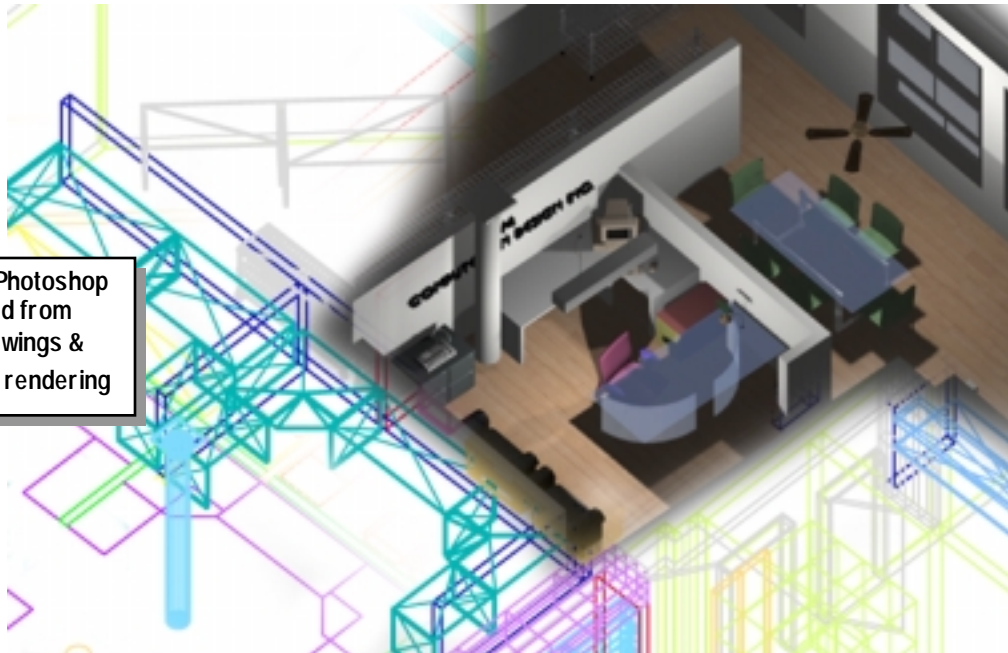


How to use AutoCAD images and 3D Studio VIZ renderings in graphic presentation software programs and multimedia programs.

This tutorial will demonstrate techniques for using AutoCAD drawings and 3D VIZ renderings effectively in graphic software packages, multimedia programs, and with web design software. The graphic programs discussed will be Adobe Photoshop, Quark Xpress, and Macromedia Dreamweaver, but the techniques described here can be modified to work in other graphic design programs.



Architects often need to be able to re-use drawings and renderings in other programs, whether creating promotional materials, CAD manuals, or presentations for clients. Creating attractive graphics from original CAD files requires two things:

- Understanding the difference between the files created by vector drawing programs such as AutoCAD and the files used in bitmap editors such as Photoshop, and
- Planning for the print or display output resolution when exporting files and saving renderings.

CAD users are accustomed to working with vector elements-drawings can be re-scaled or even rotated in a 3D space without any degradation in final plot quality.

The vector elements used in all CADD programs are the result of parametric equations. The user never sees the actual vector elements on the screen; he or she sees the *result* of those parametric equations after they have been rasterized (converted to a screen bitmap at the time of display) on a particular system at a particular screen resolution. When the vector elements are re-scaled or rotated, the equations change, and the element is redrawn on the screen with its new definition.

Programs such as Adobe Photoshop work on files that exist only as bitmaps. In other words, the information in the file specifies what color and other information is stored in each individual pixel in a pixel grid with a defined width and height. This allows an incredible amount of subtle information to be stored in an image file.

When bitmap files are re-scaled, the bitmap editor has to increase or decrease the pixel grid width and height, and decide how the original information which was stored in a single pixel can be spread to fill additional pixels, or how the original information that was contained in more than one pixel can be averaged to make a single new pixel. This invariably leads to image fuzziness, and is one of the major challenges in working with bitmaps.

Once a vector file is opened in a bitmapped editor, it becomes fixed with specific pixel definitions, and the image quality will suffer if the image is resized. For this reason, it is important to decide on the size and print resolution of the final image before opening any vector file in a bitmap editor.

See Appendix One for a graphic illustration of vector and bitmapped graphics.

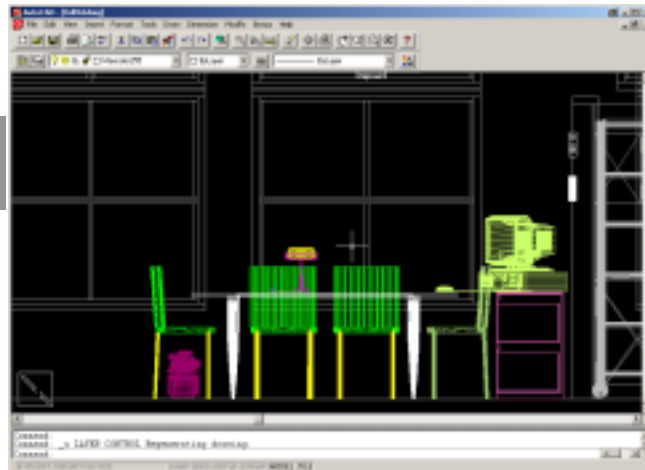
Scenario One:

<i>Original File:</i>	AutoDesk AutoCAD R14 drawing
<i>Output File:</i>	Adobe Photoshop file as an intermediary step to using an image in a page layout program such as Quark Xpress, or Microsoft Word.
<i>Overview:</i>	Plot the drawing to an EPS file. Create a new Photoshop file at the desired image size and print or screen resolution. Place the EPS into the Photoshop and rotate and size BEFORE rasterization of vector file. Modify Photoshop file as desired.

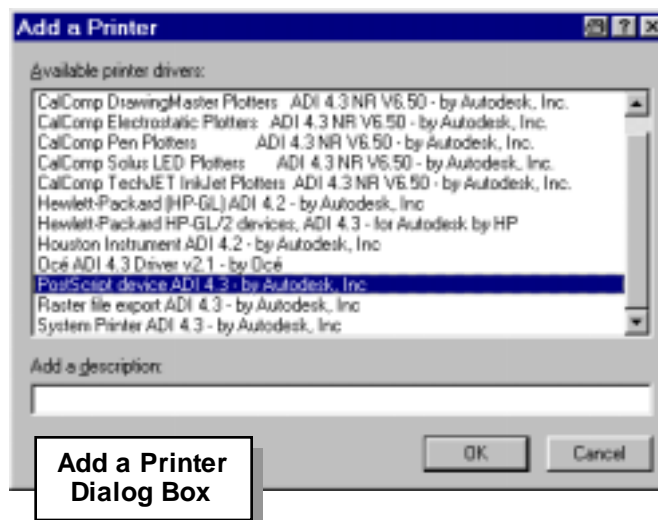
Steps:

- 1) Plan your image. Are you going to use the entire drawing, or are you focusing on a section of the drawing or a particular view? Set up the view you need before you proceed.

Our chosen view in AutoCAD R14



- 2) Look at your layer colors! Light yellow shows well against the black background of your AutoCAD display, but will not show as well in print. Depending upon the end purpose of the image being created, and how you use layer colors in your drawing, you may or may not want to temporarily change layer colors when creating the image.
- 3) Create an EPS printer on your system.
Go to File/Printer Setup
Select New to create a new printer
From the available printers, select a Postscript device



- 4) When the text window opens up, make the following selections:

Choose 2450 dpi

Say yes or no for color output, depending on the end result desired

Do NOT append a “^Z”

DO APPEND a “^D”

Do not limit the paper used-you will not be plotting to paper

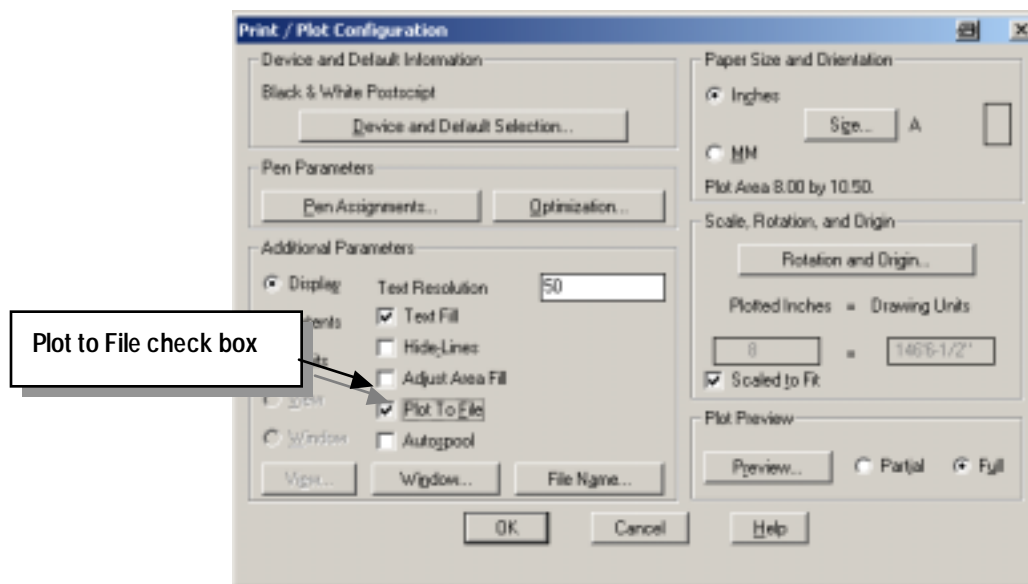
Select a parallel port connection

Accept the default LPT1 parallel port (If AutoCAD is set up to use the default system printer on LPT1, allow AutoCAD to redirect output for your new printer to the spooler-you will not be plotting to paper so it does not matter)

When asked if you want to change anything else, say no

* While it may seem more sensible to select a Raster File Export device for your new printer, selecting a Postscript printer allows you to create a re-scalable vector file that is readable by graphic design software.

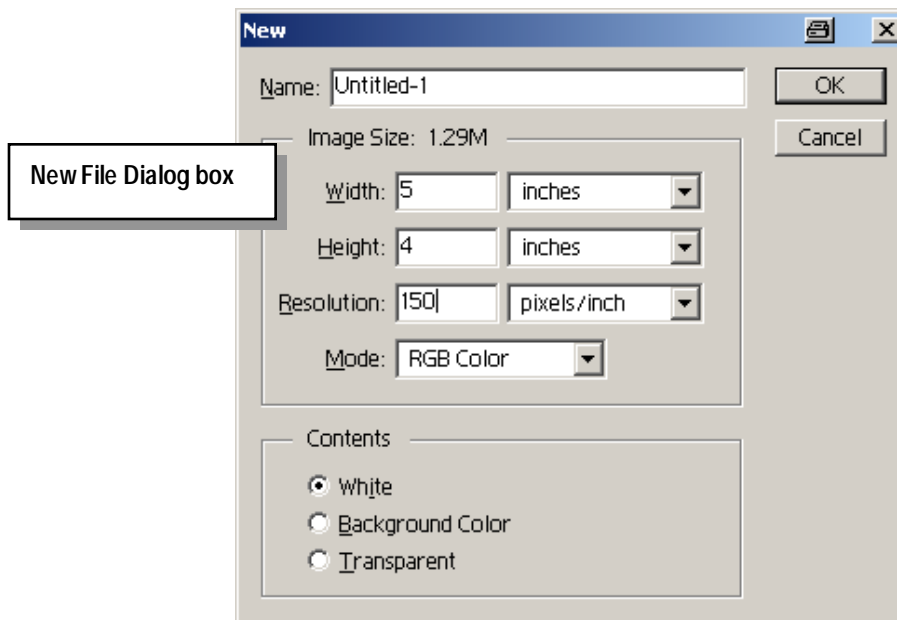
- 5) Set the new printer as the current printer
- 6) Select File/Print
- 7) Select Window and pick the two corners of the window that you want to comprise your image
- 8) Select a full preview and look at the image preview. Rotate the image if necessary.
- 9) Put a check mark in the Plot to File check box. Click on File Name, make sure you are in the directory you want to save to, and give your file a new name. The 3-letter file extension should be “eps”-do not change this.



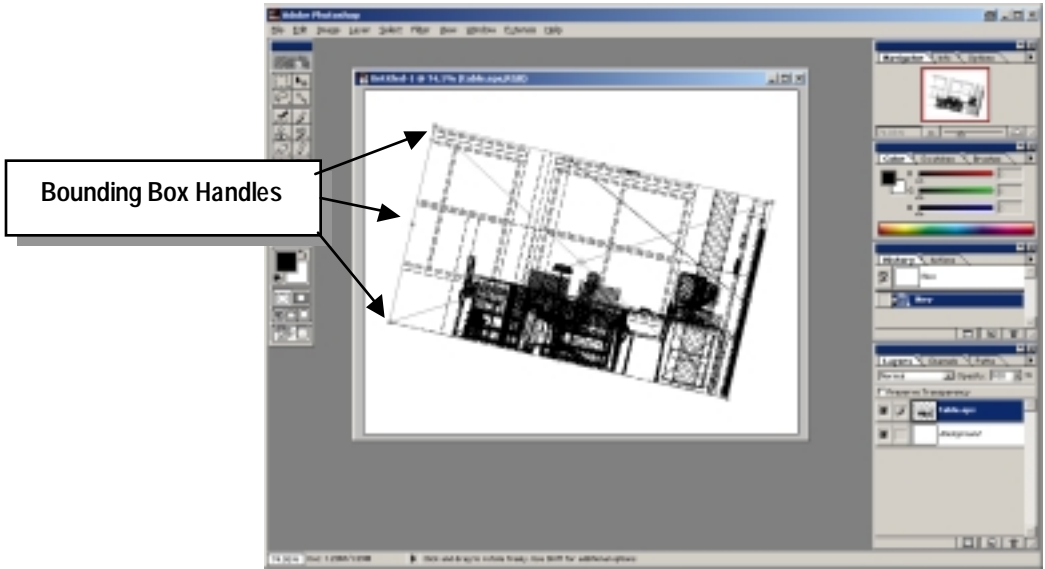
- 10) You can dramatically change the resulting image by adjusting the Pen Assignments, but it is better to see how the image looks before trying this. See appendix for an illustration of this.
- 11) Close AutoCAD and open Photoshop. By this time, you should have determined the final size of your image, and you should have decided whether you are creating an image for print or screen display.

In our case, we need to fill a 5'x4' box in our brochure with our image. We are printing the brochure on our in house ink jet printer.

- 12) Create a new file in Photoshop. When you create a new file in Photoshop, you can define the size and resolution of the file. We are selecting a file size of 5'x4' and a resolution of 150 ppi, which should work fine on our printer. You should work in RGB mode, and choose whatever background you desire-I chose white in the example.



- 13) On the File menu, use the Place command to inset the EPS you saved in step 9 into your new file. You will see a rough view of the image surrounded by a bounding box. You can use the bounding box handles to move, resize and rotate the image. Use the Shift key when you drag a corner handle to force your image to retain its proportions as it is resized. Move your cursor outside the bounding box to see the rotation control points.



- 14) Once you are satisfied with the placement of your image, hit enter, and your vector image will be converted to a bitmap.
- 15) You now can work with your image in Photoshop to create your final image. You can create photo-composites, as we did when we imposed a 3D rendering onto a drawing image in the first illustration in the tutorial, manipulate the image in some other way, or save it as is, to use in your page layout or word processing software.
- 16) Once you are finished modifying the file, save the file as a TIF. If you have added layers to the file, you will have to flatten the image before this choice is available to you. The image file is now ready to insert into your document. You can also print directly from the Photoshop program itself.

Photoshop Color Fantasy



Image without modification

