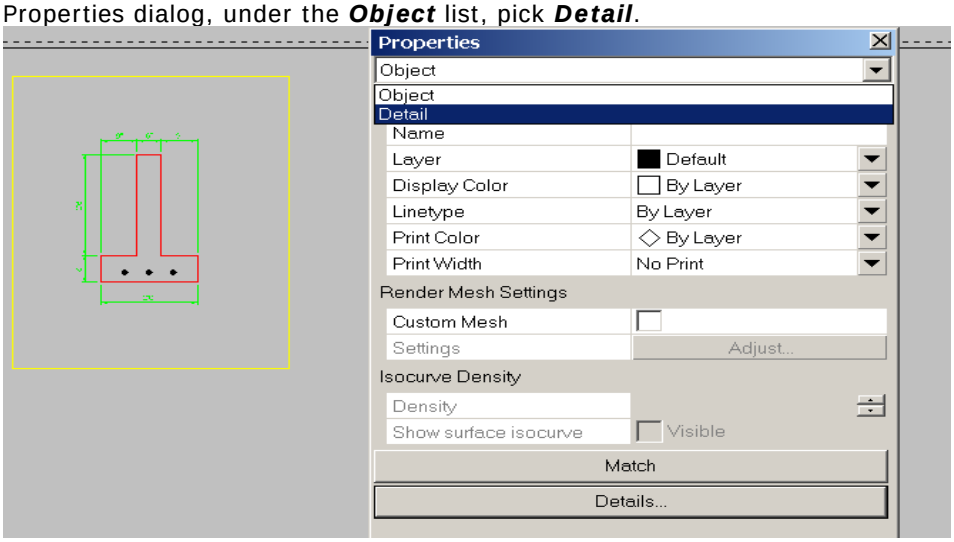
1. Right click over the ***Layout 2*** tab, and pick ***Insert*** and ***New Detail*** from the menu.



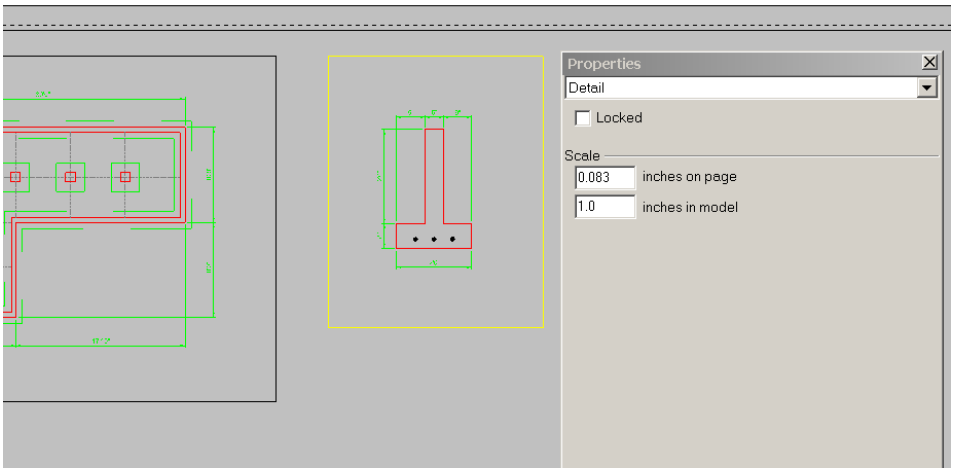
2. Pick two diagonal corners as shown below. Double-click to activate the viewport and zoom in on only the detail. Double click back on the sheet layout to de-activate the detail. (this is important for the next step.)



3. Highlight the edge of the detail, and open ***Properties*** with ***F3***. In the Properties dialog, under the ***Object*** list, pick ***Detail***.

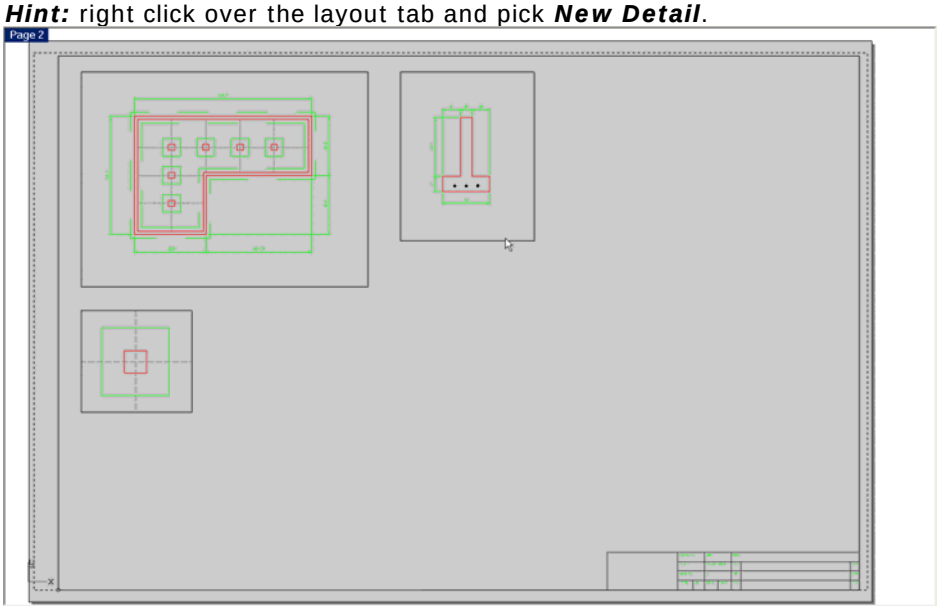


4. In the ***Inches on Page*** field type ***1***. In the ***Inches in Models*** field type ***12.*** Dialog will simplify to ***.083 inches on page*** equals ***1.0 inches on model.*** These are two different ways of saying the same thing.



5. Lock the detail in ***Properties***. You cannot close or dock ***Properties***. Docking will keep the dialog available for other details.

6. Make another detail.
Hint: right click over the layout tab and pick ***New Detail***.



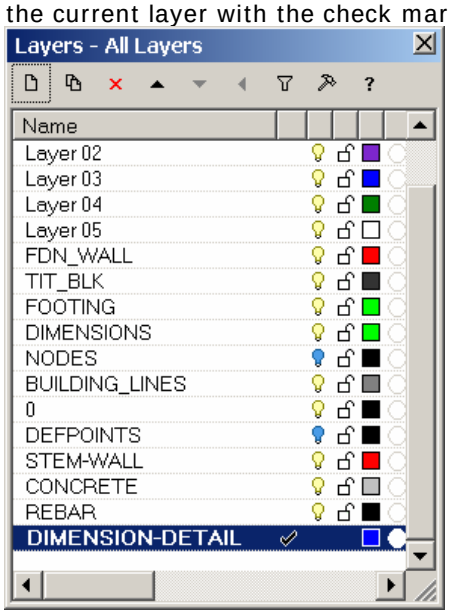
7. Make the new detail active by double clicking on it. Using Properties, set the scale to 1 paper unit equals to 8 model units. This is equivalent to ¾”=1’-0” or .125 paper units per 1 model unit.

8. Pan and resize as necessary. Then lock the detail with Properties.

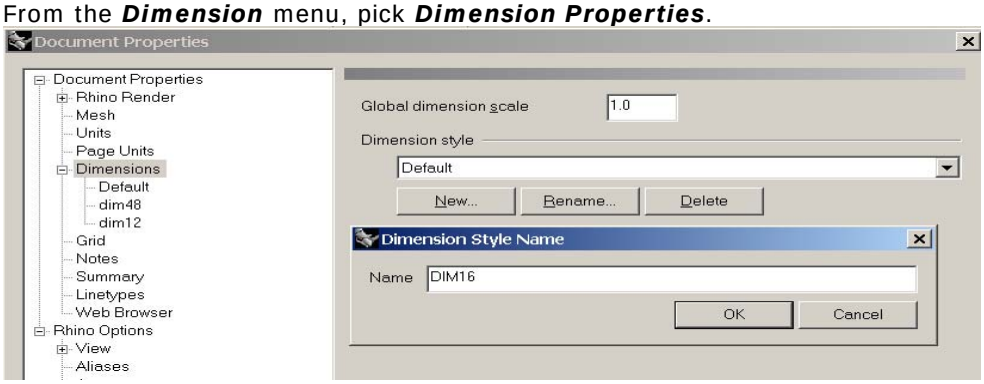
Adding Dimensions to the Details

We now want to add dimensions and text that are appropriately sized for the ¾”=1’-0” details. The text and dimensions that we add here will then be hidden in the smaller scale view of the plan. Let us see how this is done.

1. Make a layer called ***DIMENSION-DETAIL***. Give it the Blue color and make it the current layer with the check mark in the current column.



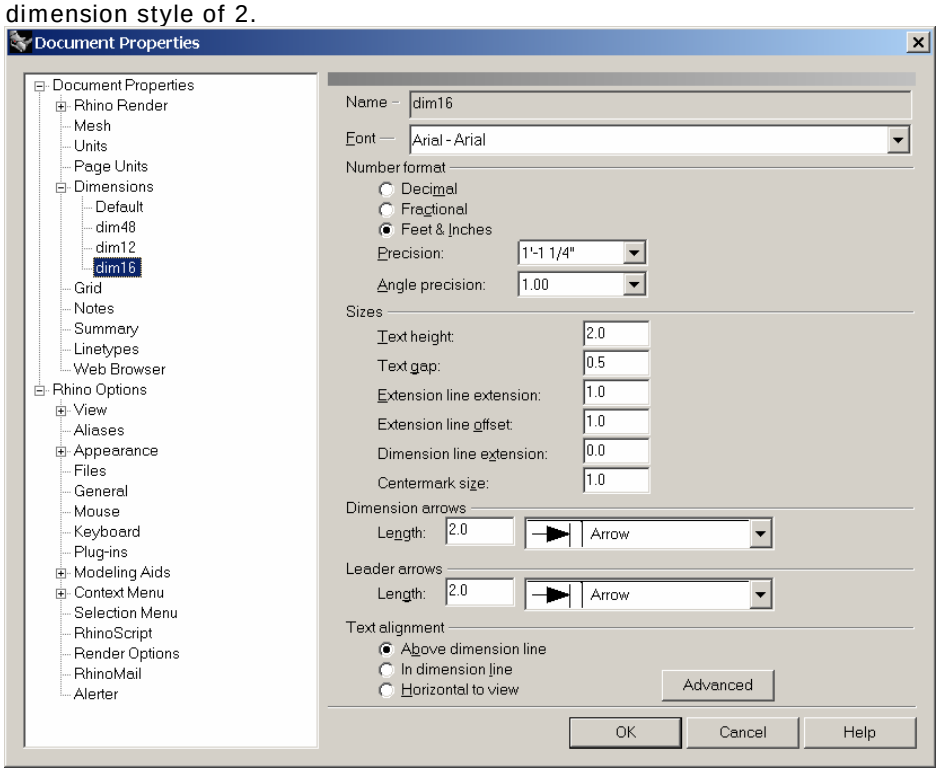
2. From the ***Dimension*** menu, pick ***Dimension Properties***.



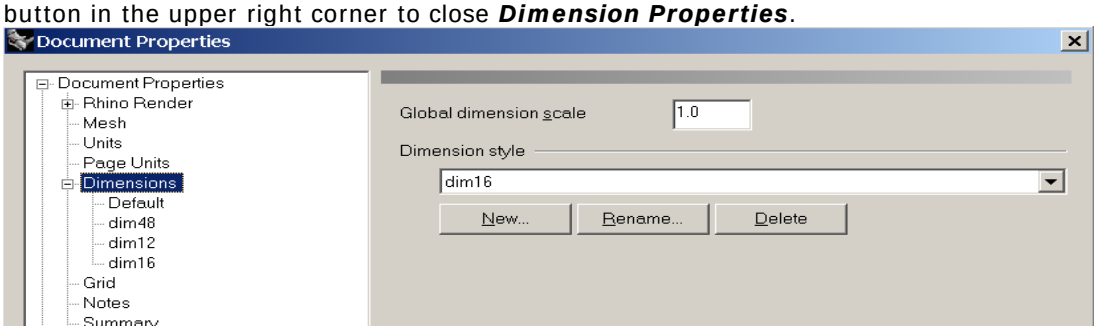
3. Pick in the left pane of the ***Options*** dialog. Pick the **+** to the left of the Dimensions category and pick on the new dimension style ***dim16***. Change the dimension values as displayed in the dialog below. Do not forget to pick ***Feet and Inches*** as the **Number format**.

   We calculated these numbers by factoring the plotted height of the item by the scale factor of the detail in which dimensions are going to be created.

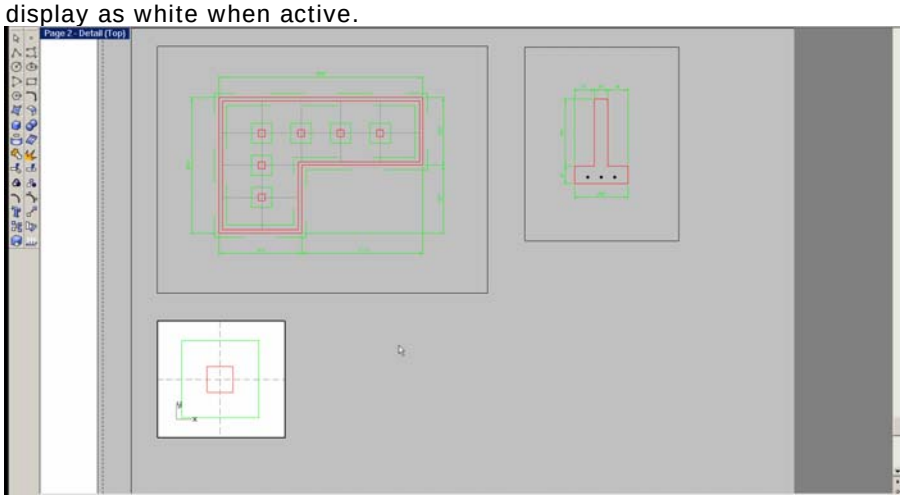
   For example, plotted text height of .125 or 1/8" is multiplied by 16 (16 model units per one plotted inch or ¾"=1') which gives a text height for the dimension style of 2.



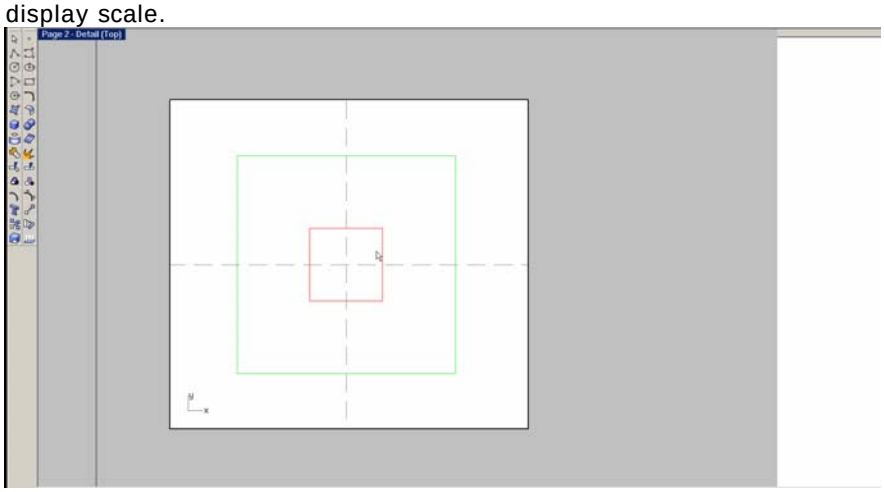
4. Before closing the ***Dimension Properties*** dialog, in the Dimension style list in the right pane pick the ***dim16*** dimension style to be current. Pick the ***x*** button in the upper right corner to close ***Dimension Properties***.



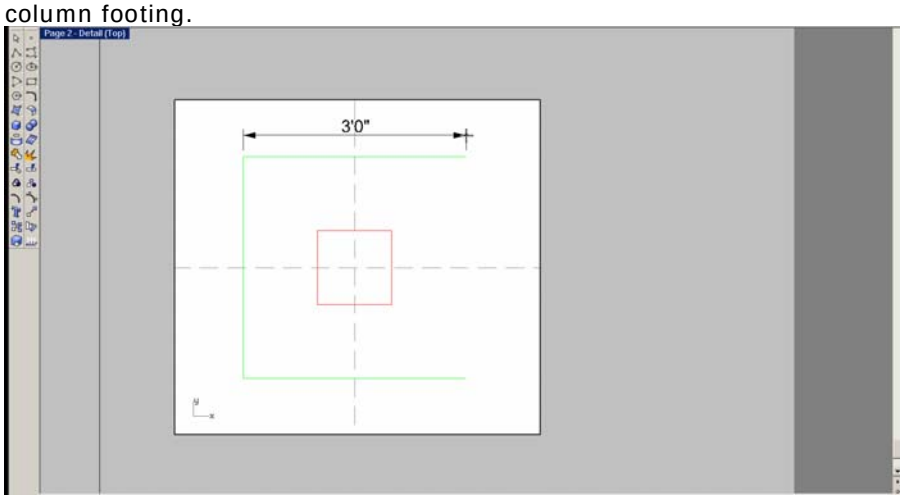
5. Active the detail by double clicking in it. The background of the details will display as white when active.



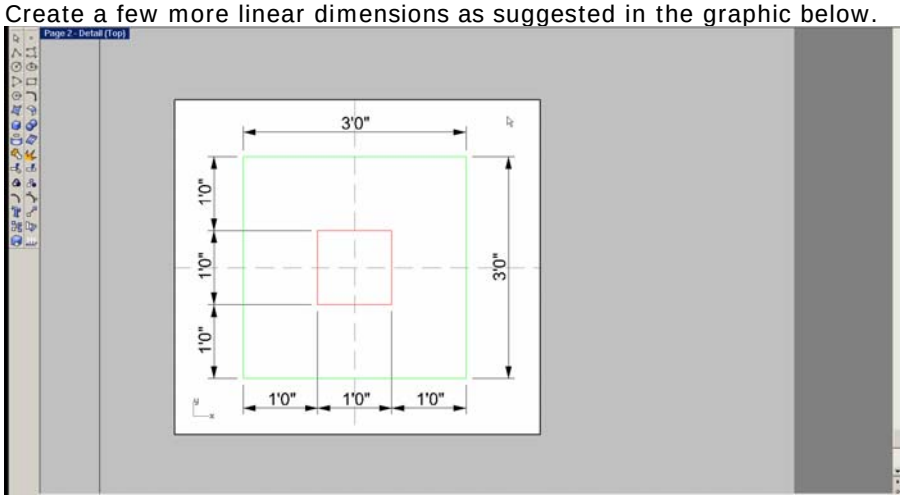
6. Because the detail is locked, you cannot zoom in and modify the detail's display scale.



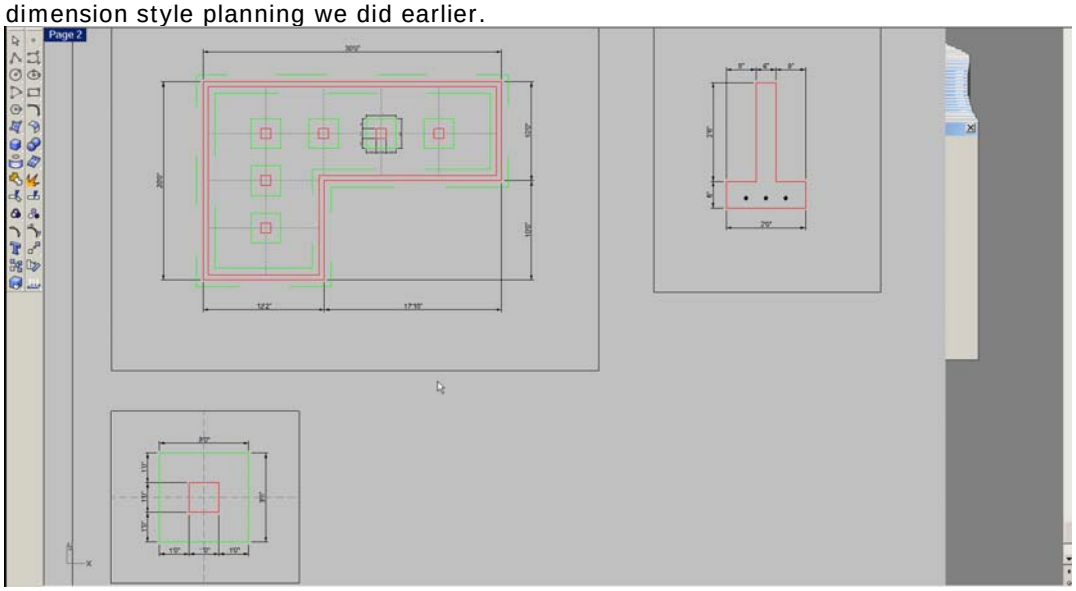
7. From the Dimension menu, pick Linear. Pick first on the left of the column footing, then pick on the right of the column footing, and finally pick above the column footing.



8. Create a few more linear dimensions as suggested in the graphic below.



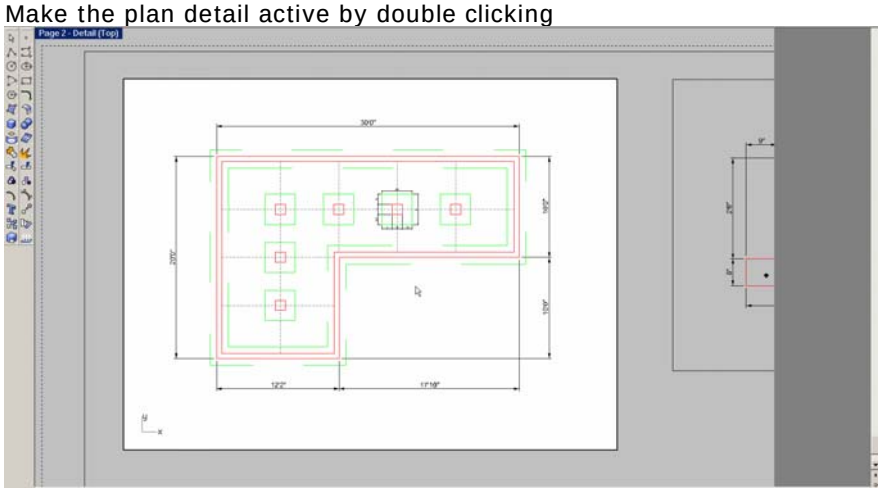
9. Pan to compare the dimension text heights and arrow size. All the dimensions display and plot the same size here on the layout. That is because of the dimension style planning we did earlier.



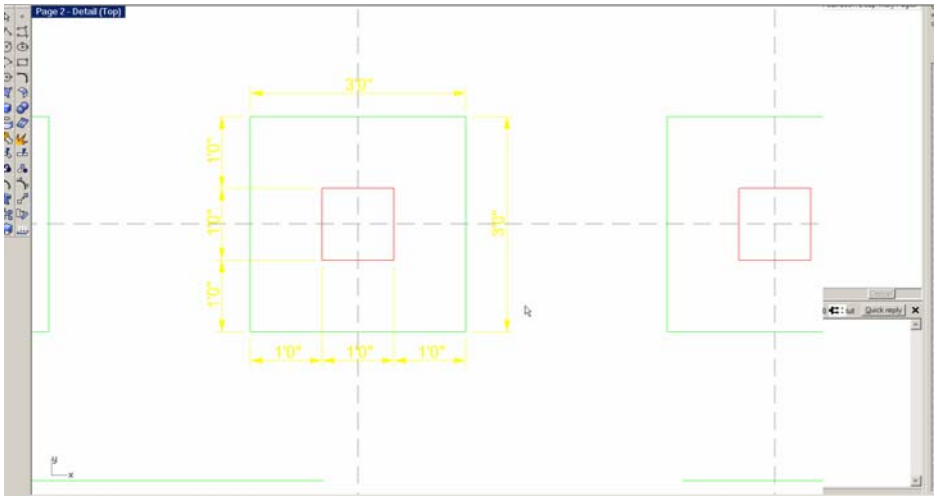
Visibility Per Detail

Next, the dimension in the column footing detail should not be visible in the plan detail.

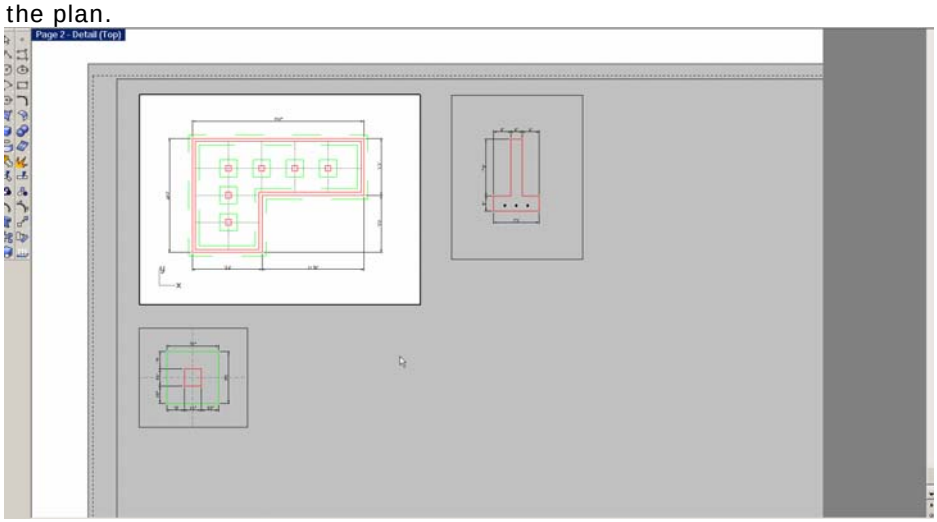
1. Make the plan detail active by double clicking



2. Type ***HideinDetail*** and select the dimensions that were created on the column footing in the last section. After selecting them, Enter to complete the command.

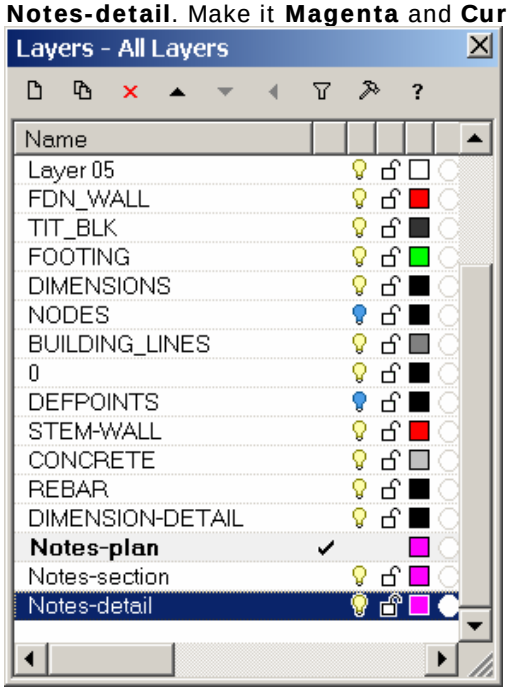


3. The dimensions will now only be visible in the column footing detail and not the plan.



Adding Text to the Details

1. Type **Layer**. Make three new layers called **Notes-plan, Notes-section, Notes-detail**. Make it **Magenta** and **Current**.

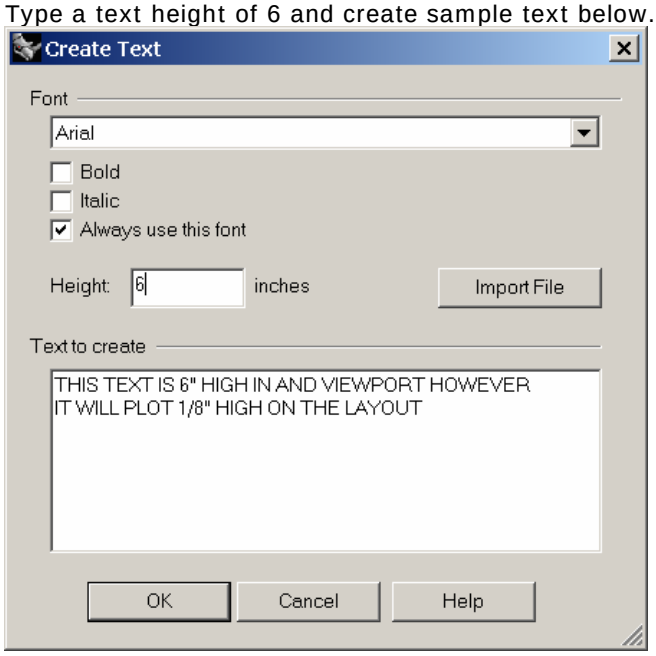


2. The plan detail is set to a scale of 1 inch on the layout equals 48 units in the model. Plotted text heights will need to be scaled up by a factor of 48 to look correct. The section is set to a scale of 1 inch on the layout equals 12 units in the model. Plotted text heights will need to be scaled up by a factor of 12 to look correct. The column footing detail is set to a scale of 1 inch on the layout equals 16 units in the model. Plotted text heights will need to be scaled up by a factor of 16 to look correct.
   .125" text height x 48 = 6
   .125" text height x 12 = 1.5
   .125" text height x 16 = 2
   .25" text height x 48 = 12
   .25" text height x 12 = 3
   .25" text height x 16 = 4

   See the last sheet of this tutorial for more detailed text chart.

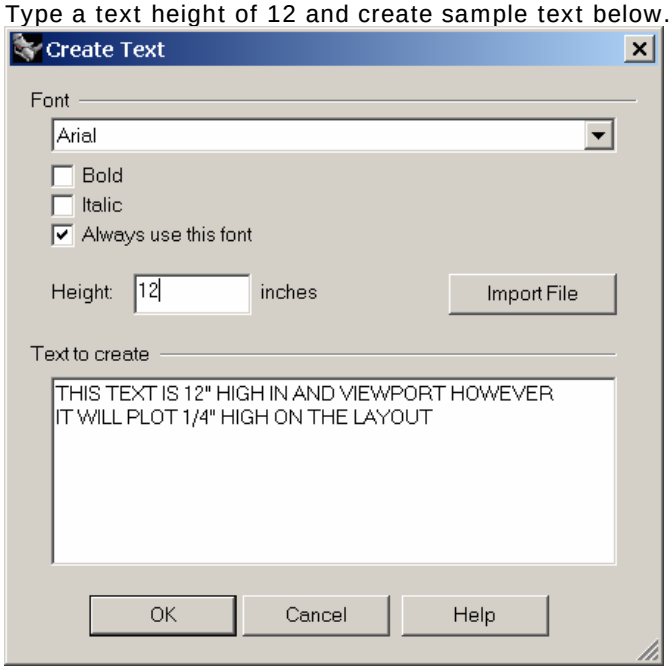
3. Make the Plan detail active. From the Dimension menu pick ***Text Block***. Pick a location for the text to be created.

4. Type a text height of 6 and create sample text below.

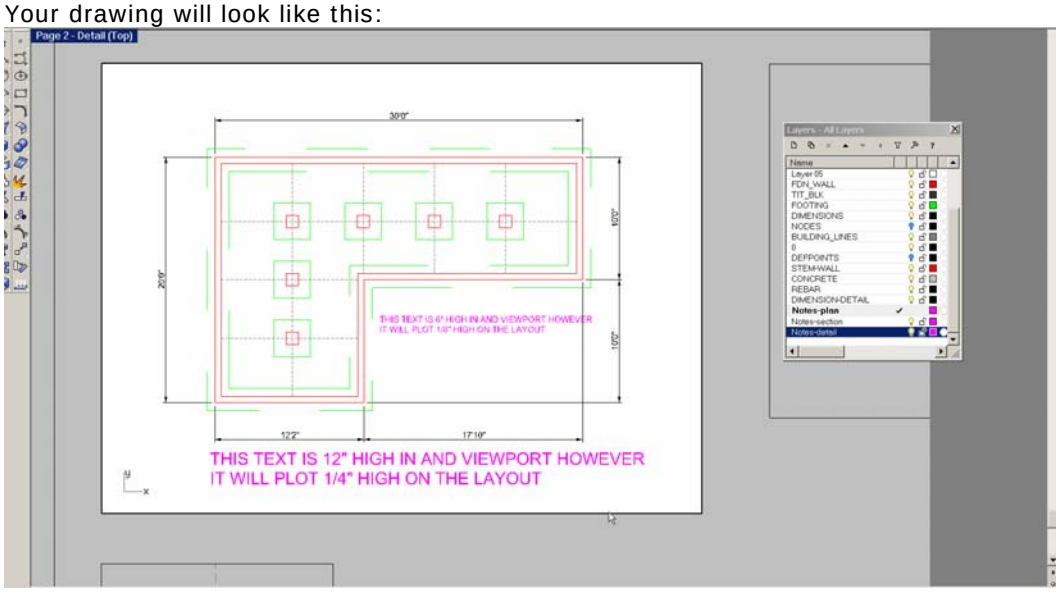


5. Create a second piece of text. From the Dimension menu pick ***Text Block***. Pick a location for the second text object to be created.

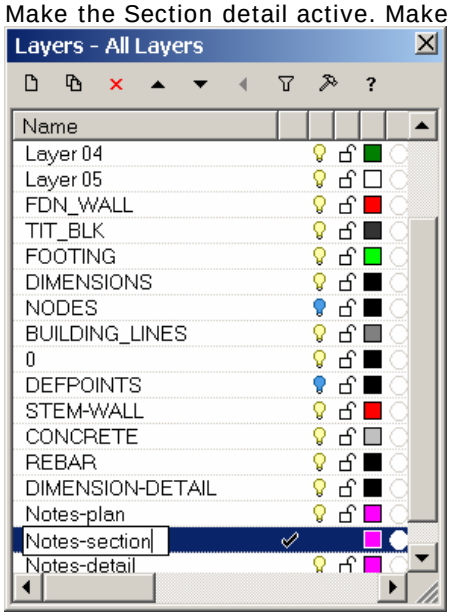
6. Type a text height of 12 and create sample text below.



Your drawing will look like this:

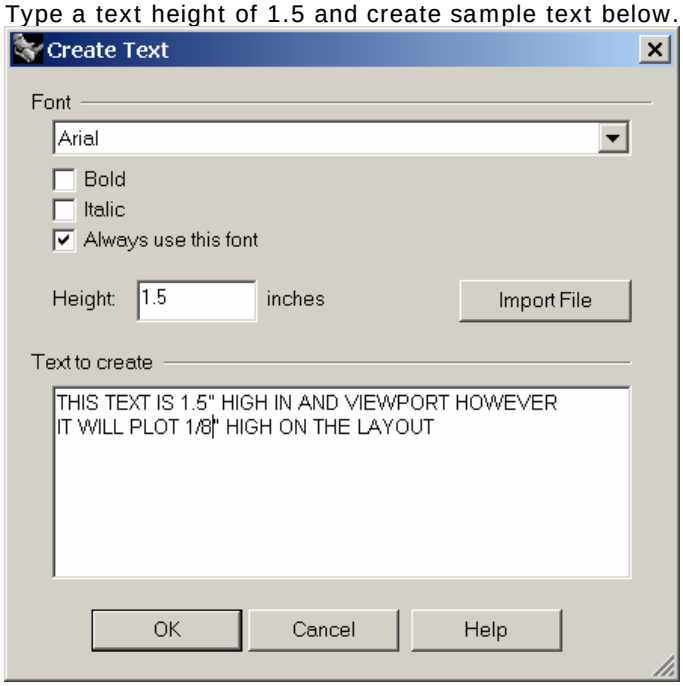


7. Make the Section detail active. Make the ***Notes-section*** layer current.



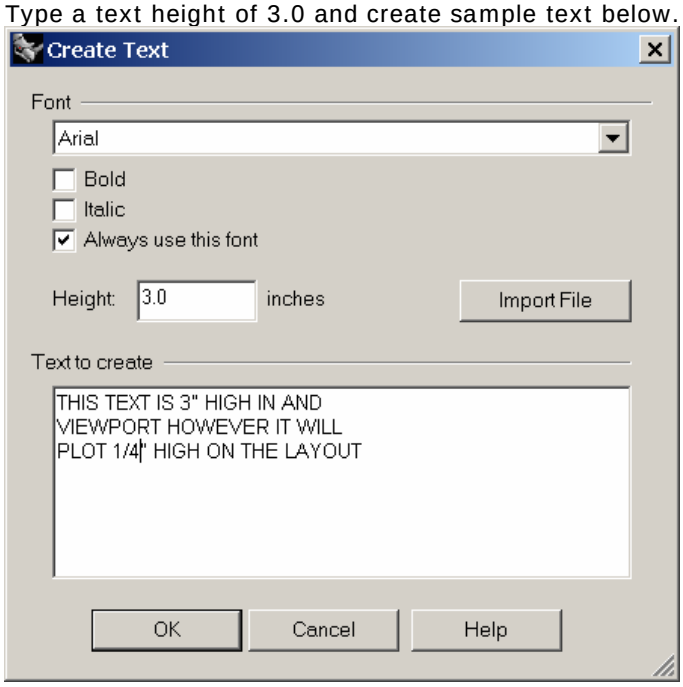
8. From the Dimension menu, pick ***Text Block***. Pick a location for the text to be created.

9. Type a text height of 1.5 and create sample text below.

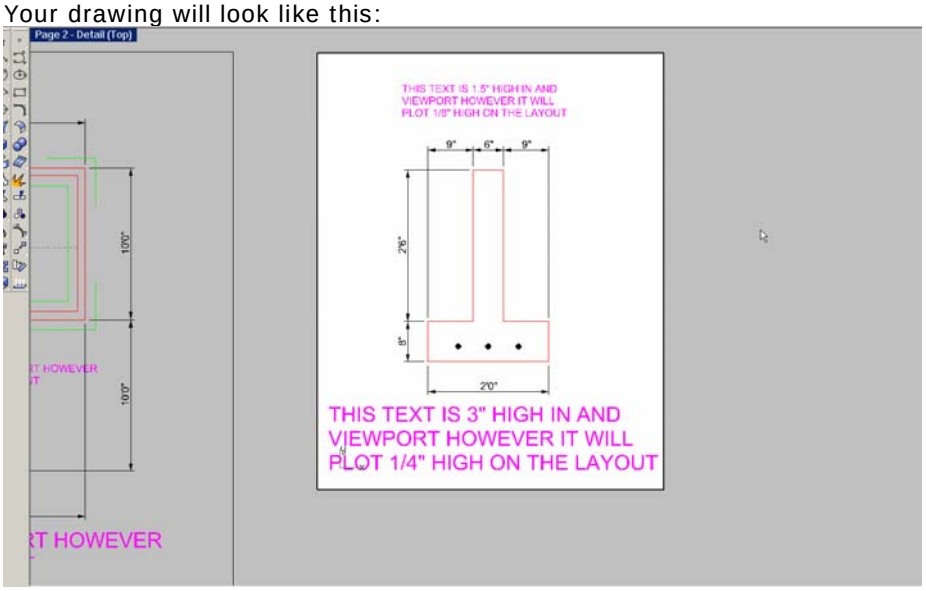


10. From the Dimension menu, pick ***Text Block***. Pick a location for the text to be created.

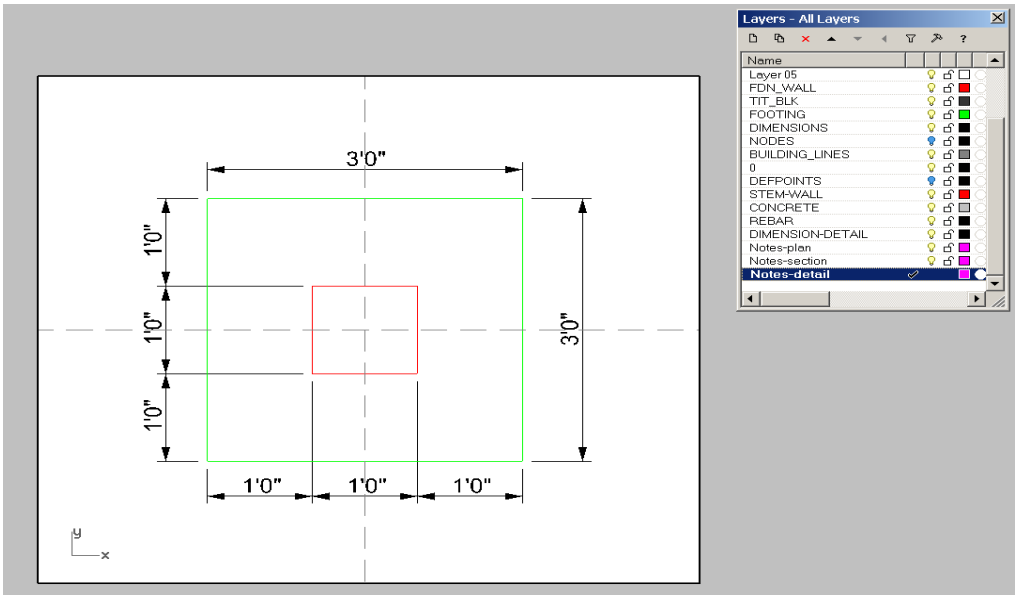
11. Type a text height of 3.0 and create sample text below.



Your drawing will look like this:

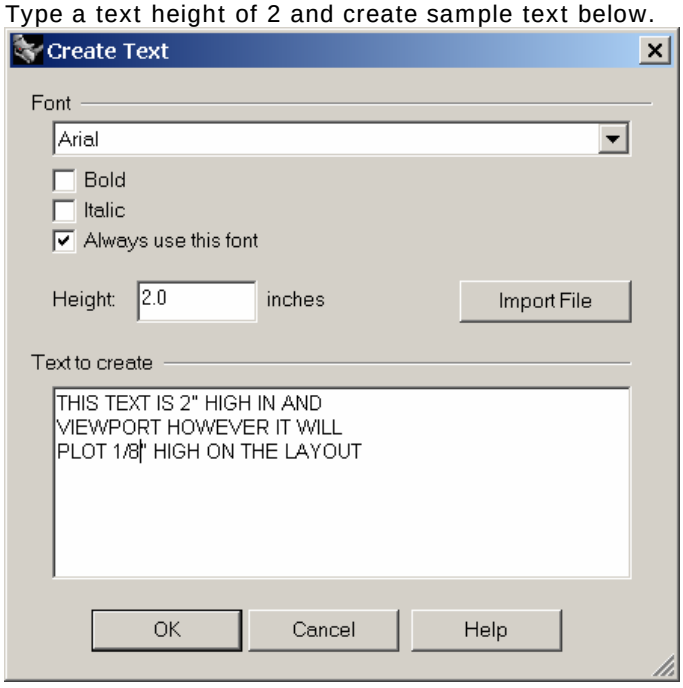


12. Make the column footing detail active. Also, make the **Note-detail** layer current.



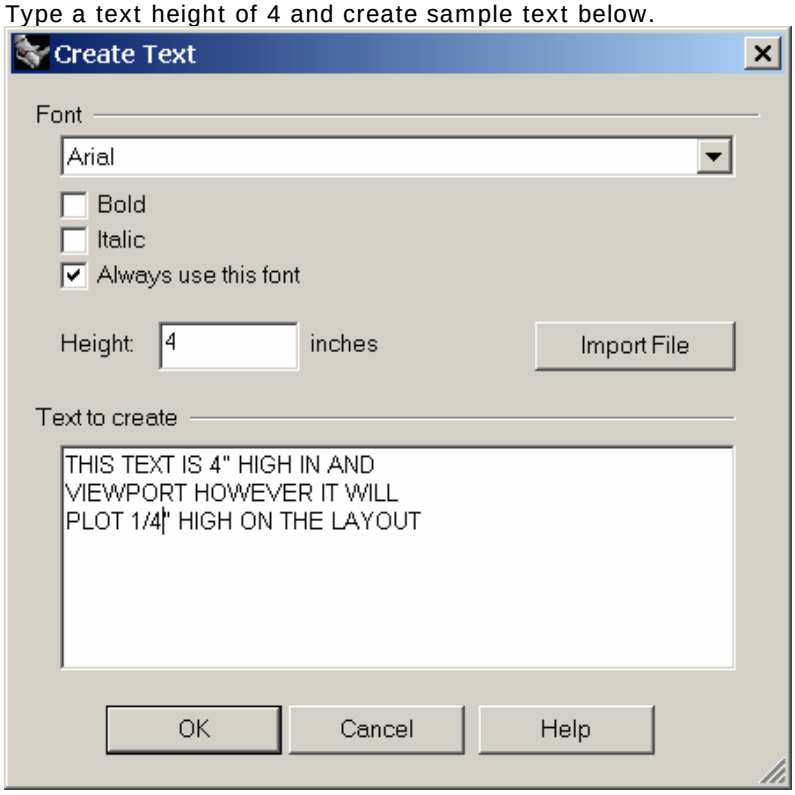
13. From the Dimension menu, pick ***Text Block***. Pick a location for the text to be created.

14. Type a text height of 2 and create sample text below.

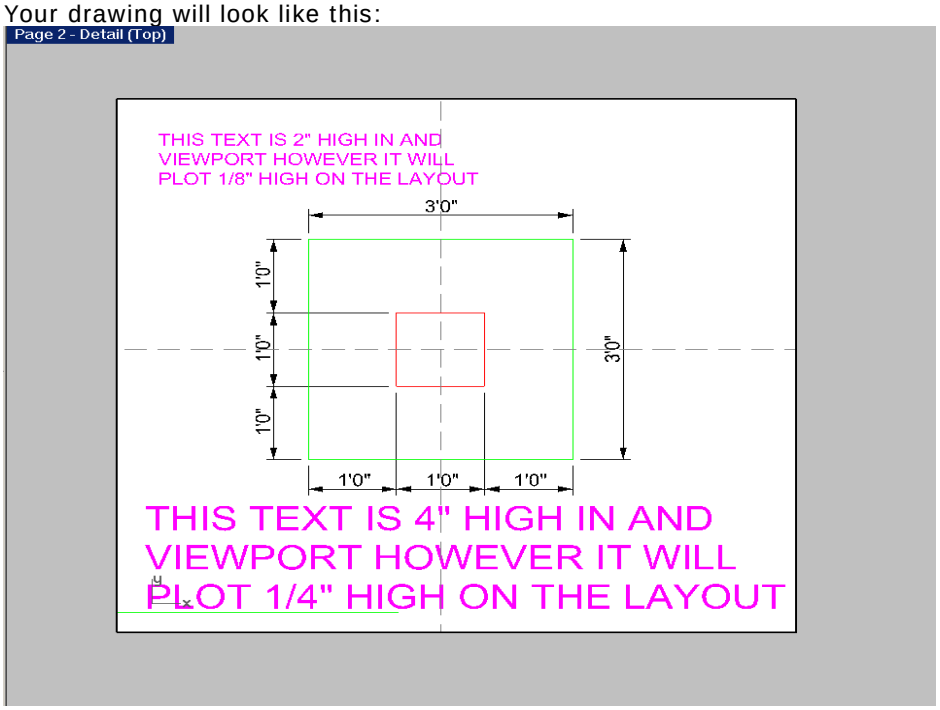


15. From the Dimension menu, pick ***Text Block***. Pick a location for the text to be created.

16. Type a text height of 4 and create sample text below.

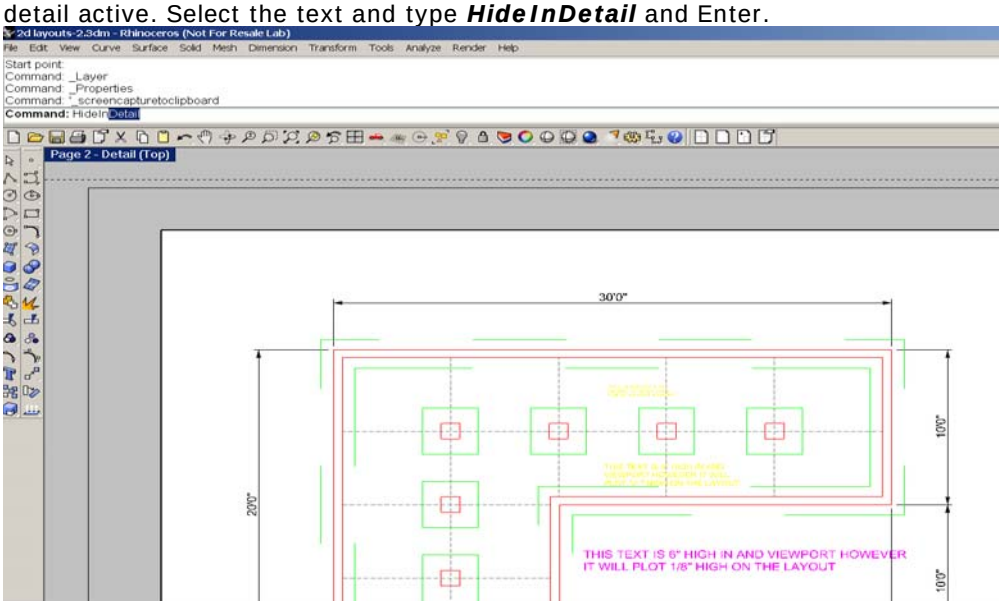


Your drawing will look like this:

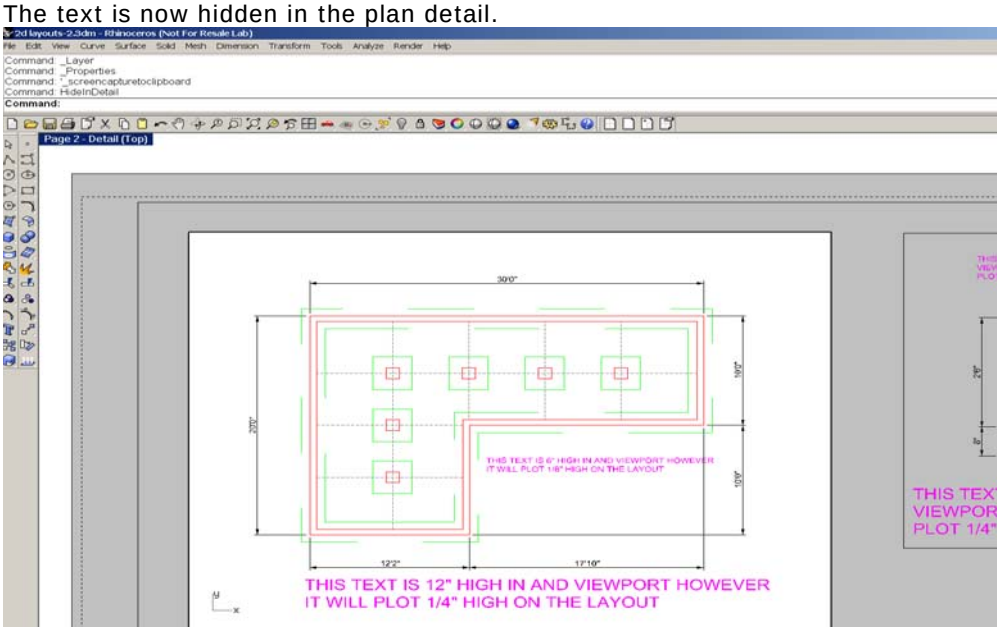


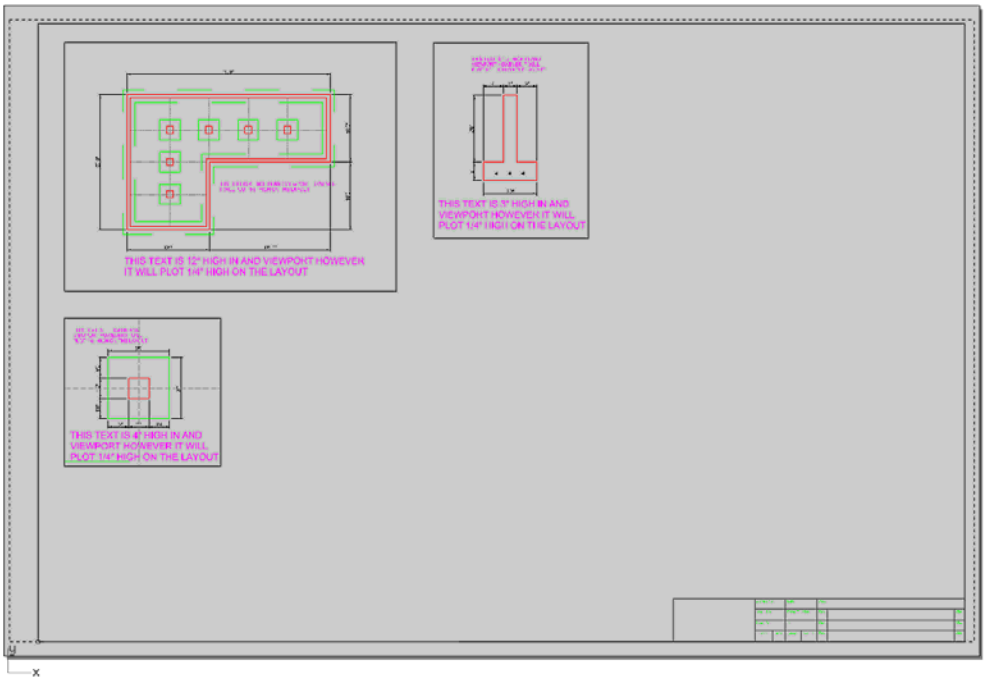
17. Now zoom out and compare the text heights. The larger text created at various heights will all plot at ¼". The smaller text created at various heights will all plot at 1/8".

18. Last, hide the column detail text that is visible in the plan detail. Make the Plan detail active. Select the text and type ***HideInDetail*** and Enter.



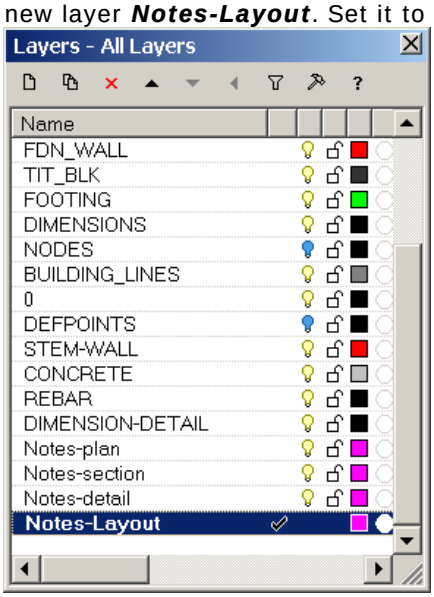
The text is now hidden in the plan detail.





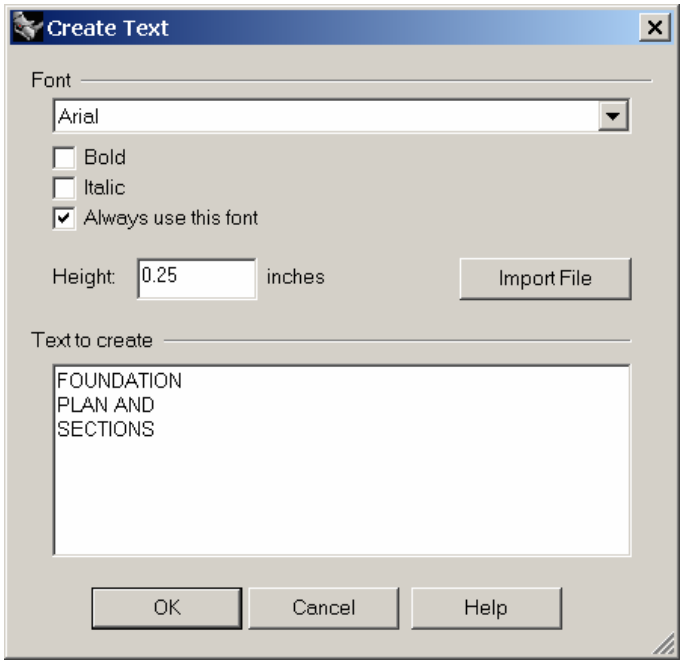
Adding Text to the Layout

1. Double click to make the layout active. Start the Layer command and make a new layer ***Notes-Layout***. Set it to magenta and current.



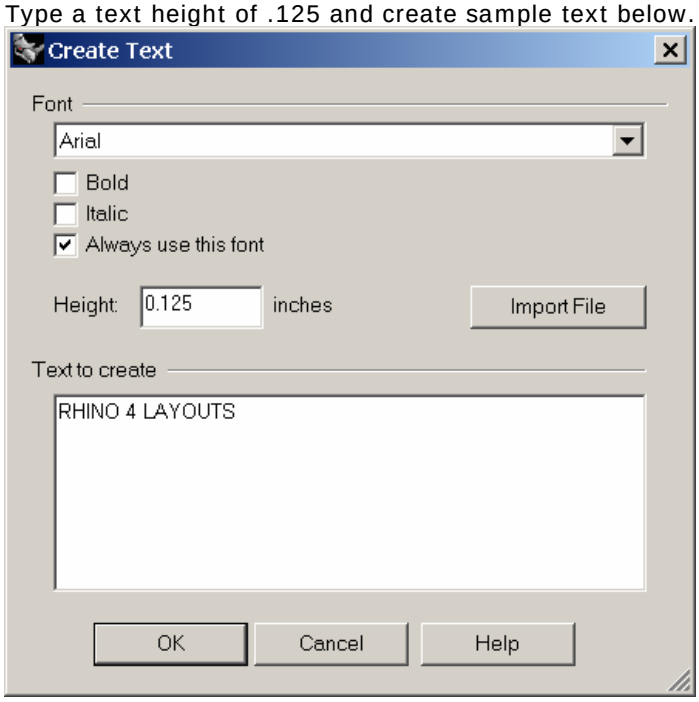
19. From the Dimension menu, pick ***Text Block***. Pick a location for the text to be created.

20. Type a text height of .25 and create sample text below.

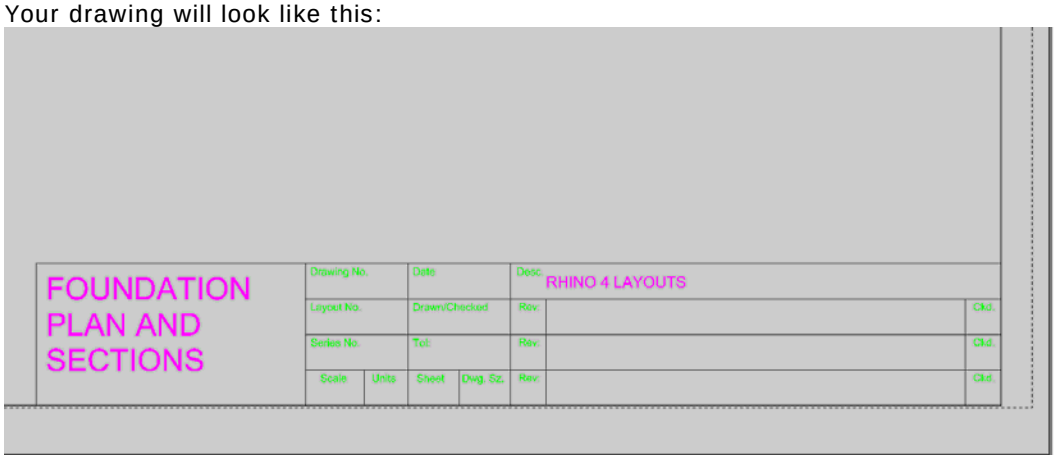


21. From the Dimension menu pick ***Text Block***. Pick a location for the text to be created.

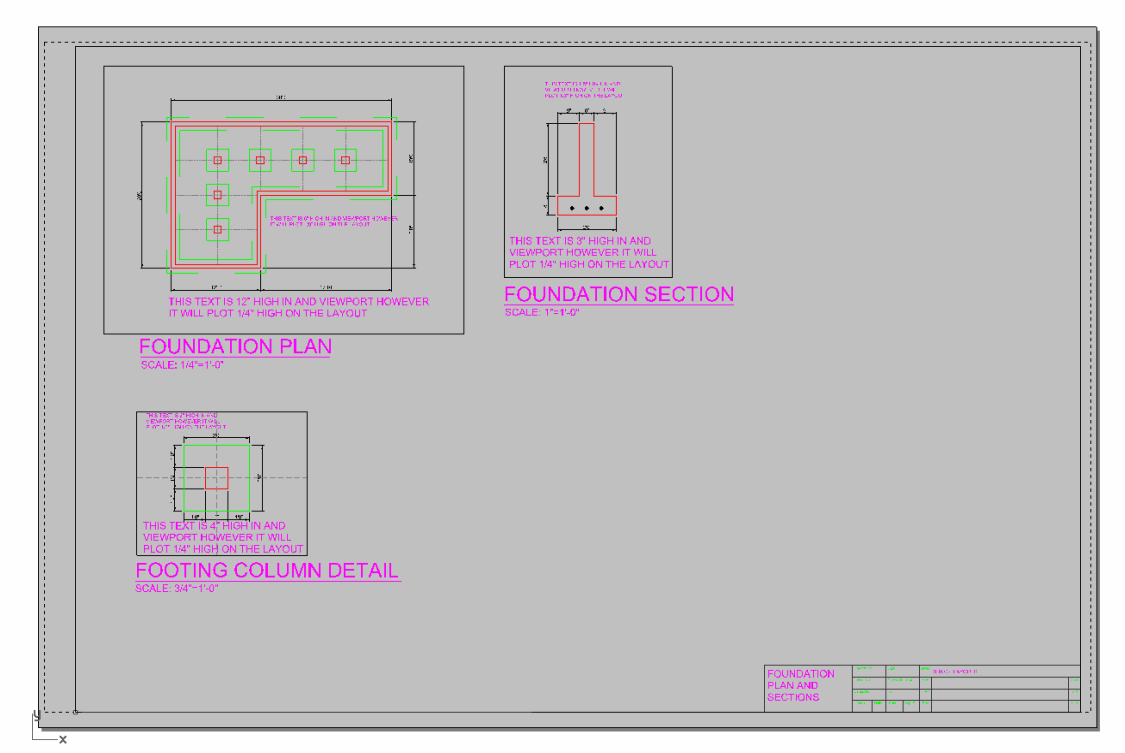
22. Type a text height of .125 and create sample text below.



Your drawing will look like this:

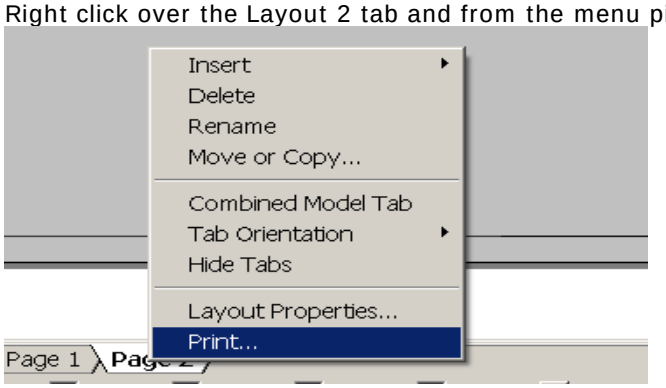


Challenge: Add addition text objects to label the details content and scale.

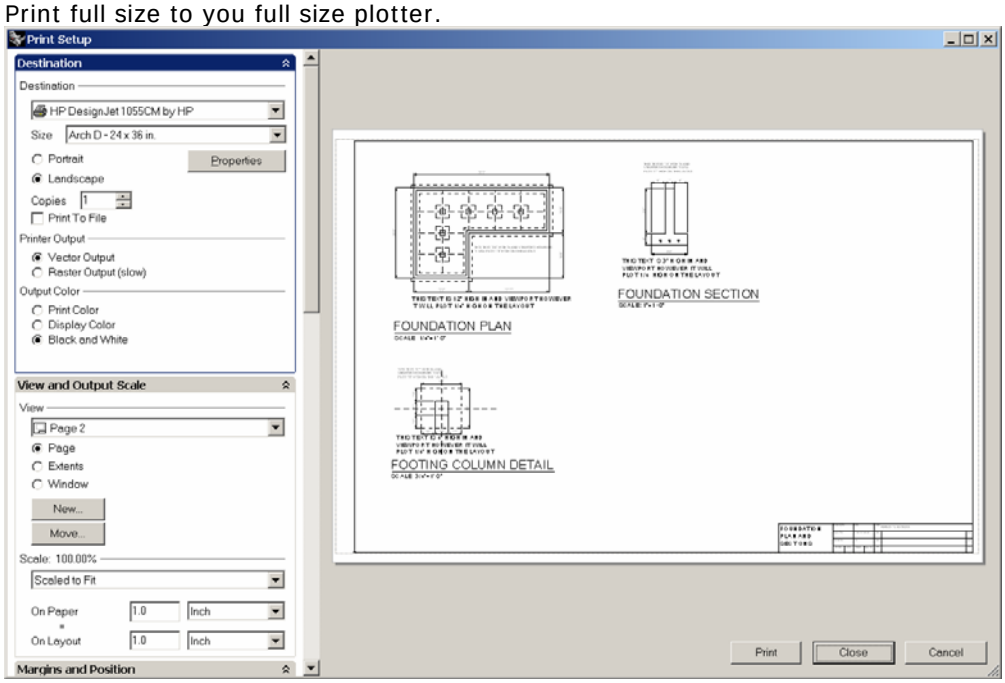


Plotting

1. Right click over the Layout 2 tab and from the menu pick Print.



2. Print full size to you full size plotter.



If you do not have a full size plotter, scale to fit to a smaller sheet.
Plot Extents, Scaled to Fit, and Landscape to you Windows printer.