CADD NOTES (LAYOUTS 4)

ALL YOU NEED TO KNOW ABOUT WORKING WITH LAYOUTS

OVERVIEW

LAYOUTS have replaced the PAPER SPACE that was used for producing drawings in earlier versions of Autocad. In Autocad 2000 and beyond the LAYOUT feature makes possible the creation of multiple unique LAYOUTS rather than the single PAPER SPACE layout that existed in release 14. Because of this change, most manuals and other documentation materials use the term PAPER SPACE and the term LAYOUT interchangeably.

Regardless of whether your drawing has one LAYOUT or sixty four, there are only a limited number of things that you should be doing in the LAYOUT TAB when the status bar indicates PAPER SPACE.

Some things should never be done that are possible to do in a LAYOUT while in PAPER SPACE. Dimensioning is one good example of these. While it is possible to create dimensions while in a LAYOUT from PAPER SPACE, you should never do it.
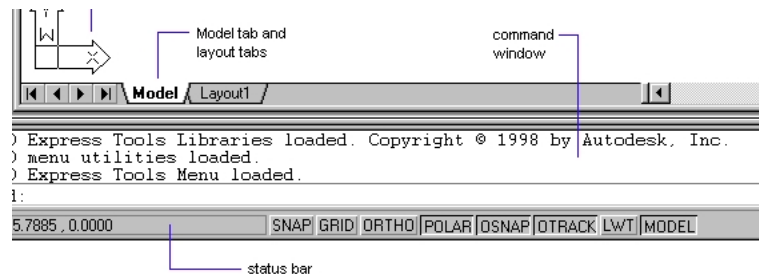

Figure 1   MODEL/LAYOUT TABS AND STATUS BUTTONS

Rather than try to list all the things that you should not do in layouts, this document encapsulates the tasks and functions that should always be done in layout mode. When working in a LAYOUT TAB you should be performing one of the following tasks:

➢ **Page Setup**

➢ **Creating/Modify Viewports**

➢ **Setting LAYER VIEWPORT VISIBILITY**

➢ **Plotting**

➢ **Draw/Modify '*Sheet Specific'* Details Such As Title Blocks, Notes, Schedules, Revisions, Etc**

Simply put, if you are not attempting to perform one of the functions listed above you should be in the MODEL TAB and your status button should indicate MODEL

Autocad screen showing MODEL/LAYOUT tabs and STATUS buttons on status bar SPACE.

Page Setup

The first thing that should done after creating a new LAYOUT is to use PAGE SETUP to define how the new layout will look and how it will plot.

➢ **Always start by selecting a printer**

If you do not know or if you want to use a size that is not supported by your current printer use the DWF ePlot.pc3 plotter. This will allow you to use any of the Standard English and Metric drawing sizes.

➢ **Now select your drawing size**

Once you have selected a plot size you should note the Printable Area. This area is represented by your margin display. The margins are plotter/printer specific and will change when you change plotters.

➢ **Leave Everything else alone**

All of the other settings should be left at the default values. You can change any of the other settings later. In most applications you will use the settings shown above.
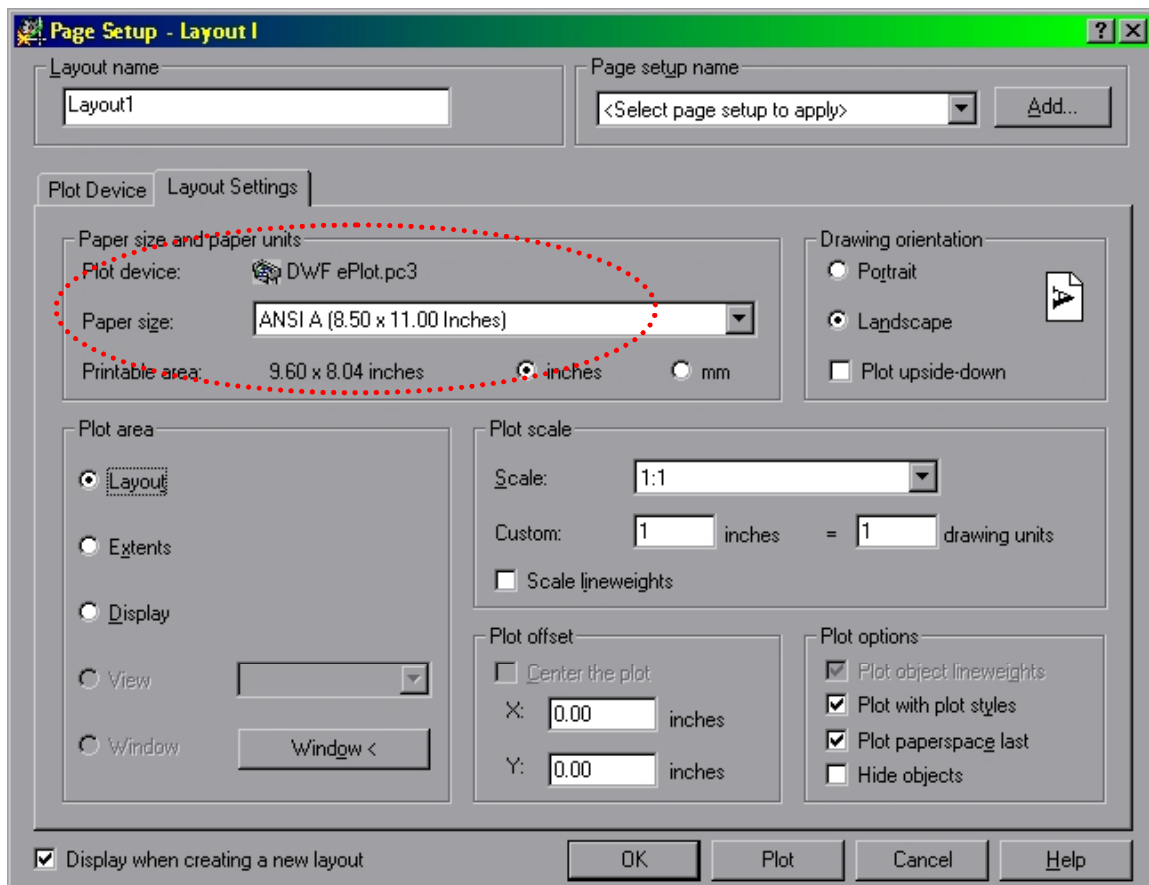
Figure 2   LAYOUT SETTINGS IN THE PAGE SETUP DIALOG BOX

Creating/Modify Viewports

The most common thing you will be doing in a LAYOUT is creating and modifying LAYOUT VIEWPORTS. These tasks all either create a VIEWPORT OBJECT or modify its PROPERTIES.

CREATING VIEWPORTS

Viewports may be creating in several different ways. The most common of these is by using the MVIEW or the VPORTS commands.

➢ **MVIEW lets you create a new viewport or group of viewports.**

➢ **VPORTS lets you either create a single new viewport or use a NAMED VIEWPORT CONFIGURATION from MODEL SPACE.**

Once you have created viewports in your layout you can now manipulate them in the same way you would any other object as long as you are in PAPER SPACE. Selecting a view port is similar to picking a rectangular polyline. You can pick it by selecting its edge. You can also use other selection method such as window, all, fence, etc.

REMOVING VIEWPORTS

Viewport objects can be removed from a layout in the same manner as any other object, by using the ERASE command.

MODIFYING VIEWPORTS

There are several different ways you will be modifying viewports. The most common changes include

Moving and Resizing

Changing the size or location of a viewport can be done using GRIPS or by using the MOVE, SCALE or STRETCH commands.

Changing the Shape

Modifying the shape of a viewport best done using the VPCLIP command. Any closed PAPER SPACE object such as a CIRCLE, ELLIPSE, PLINE, SPLINE or REGION can be used to redefine the clipping boundaries of a viewport.

Aligning and Rotating

When creating a LAYOUT that uses multiple viewports you need to occasionally need to align or rotate the views based on objects in model space. Drawing using 3D models normally require these modifications.

The ALIGN option of the MVSETUP command allows you to perform these functions. MVSETUP has several other uses and will be covered in a supplementary document.

Setting Properties

Using PROPERTIES to alter a viewport covers a majority or changes made to viewports. The properties that are used regularly are:
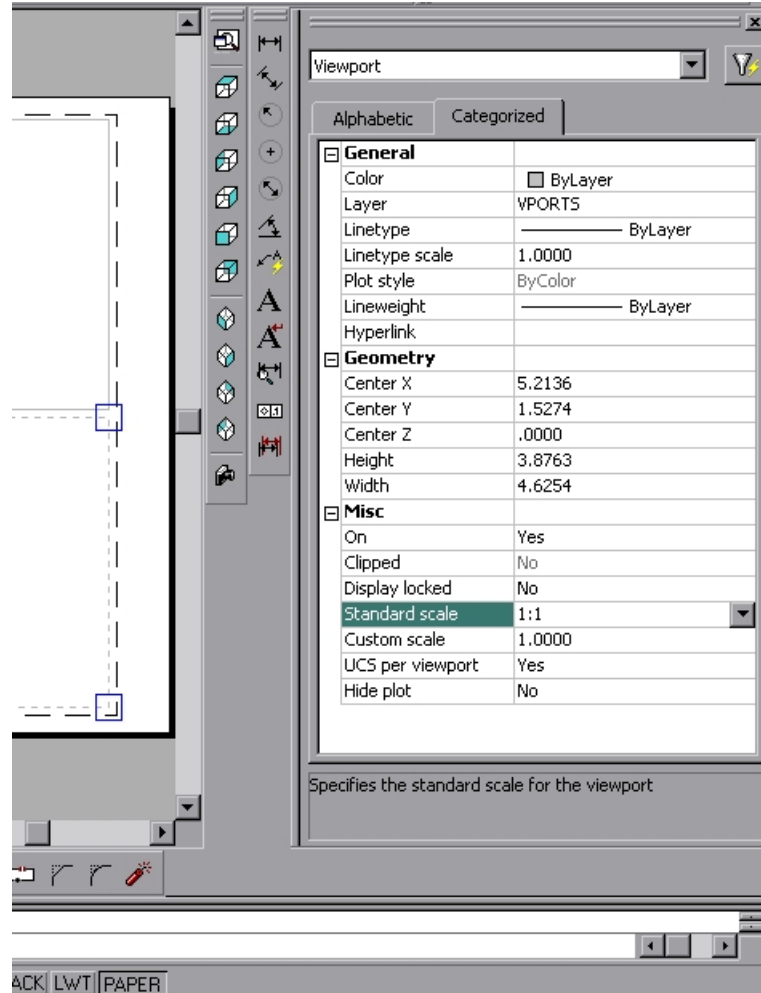

Figure 3   VIEWPORT PROPERTIES DIALOG BOX IN PAPER SPACE

❑ **LAYER**

The viewport layer settings determine whether or not the boundaries of a viewport will be plotted. All viewports should be placed on a layer that is used only for viewports. It is best to make this layer a non-plotting layer rather freezing or turning it off. This makes it possible to still see and select the viewport edges. Using a very faint color for this layer can help to prevent confusing viewport edges with other geometry in a layout.

❑ **SCALE**

The viewport scale property sets the scale at which the model will be display through that viewport in PAPER SPACE. This is your plot scale that you would add to you title block.

❑ **DISPLAY LOCKED**

The display locked property locks the viewport from certain type of modifications that could alter the way the model is seen through the viewport.

❑ **HIDEPLOT**

The hideplot properties permits the plotting of SOLID or SURFACE models with hidden lines removed. Setting the current display mode to HIDE will not accomplish this.

Other properties shown above can be used to modify viewports such as CLIPPED and PLOT STYLE.

SETTING LAYER VIEWPORT VISIBILITY

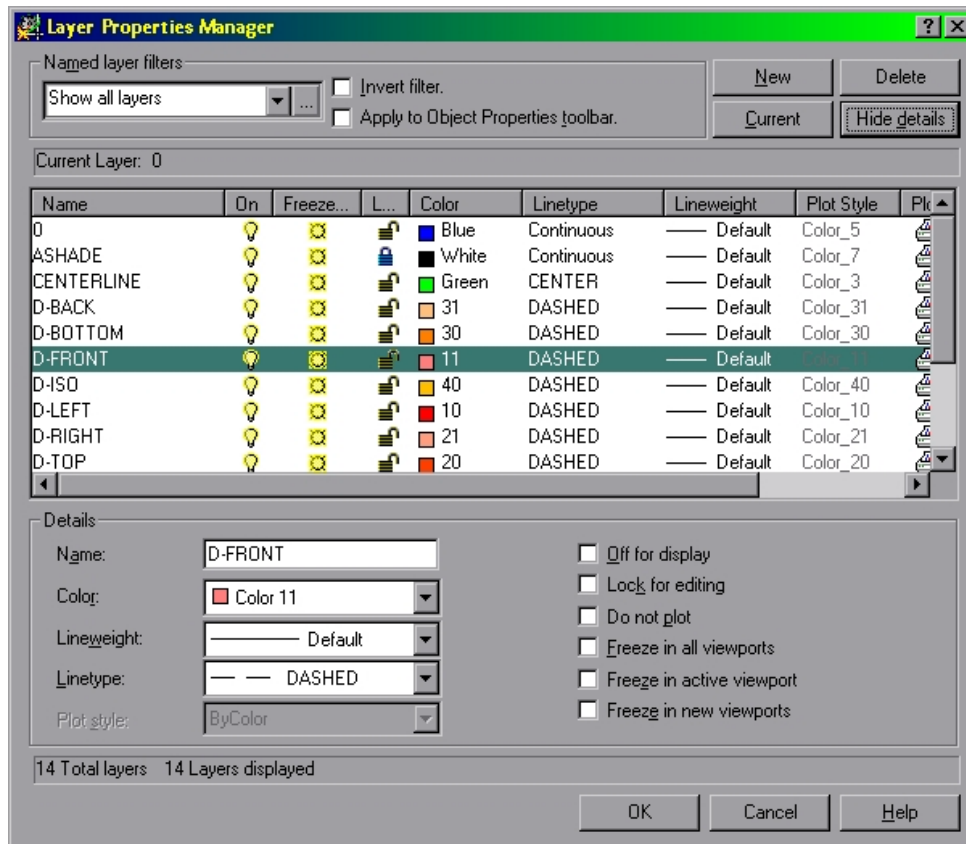Displaying or not displaying objects selectively in specific viewports is controlled by layers.

Figure 4   LAYER DIALOG BOX FROM LAYOUT TAB

A common example of this is a drawing that has a floor plan on one set of layers and a lighting plan overlaying the floor plan on different layers in the same drawing. Different viewports can look at the same area of MODEL SPACE but display different objects.

To control layer viewport visibility you must be in a LAYOUT TAB, but you can be in either model or PAPER SPACE.

The **LAYER** dialog box give you access to these controls. If they are not displayed you select the **SHOW DETAILS** button in the upper right the dialog box. hen you select a layer or layers in the dialog, three options unavailable in the **MODEL TAB** are now enabled. They are **FREEZE IN ACTIVE VIEWPORT**, **FREEZE IN ALL VIEWPORTS**, and **FREEZE IN NEW VIEWPORTS**.

You should not confuse these **FREEZE** options with the familiar **FREEZE** that you perform in **MODEL SPACE**.

Properly taking advantage of this feature is quite challenging and will be covered in the next layout document.

Draw/Modify 'Sheet Specific' Details

It is possible to using many of the familiar **DRAW** commands while in **PAPER**

SPACE but it is not recommended. The only objects that you should be creating in a **LAYOUT** besides viewports should be specific to that particular sheet of the drawing.

The items that typically fall into this category include:

- ➢ **Title Blocks and Drawing Borders**
- ➢ **Standard Notes**
- ➢ **Bills of Materials/Schedules**
- ➢ **Revision History Tables**

A majority of things drawn in a layout in **PAPER SPACE** will be created using the **INSERT BLOCK** and the **MTEXT** commands. Blocks may also be inserted using **MVSETUP**.

If you are drawing/modifying anything in your model, including dimensions, you should be in MODEL SPACE in the MODEL TAB.

Plotting

When you have finally got your drawing looking the way you want it you need to output it to some for of media so that it can be shared with others. You can plot you drawing to paper by using a local printer or by sending it out to a service bureau through the Internet.

You can also create a magnetic version of your plot by using the **DWF ePlot** plotter drivers. This will produce a file that contains your plot in a web compatible format that can be viewed using an Internet browser.

Plotting to paper should almost always use a plot scale of 1 to 1. Check plots can be scaled but should contain a 'NOT TO SCALE' note in the drawing.

C size layouts can be plotted at .5 scale on standard 8.5 by 11 paper.

Additional Reading

Look for helpfiles for:

- ➢ **MVIEW, MVSETUP, SOLVIEW, VIEW, VPCLIP, VPLAYER, VPORTS**