

September/October 2005



AUGIWorld

The Official Publication of Autodesk User Group International

HOW TO



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Quick Start Tips

GUIDE

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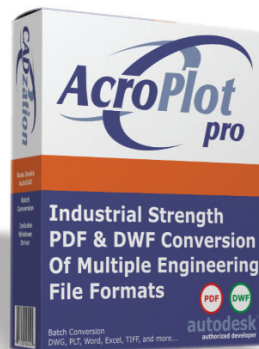


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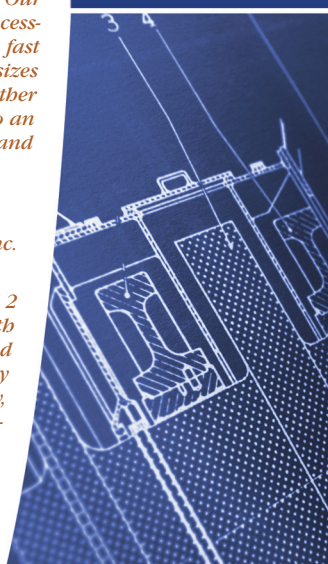
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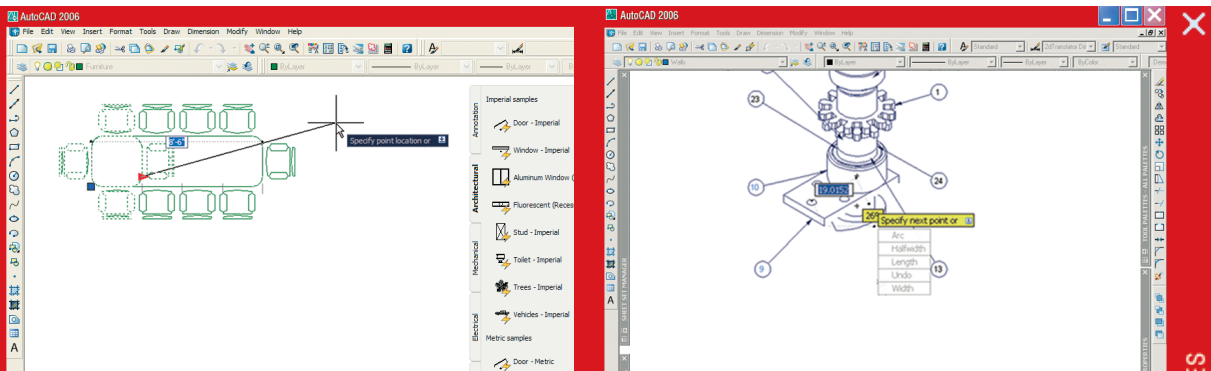
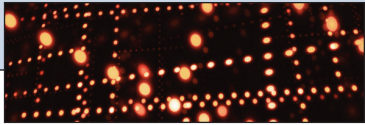


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HOW TO GUIDE



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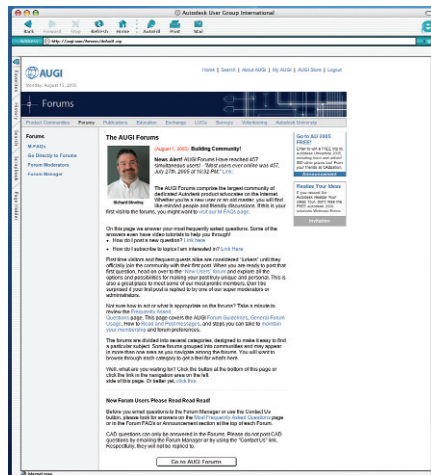
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The good, the bad and the ugly

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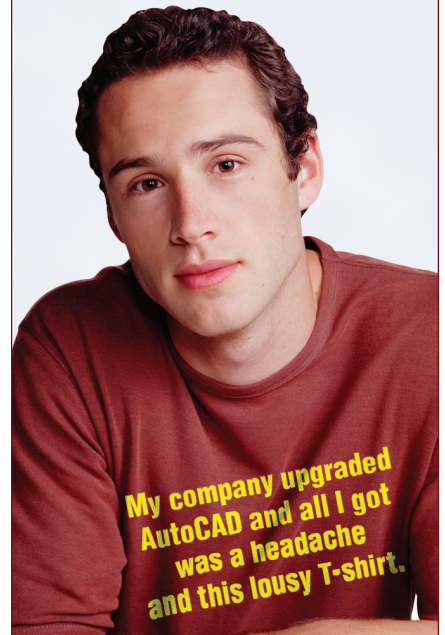
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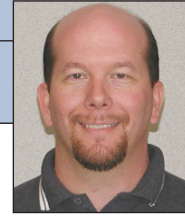


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The Cad Manager



David Harrington

Learn LISP, Start Creating

Previously, our intrepid CAD Manager was searching for the famed “LISP of the AutoCAD,” an elusive program that contains magical powers for those who wield it. The program was described as being fewer than 30 lines long, in a foreign code known as AutoLISP. Few individuals today can harness the power therein contained since few have mastered its “parenthetic” overtones. But those that have tried to learn its secrets have typically succeeded and gone on to greatness never before imagined...

<Loud and momentous music plays in the background>

“CUT! Get real, Dave!” Ok, ok, sure—spoil my fun. But I think AutoLISP programs are great! You should think so, too! You are probably using AutoLISP programs every day and don’t even know it. And you know what? Nearly every decent command in AutoCAD at one time WAS an AutoLISP program. Someone wrote it up to help them with some daily task. They then shared it with coworkers, the ones they liked anyway. Then one of these ‘friends’ was a true friend and stole the program when he quit! Once on the outside, this little LSP gained new popularity as it was shared amongst the multitudes on CompuServe and later the Internet and newsgroups. It had a new lease on life.

Then one day, after shipping the latest big R, some Autodesk product manager stumbled upon the program while pondering what to do next with AutoCAD. “HmMMM,” he said. “Looks like easy picking fruit.” Suddenly, teams of programmers downloaded the long forgotten program, analyzed its inner workings, considered its uses and how much it would cost. Cost? Yes! For they can make it better than before. Way more powerful and robust, with lots more lines of code and lots of

options. And in a different language altogether! They can truly make it THEIRS. And then sell it! Hehe.

Ahhh, programming is a beautiful thing, isn’t it? But it all started that one day when Hugh Ringling needed a way to tweak his hatch pattern. He wanted it to be more distinctive, to have more personality. So often when he hatched, the patterns he created seemed to blend into a mass of lines and dots—BLAH and UGLY! His drawings are not just a way to convey how to build something, they are an art form in their own right! They must be better looking—or at least more fun to draw! That would compensate nicely.

Enter stage left—the AutoLISP program DYNAMIC HATCH. It can easily take your plain vanilla-flavored hatch and create unique, one-of-a-kind patterns, never to be duplicated again in nature! More powerful than slinging paint on a wall with a brush, Dynamic Hatch (DH for short) allows you to create custom one-off hatch objects. You will never have as much fun again creating hatch. Here is your chance to be creative! Go nuts! Break out of your CAD shell, so to speak. It’s time to create a bit of chaos in that superbly accurate 16 decimals drawing of yours (see box below).

```
(defun c:DH (/ old_cmd old_osm old_dyn IPT PNT HSC HAN V2006 *error*)
  (princ "\nDYNAMIC HATCH")
  (setq old_cmd (getvar "cmdecho"))
  (setq old_osm (getvar "osmode"))
  (if (>= (atof (getvar "acadver"))) 16.2)
    (setq V2006 T old_dyn (getvar "dynmode")))
  (defun *error* (strerr)
    (setvar "cmdecho" old_cmd)
    (setvar "osmode" old_osm)
    (if V2006 (setvar "dynmode" old_dyn)))
  (princ)
  (setvar "cmdecho" 0)
  (setvar "osmode" 0)
  (if V2006 (setvar "dynmode" 0))
  (command "undo" "be")
  (setq IPT (getpoint "\nPick internal point of boundary to be hatched: "))
  (command "_bhatch" "a" "a" "y" "" "p" "" "1" "0" IPT "")
  (prompt "\nMove mouse to adjust scale and angle <left click to accept>: ")
  (while (/= (car PNT) 3)
    (setq PNT (gread 1 15 0))
    (if (= (car PNT) 5)
      (if (/= (distance IPT (cadr PNT)) 0)
        (progn
          (setq HSC (/ (distance IPT (cadr PNT)) 2))
          (if (< HSC 0.125) (setq HSC 0.125))
          (setq HAN (angtos (angle IPT (cadr PNT)) 0 1))
          (command "-hatchedit" "last" "p" "" HSC HAN))))))
  (command "undo" "e")
  (setvar "cmdecho" old_cmd)
  (setvar "osmode" old_osm)
  (if V2006 (setvar "dynmode" old_dyn))
  (princ)
```

You will never have as much fun again creating hatch. Here is your chance to be creative! Go nuts! Break out of your CAD shell, so to speak.

In Figure 1, you can see a sample of the POWER of Hugh's creation. These two very different hatch patterns were created with just two presses of a toolbar button and four clicks on screen! How's that for speed? Notwithstanding all the time I was playing with the dynamic hatch generation...but I only clicked my mouse six times! Now the program will use the default HATCH settings for the pattern, whereas the scale and angle are controlled during the program's use. To use a specific pattern without first creating a hatch object, change the HPNAME system variable to whatever you need. You can even

put this into a toolbar button with something like what is below. Of course, the program needs to be placed on your AutoCAD search path.

```
^C^Csetvar;hpname;earth;(load"DH");DH
```

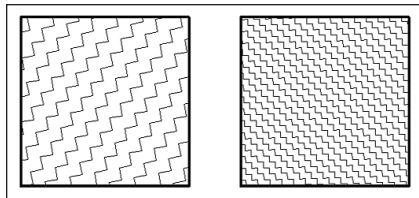


Figure 1

Share your stuff

I want to extend a big thank you to the readers who sent in their programs and enhancements for this article. Even though I could not use yours here, I'm sure others will find your concepts helpful. But you need share them! Hit the AUGI Forums and AUGI Exchange to give and take from the user community at large. There are so many tools out there; something is bound to be helpful to you. Many of the user-provided tools of today will show up later in AutoCAD itself. This just makes room for more freebies, of course. If you don't know how to program in LISP, do yourself a favor and learn! Start and complete a tutorial, take an online course, AUGI Training Program (ATP), read a book, follow the garden path, and attend Autodesk University. Improve, improve, have fun, improve, improve...

David Harrington, technical editor for AUGIWorld, works for Walter P. Moore and Associates in Tampa, Florida, USA. David is the author of Inside AutoCAD 2005, Inside AutoCAD 2002, and original programmer for REVCLLOUD. He can be reached at david.harrington@augiworld.com.

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Education & Training



Matt Murphy

Conscious Competence Learning Model

It's all about learning

It's fall and it's back to school time. Even though most of us are past the age of returning to school, September is still a great reminder that for us to reach a higher level professionally we must constantly seek more knowledge and skills.

Last issue we addressed learning styles with the help of Eugene Evon from Autodesk. What has also been brought to my attention, from readers' emails as well as from colleagues at a recent Autodesk Training Center Advisory Board meeting, is that there are clear stages of learning—unconscious incompetence through unconscious competence. I was so intrigued by these stages I thought I would do a little research on it so we could all have a better understanding of how we learn and become more productive.

Stages of learning

The conscious competence model explains the process and stages of learning a new skill. It is a useful reminder that we learn in stages.

As learners or trainees, we can find ourselves in one or more of these stages at any time in our professional careers. Let me begin by outlining the four stages and how we move from one stage to another.

1 – Unconscious Incompetence

- The person is not aware of the existence or relevance of the skill area.
- The person is not aware that he or she has a particular deficiency in the area concerned.
- The person might deny the relevance or usefulness of the new skill.



- The person must become conscious of his or her incompetence before development of the new skill or learning can begin.

How would you know you needed training to improve your skills to become more productive if you were operating in a state of unawareness? You're going to need an open mind as you approach new skills and elements. "You don't know what you don't know" has been our mantra for the AUGI CAD Camps (www.cadcamp.com). Are these events full-bore training? Of course not. But they are more than just awareness sessions: in five 75-minute sessions during the course of a day you'll gain productivity techniques you'll be able to apply immediately. You'll soon realize how much you don't know and will want to move to stage 2.

2 – Conscious Incompetence

- The person becomes aware of the existence and relevance of the skill.
- The person is, therefore, also aware of his or her deficiency in this area, ideally by attempting or trying to use the skill.
- The person realizes that by improving skills or abilities in this area, effectiveness will improve.

- Ideally the person has a measure of the extent of his or her deficiency in the relevant skill, and a measure of what level of skill is required to achieve competence.

This is what I like to refer to as the "aha" principle. Now you know there's more out there. This is where you should begin to seek out a complete training program, through Autodesk Training Centers and other professional-quality training providers that understand the product and industry in which you need training. I've covered how to obtain traditional training as well as process-based training in my previous education articles.

3 – Conscious Competence

- The person achieves "conscious competence" in a skill when he or she can perform it reliably at will.
- The person will need to concentrate and think in order to perform the skill.
- The person can perform the skill without assistance.
- The person will not reliably perform the skill unless thinking about it—the skill is not yet "second nature" or "automatic."
- The person should be able to demonstrate the skill to another, but is unlikely to be able to show mastery of it.

- The person should ideally continue to practice the new skill, and, if appropriate, commit to becoming “unconsciously competent” at the new skill.

People who do not practice and apply the new skill will soon revert to the old methods and techniques with which they are most comfortable. I have seen this over and over again. The single most effective way to move from stage 3 to 4 is the commitment to learn and practice the new skill, and to move to the “unconscious competence” stage.

4 – Unconscious Competence

- The skill becomes so practiced that it enters the unconscious parts of the brain—it becomes “second nature.” Common examples are driving, sports activities, typing, and manual and other dexterity tasks.
- It becomes possible for certain skills to be performed while doing something else, for example, knitting while reading a book.
- The person might now be able to teach others the skill concerned, although

after some time of being unconsciously competent, the person might actually have difficulty in explaining exactly how to do it—the skill has become largely instinctual.

This is the goal we seek in every task, every new skill, every activity at which we desire to excel. It is our goal with using Autodesk software as well. This also gives rise to the need for long-standing unconscious competence.

With every new release of the software, there is always an element of all four stages of the conscious competence model. For example, there may be features with which you aren’t familiar. You will be in the unconscious incompetence stage when you encounter them. Conversely, there almost certainly will be a tool you know from a previous release. Your interaction with this tool will probably be at a level of conscious or unconscious competence, depending on your existing skill with the tool.

As you approach a new version of the software, or any learning opportunity for that matter, be aware of the conscious competence model. It might be helpful to be thinking of the first stage as you install

the software: most people use it in exactly the same way as the old version, completely unaware of or, even worse, ignoring the new features. If you are particularly sensitive to the concept of unconscious incompetence, you should open the “New Features Workshop” dialog box and increase your awareness of unfamiliar productivity features. Then open the new dialog boxes and try the new commands so that you are exposed to unfamiliar elements. Remember, you don’t know what you don’t know. Strive for the conscious competence level through training and practice to take your skills to the next level.

I hope this learning model will be helpful to you as you consider your professional knowledge and skills. Until next time, keep that dialog box open!

Matt Murphy, chair of the Autodesk Training Center Advisory Board (ATCAB), is an Autodesk Certified Instructor (ACI). He teaches AutoCAD productivity seminars at ATCs, Autodesk University, AUGI CAD Camps, and private companies. He can be reached at matt.murphy@ACADventures.com.

Creating Display Theme Styles

Take a closer look at an exciting new feature in Autodesk Architectural Desktop

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The release of Autodesk® Architectural Desktop 2006 brought several new features to our fingertips. Display themes is one of those new and exciting features that can greatly help our productivity and simplify the display system.

Display themes is a tool that you can use to incorporate non-graphical data in your drawings, both 2D and 3D, based on property set data. This is done by using fills, hatches, and colors to highlight objects in plan view that meet the criteria that you have established in a display theme style. Display themes is a feature that will work with any Architectural Desktop object you have created.

Display themes can be used for many purposes. For example, you can use them to highlight fire-rated walls, such as in Life Safety plans, or to show area plans by size or by occupancy.

Let's take a look at how to create a new display theme.

Creating display themes

There is a simple five-step process that you can follow to create a display theme:

1. Create property data formats that you will use in your theme. The formats that you create will determine how your data is displayed in the display theme legend.
2. Create property set definitions for objects in your drawing. Here you will incorporate formats from step 1.
3. Create a display theme style. This will specify the format for the legend of your display theme as well as what objects will be highlighted in your drawing. The legend is a key that will incorporate property set definitions from step 2. It will specify which visual indicator will be applied to which objects in a drawing and what the content will be.
4. Attach property set data to the objects for inclusion in your display theme.
5. Activate the display theme by adding the legend to the drawing.

Now, let's look at each of these steps in a little more detail.

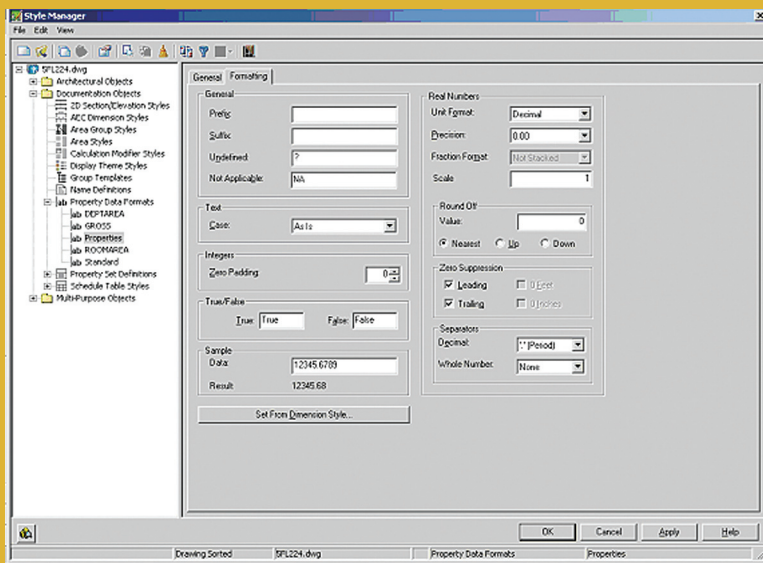


Figure 1

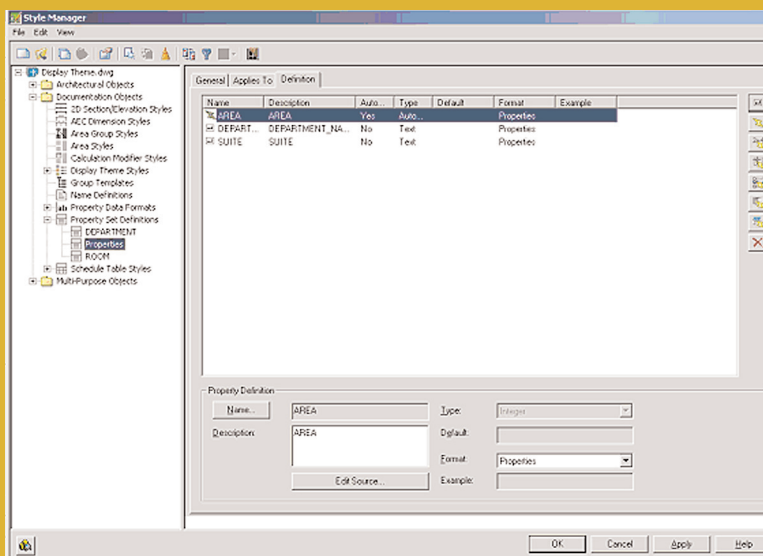


Figure 2

Property data formats

Property data formats are created and edited in the Style Manager under the Format menu. To create a new one, expand Documentation Objects, right-click Property Data Formats, and click new. Enter a name for the new format and click enter.

Now, you will want to click on the Formatting tab (see Figure 1). Here, you will need to specify how you wish the formatting to appear. Fill in all information pertinent to the format you are creating.

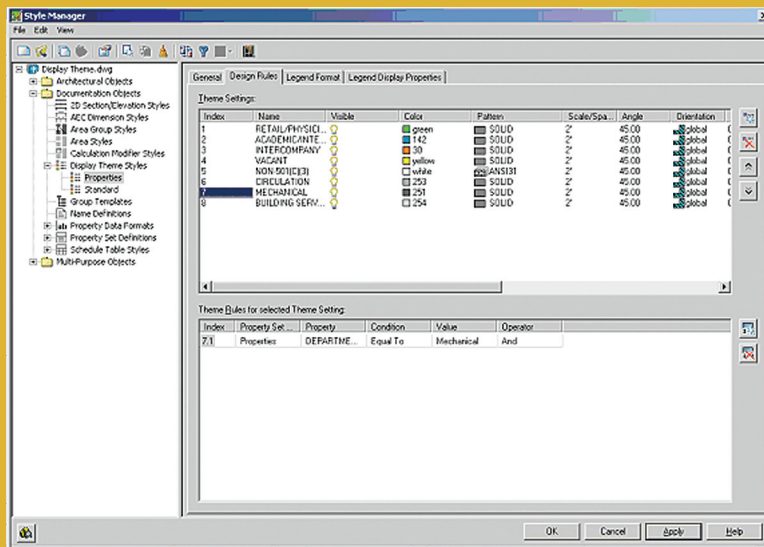


Figure 3

Property set definitions

Property set definitions are created and edited in the Style Manager under the Format menu. To create a new one, expand Documentation Objects, right-click Property Set Definitions, and click new. Enter a name for the new definition and click enter.

Now you will want to click on the Definition tab (see Figure 2) and add Property definitions as needed.

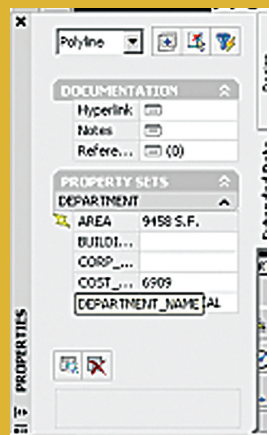


Figure 4

can select a property set definition, a property, which is contingent upon the property set definition you selected, and a condition, which is contingent upon the property set definition and property you selected. Then you will enter a value appropriate to the condition you selected and select an operator appropriate to the formula you are creating for the theme rules.

Next, you will specify the format for the design theme legend by clicking on the Legend Format tab. Enter in the information that is pertinent to your style.

Last, you will specify the display properties for the display theme legend by clicking on the Legend Display Properties tab. You will then select the display representation on which to display the changes and select the Style Override. The display representation in bold is the current display representation. Click the Layer/Color/Linetype tab, select the component to change, if any, and select a different setting for the property.

Once your display theme style is created, you can drag and drop it onto the tool palette for future use. Doing this creates a display theme tool. Once it is placed on the tool palette, you can right-click on it and click on properties to add a description, change the scale of the legend, etc.

Attach property set data

Now that you have created everything you need for your display theme, you will

need to attach property set data to objects in your drawing.

Double-click the objects to which you will be attaching property set data. On the Properties Palette, click the Extended Data tab (see Figure 4). Next, click the button at the bottom of the palette to add property sets. Select the property sets to attach to the object and click ok.

The property set is now attached. You will find that the values for automatic properties are already filled in. At this point, you can enter data for manual properties for each object.

Activate display theme

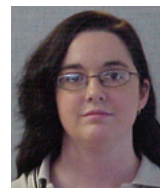
At this point, you are ready to add the theme into your drawing. The display theme is added to the drawing through either the scheduling tool palette or the command DisplayThemeAdd.

Open the tool palette that contains the display theme tool you want to use and select the tool. In the drawing area, specify the insertion point for the upper-left corner of the display theme legend. Then specify the lower-right corner of the legend or press enter to scale the display theme legend to the current drawing scale. The display theme is now activated. At this point, you will notice that the objects affected by the display theme visually change in the drawing as indicated by the legend.

You can add more than one display theme to your drawing, however; only one theme at a time can be active. If you add a display theme to a drawing and there is already a display theme there, the older one will automatically be disabled when you add the new one. If new data is added to your drawing that meets the criteria of your display theme style, it will be added to the legend.

Conclusion

After creating your first display theme, you will notice at each use that inserting a display theme style in a drawing is a lot quicker than inserting hatches and color fills separately for each object in a large drawing. With tools such as this at my fingertips, I can't wait to see what Autodesk comes up with next!



Melinda Heavrin is a CAD Coordinator for Norton Healthcare in Louisville, Kentucky. She can be reached for comments and questions at melinda-heavrin@alltel.net.

For Novices Only

New to AutoCAD?

Here are some timely tips

AUTODESK
HOW TO
GUIDE



“Draw to scale!” was a demanding instruction given to beginners in manual drafting. Therefore, it isn’t too surprising that some try to continue that practice when making the transition to AutoCAD®. Even some AutoCAD books suggest considering scale in model space by saying “draw at 1:1 scale,” which is another way of saying draw in true dimensions.

Most will recognize that if they are drawing the outline of a 10 foot by 12 foot room, the displayed entity can’t actually be 10' by 12'! So this entity must be scaled to fit the screen, correct? Yes, but the AutoCAD software will scale the display using several perimeters that you supply.

A more accurate expression would be enter actual dimensions and the software will choose the appropriate scale to use in the display and store the actual dimensions in its database. When ready to plot, you will be given the opportunity to choose the appropriate scale for plotting. By a few examples in this article, I will illustrate how AutoCAD handles scaling for you, which is intended to make the process simpler.

The first scaling action by AutoCAD occurs when you enter your dimensions (i.e., a 40' by 20' foundation). You can tell immediately that scaling must occur since your display is at most a 19," 21," or 24" diagonal screen.

STEP-BY-STEP Exercise 1

1. Set the units to Architectural
2. Set the limits to 60' by 40' → first parameter that you choose
3. Zoom all → second parameter that you chose
4. Beginning at 10', 10' draw 40' line. (suggest using @40'<0 for second point)

5. Measure the line on the screen with a ruler. (Mine measured 5-1/2"). So now the scale used was 480"/5.5" or 1" to 87.25" (1" to 7'-3.25")
6. To illustrate that database still contains 40', use the dist command at the command line and you should find the x distance to be 40'.
7. Another method to check is to enter at the command line: (entget (entlast))

Look at the dotted pair 10 on the text screen and you will see something like this: 10. 120.0 120.0 (the coordinates of the beginning of the line)

Look at the dotted pair 11 and you will see something like this — 600.0 120.0 0.00 (the coordinates of the end of the line. Realize that these numbers are inches [600 – 120]/12 = 40')

Step 7 might be unfamiliar to you, but it is another way to duplicate step 6 by using the entity data.

So we have illustrated with two different methods that the software has scaled for you and now we will see where the user is asked to scale the line for plotting.

STEP-BY-STEP Exercise 2

With the same units and limits, draw a 40' by 20' foundation 6" wide (see Figure 1).

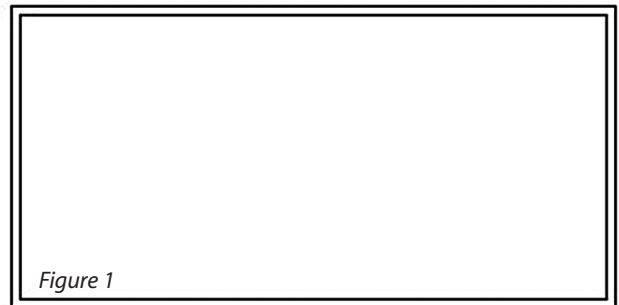


Figure 1

To illustrate the scaling function, we will use File>Plot route. This should show a display similar to Figure 2.

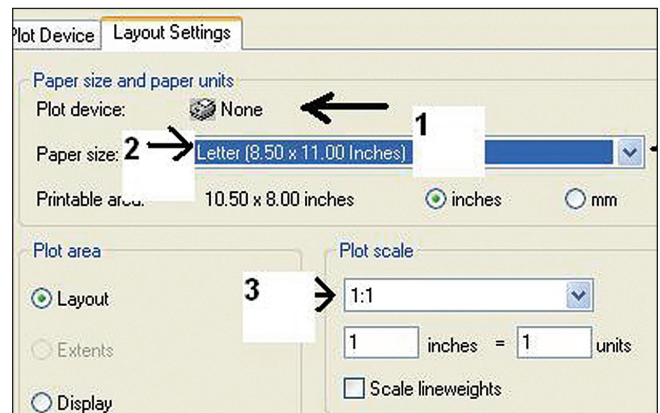


Figure 2

You should check three items in this display as enumerated in the figure:

1 →Plot device: (I was using a printer but had failed to indicate this before capturing this figure.) 2 →Paper Size: (I was using letter size), and most important

“Draw to scale!” was a demanding instruction given to beginners in manual drafting.

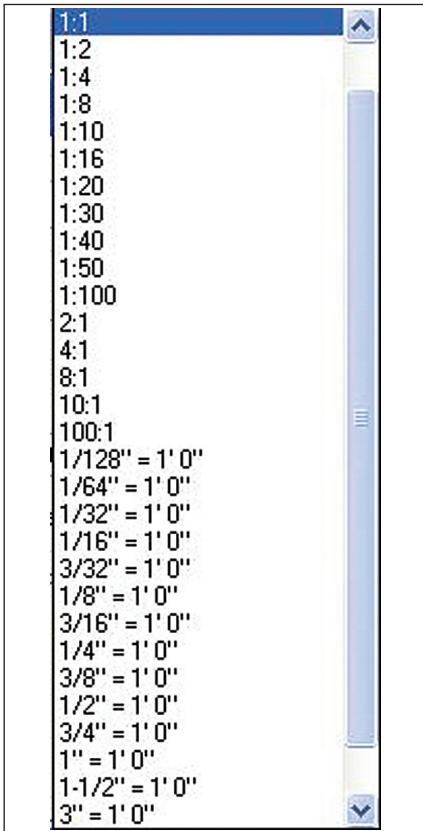


Figure 3

3 → Plot scale: (When clicking the down scroll arrow, you should see Figure 3.)

Now this is where choosing the correct scale is important. What is the longest dimension of the foundation drawing? 40'. And what is the longest dimension of the printable area? 10.5". So we must choose a scale which will allow us to place the 40' into the 10.5". If we choose 1/4"=1'-0", we would have 1/4"x40, which would equal 10". If we choose 1/8"=1'-0", we would have 1/8"x40, which would equal 5". However, if we chose 1/2"=1', we would have 1/2"x40, which would equal 20", which would be longer than the 10.5" of the paper. So we must now choose between the first two.

This has not been an exhaustive discussion of scaling. In using the layout tabs on the drawing, there is much more to be learned about this subject. In future issues, I'll write more about it.



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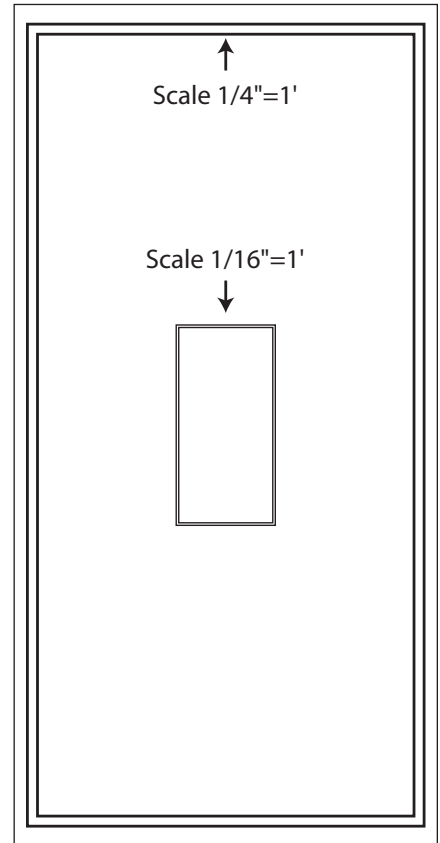



Figure 4





SOMETIMES YOU HAVE TO DRAW THE LINE...

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Dimensioning in AutoCAD 2006

Become acquainted with the many new dimensioning features in the latest version of AutoCAD

Dimensioning has been a constant in AutoCAD® for many years now. The new dimensioning features in AutoCAD 2006 are, however, among the most significant improvements we've seen in a single release in quite some time... quite exciting!

Too often users are forced to explode dimensions (a CAD Manager's nightmare) to achieve the desired results. With the new features in AutoCAD 2006, that should no longer be an issue.

Extension lines

First we have linetypes that can be applied to dimension extension lines. How many times have you had someone review your drawings and request that one dimension line be shown as a center line or hidden line? Of course, these requests normally come from people who don't use AutoCAD and have no idea that this is not possible. Well, now it is!

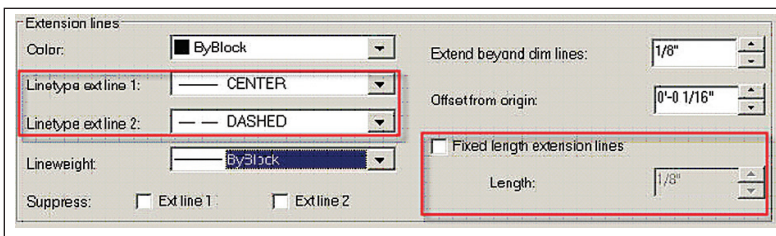


Figure 1

In your Dimension Style Manager dialog box (Format>Dimension Style) under the first tab, Lines, you'll find these settings in the lower left-hand corner. You can control the first and second extension lines independently (see Figure 1).

You will also note another new feature in the lower right-hand corner of the dialog box. Typically you set extension lines to extend a set distance from the dimension lines (the lines that houses the dimension between the arrows). Now, if you want

your extension lines to be a fixed length, you can check the box and set the length (see Figure 2).

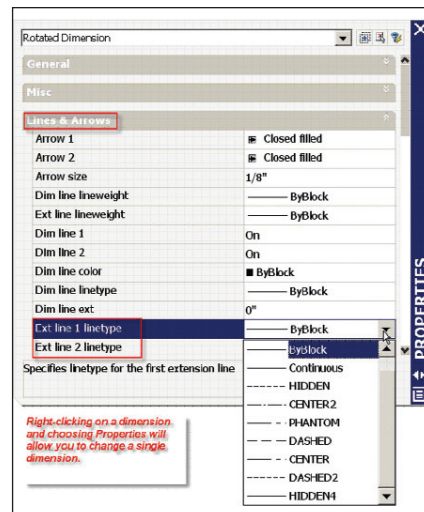


Figure 2

Perhaps you don't want all your dimension lines to have these properties. For the exception (CAD Managers are going to cringe), simply change one dimension by selecting the dimension and right-click. Then choose Properties from

your shortcut menu and change it for the appropriate dimensions.

Center lines and marks

Previously, our Modify Dimension Style dialog box contained six tabs. Now, there are seven tabs of options. The Lines & Arrows tab in AutoCAD 2005 has been broken down in AutoCAD 2006 to a tab for Lines (just discussed) and a tab for Symbols and Arrows (see Figure 3).

In the past we had a choice under the Lines & Arrows tab to choose a Center Mark or Line and the size. Many users didn't realize that line was even an option because you would only see it from the drop-down arrow. With the addition of so many new features, the extra tab had to be added. While it's not an official new feature, the Center Marks setting is now more prominent, which I think is worth mentioning.

Radius dimension jog

You may have seen this new feature listed on material you've read previously about AutoCAD 2006 and wondered about its use. The description listed in AutoCAD materials and in "Lynn Allen's Tips & Tricks" booklet states: "Dimensioning extremely large arcs can be a problem

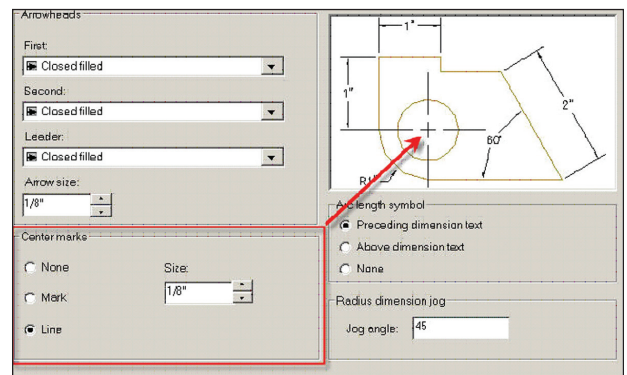


Figure 3

when the center point is off the screen; now you can specify a jog angle to properly dimension large curves.”

Well, I have another use for it as well, because I don't normally have a need to dimension large arcs. Since it is made similar (in my mind) to a break mark, I wanted to try it for showing a distance to something not on the drawing. I often have to give a distance to equipment from a building for permit offices. The building does not need to be shown, but the distance needs to be given.



Figure 4

The jogged dimension only works with an arc. So if you want to use it for purposes other than dimensioning an arc, you'll need to draw an arc. You can erase it later.

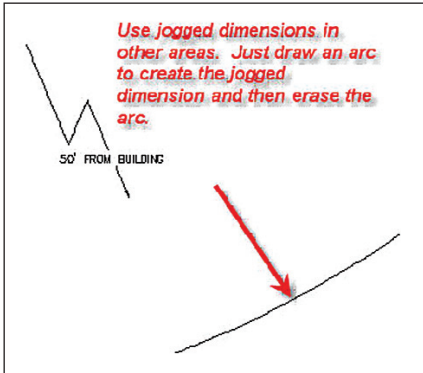


Figure 5

When you begin the command, you are prompted to *Select an arc or circle* (didn't I tell you that you'd need an arc?). After selecting your arc, you are prompted for a *center local override*. This is where your jogged dimension will go, rather than in the center of the arc. I just picked anywhere. Then you are prompted to *Specify dimension line location*. This is where your jog point will be. You'll also have options available. If you want to add a piece of text (50 feet from building, in my example), you can select the Mtext option and add

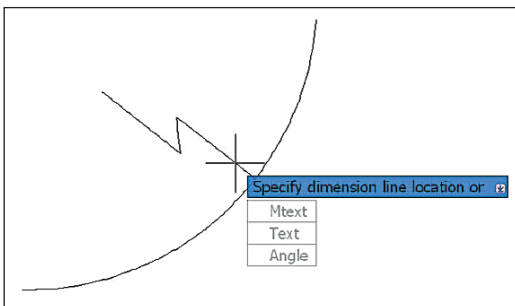


Figure 6

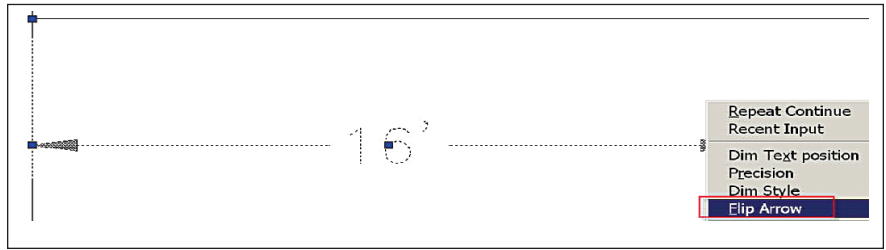


Figure 9

text. Finally, you are prompted to *Specify jog location*. You can see the jog location move as you move your cursor, allowing you to visualize where you want the final jog to be placed. This can be edited later with grips.

Command: `_dimjogged`
 Select arc or circle:
 Specify center location override:
 Dimension text = 92'-3"
 Specify dimension line location or [Mtext/Text/Angle]:
 Specify jog location:

Arc length dimension



Figure 7

Users have needed a way to dimension the length of an arc for years. This AUGI Wish List item has finally been granted.

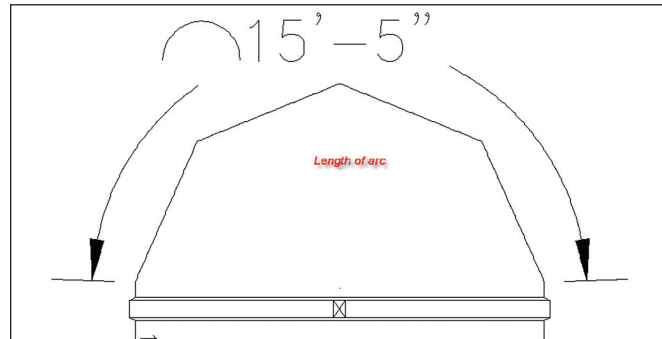


Figure 8

To date, there have been many unsatisfactory workarounds that involved listing the length of the arc and using that information to label it. The new Arc Length Dimension does exactly what its name implies—it places a curved dimension line from each end point of the arc and lists the length of the arc as the dimension text.

Flip dimension arrows

I'm accustomed to seeing the term "flip" with Autodesk®

Architectural Desktop. I was a little surprised to see it used to describe a new dimension feature, but that description is apt.

If you've ever needed to move one dimension line arrow, you'll love this new feature. Once again, no exploding is needed. All you need to do is to select the dimension at the end closest to where you want the dimension arrow to reverse, or flip. Then right-click to activate your short cut menu and choose Flip Arrow. The arrow will flip (see Figure 9). Imagine that!

New dimension features

Many of the new features in dimensioning may not instantly stand out. If you simply go through the Modify Dimension Style dialog box it generally looks the same even though the first two tabs are different. The best way to discover the new features in AutoCAD with the 2006

release (and every release) is take a cruise through the New Features Workshop. Whether you do it when the dialog box opens at start-up or you go to Help and select New Features Workshop, you will find this a great tool to familiarize yourself with

the new improvements. Put the new features to work for you and make the most of your investment as well as your time!



Beth Powell, an AutoCAD user since R11/DOS, is the BSD Applications Engineer for Engineering Design Systems, Inc. She also owns CAD Fuel Design, a CAD service for the petroleum equipment industry. Beth is an AUGI ATP instructor and a former AUGI Board member. She can be reached at allaboutaugi@cox.net.

The Detail Manager In Project Navigator



The Project Navigator in Autodesk® Architectural Desktop has enabled a more effective management system for commonly used building details. I have used third-party software, which worked fairly well with ADT, but still the coordination of titles and section marks remained an issue. The Project Navigator has enabled “hands-free” coordination from detail cut to detail placement, including detail number, title, scale, and sheet number. In this article I will describe the method our office uses for effective detail management.

Detail storage

First, a suitable filing/retrieval system is required that is accessible to all users. Most people in the building industry are familiar with the CSI format for classifying products, and that is the system we use, albeit we are still with the 16-part format. Our details are placed on the main server with total access.

Perhaps one of the greatest concentrations of detail types is opening details, found in Division 08 of the old format. We are a small office with a relatively simple collection of door details, so we place all the door details in one file. They are arranged in the file according to interior and exterior, and sub-categorized into head, jamb, and sill. Inside those groups there are sections for major materials such as frame materials, door materials, wall materials, etc. All details are designed for 1 1/2" scale and fit into a precise grid. See Figure 1 for a sample of a detail sheet.

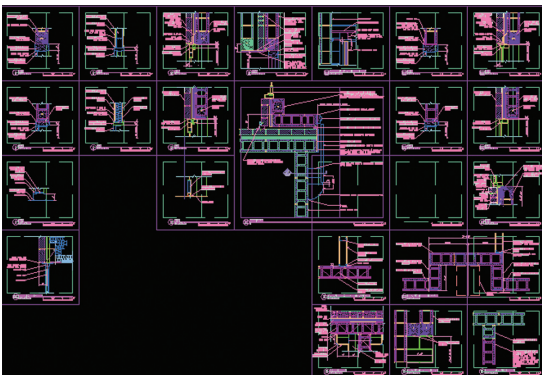


Figure 1

Format

Second, the format of the details must be established so that they are drawn in a consistent manner. We subscribe to the National CAD Standards (NCS), which serve as an excellent method of sheet arrangement, among other things. Our drawing sizes are predominately 24" by 36" and 30" by 42". Following the NCS standards for detail sheets, we are able to arrive at a detail block size that serves both sheet sizes satisfactorily. The larger sheets contain 6x5 details and the smaller sheets contain 5x4 details. The grid lines are set on a no-plot layer. See Figure 2.

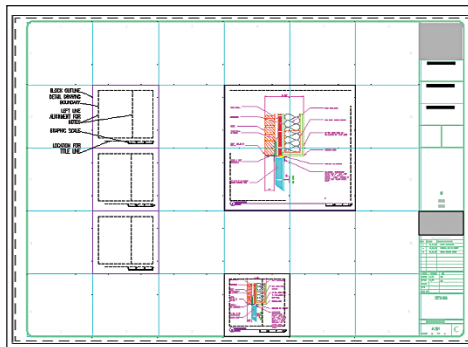


Figure 2

I have created a series of blocks that fit the grid and are sized according to scale. The block is a square that includes guidelines for text alignment, title placement, graphic scale placement, and overall border. All but the graphic scale are on no-plot layers. All the details are created within this block or multiples of blocks. (Figure 3) A completed detail appears as in Figure 4.

Setup

Third, the files in the Project Navigator need to be set up.

- Create a View file in Project Navigator and then open it (Figure 5). The Add Detail View is set up to utilize call-outs from other Views, but we will not need this feature for this procedure. In the context and content views of

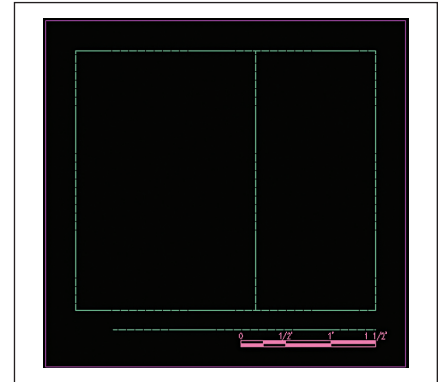


Figure 3

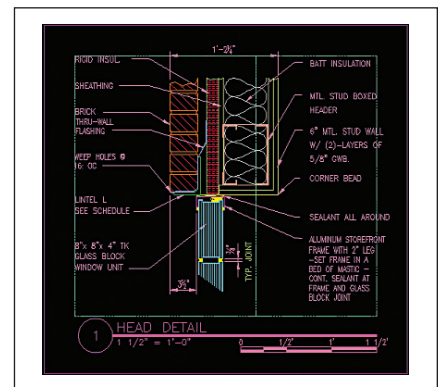


Figure 4

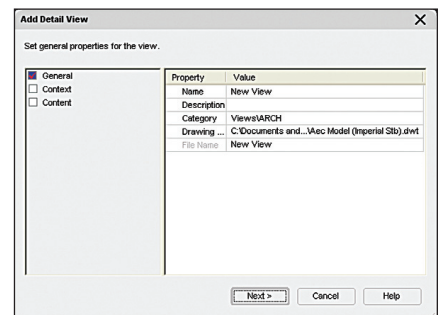


Figure 5

the dialog boxes, uncheck all associated files. Open the new view file.

- Insert the detail file or files as cross references (Figure 6).
- Create and name New Model Space Views of the applicable details (Figure 7). Give the model view the name that you want to see in the detail title. Select the icon in the right margin of the dialog

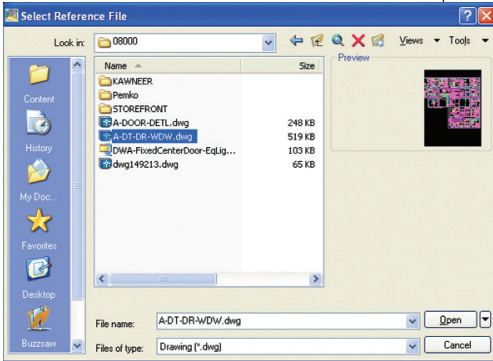


Figure 6

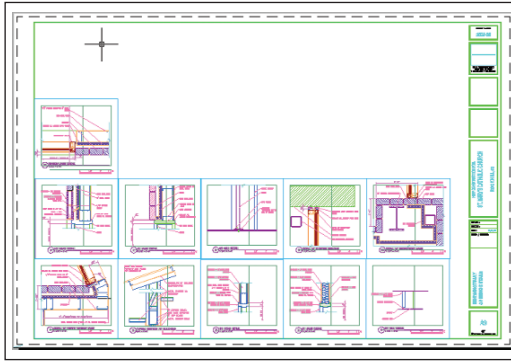


Figure 9

box and draw a rectangle around the detail block that you have created.

- Save

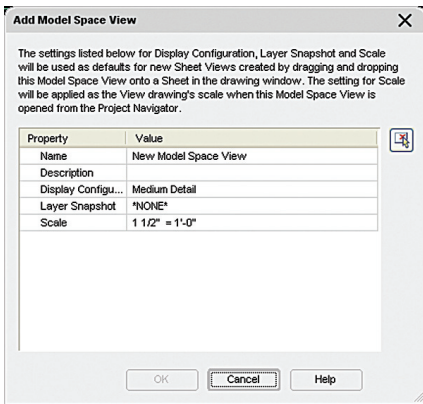


Figure 7

- Create and open a detail sheet or open a detail sheet you have already created. (Figure 8). The sheet name and number will automatically appear on the sheet file.
- Drag the detail views into the sheet file in the selected order (Figure 9). The sheet grid in Figure 9 contains a node at

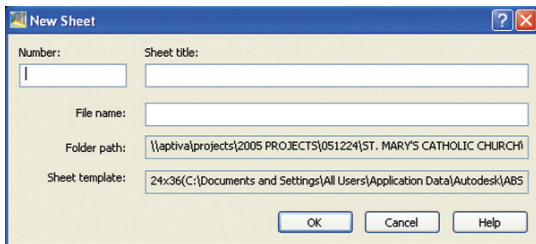


Figure 8

every grid line intersection. With my Osnap set to Node, the default insertion point of the detail is the lower left corner, insertion is a snap.

- Save
- Go back to the detail view and drag the drawing titles from the tool palette into the appropriate location in the detail views. The title will automatically assume

its correct name and scale (Figure 10). The gray background with some of the text indicates that the text is a field, linking the text with other data, and indicating that its selection is automatic. The gray background does not plot.

Fields and keynotes

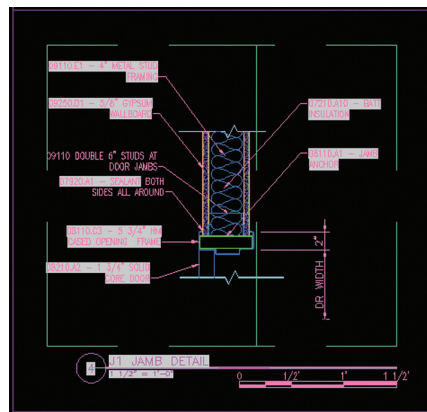


Figure 10

Fields and keynotes are a part of the database information that form a part of the Project Navigator system. Fields for title block information and drawing titles are the subject of another article. Keynotes used for detail annotation are automatic, based on the NCS format for drawing notation. There are options for the amount of information shown in a keynote, as shown in Figure 11. The keynote can be left as selected, information can be added, or the field

may be replaced by common text.

The keynotes in Autodesk Architectural Desktop 2005 are set for the 16-division version of the CSI format and are stored in a database. The database is edited through MS Access. Detail elements created through the tool palette or through the Detail Manager contain attributes that are linked to the keynote database so that nota-

tion is automatic. Select the keynote feature from the tool palette as you would any other feature. You are prompted to select a detail element, then a location for the arrowhead. Common leader and text placement selections follow. The keynote is placed as Mtext and is edited as Mtext, based on the element selected.

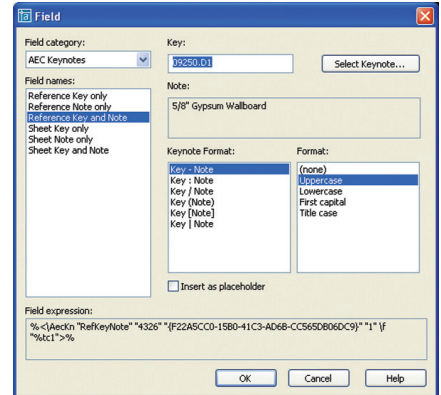


Figure 11

Summary

In the long run this process saves time. The detail numbering and titling are automated, reducing errors and minimizing correction time, if needed. Details are available to all users and are able to be maintained by all users through a common source. This assures uniformity in documentation and the use of tried and true details.

Final thoughts

When applying this detail method, it must be remembered that a detail, once drawn and used on a project, can never be altered to suit another project. Instead, the desired detail must be copied and then modified, creating a new detail.

Because all the Xrefs may not be located in the same directory, it is best to activate the archive command before saving all the drawings to an archival directory or copying to a CD for remote users.



Chuck Graham is the Director of Architecture for DTI in South Carolina. With more than 25 years of experience as a licensed architect, he leads the firm, not only in architectural work, but also in ADT and ABS development. He can be reached at cgraham@dtiplus.com.



Aye Matey, Let's Get Together

Fit assemblies together with Mates, an option in Autodesk Inventor

Mates, an option within Placing Constraints in Autodesk Inventor®, are very useful. As a matter of fact, without placing constraints, assemblies just don't go together. This article will cover two main features called Mate and Flush. Both are within the same tab in the Placing Constraints dialog box.

First let's discuss what a constraint is, in Inventor: Assembly constraints determine how components or parts in an assembly fit together. According to Dictionary.com, the following are a few of the definitions:

1. The threat or use of force to prevent, restrict, or dictate the action or thought of others.
2. The state of being restricted or confined within prescribed bounds.
3. One that restricts, limits, or regulates; a check.
4. Embarrassed reserve or reticence; awkwardness.

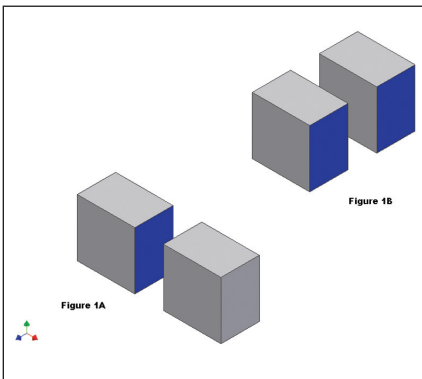


Figure 1

We will focus on the third, one that restricts, limits or regulates; a check. That is what the intent is with Inventor—to restrict or regulate how two parts fit or go together.

What is meant by Mate? When placing two parts together, first recognize that each part has many faces. Placing a mate determines how one face from one part is brought together with one face from another part. See Figure 1A.

The second feature, called Flush, is a constraint where two surfaces are parallel and are facing the same direction. See Figure 1B.

That distance or spacing between those faces can be set to 0 with both faces touching for Mate, and the two faces are parallel with Flush, which is the default setting. A positive number, such as .500, sets an opening between the two faces with Mate, or offsets the two faces with Flush. A negative number, such as -.125, creates an interference with Mate, while with Flush, the two faces are offset—the opposite as with a positive number. See Figure 2 for examples.

Now that we have the basics of Mate and Flush, let's say you have been using these constraints for a short while and find they don't constrain parts just the way you want. Offsetting one part to the other just doesn't quite work, and trying other ways of constraints always seems to be missing something. What else can you do? Have you ever tried using a plane versus using a part surface? This works very well, but you must consider how you set up your planes. If you want to Mate several parts to the middle of one part, and you're not very good at remembering what that center distance was or you forgot where you jotted that number down, next time set a plane at the center of the part. The use that plane to Mate other planes or surfaces with.

Following are a few things to consider when setting up your planes for using with constraints. I've discovered these make working with constraints and features easier and helps me remember which plane is with which part.

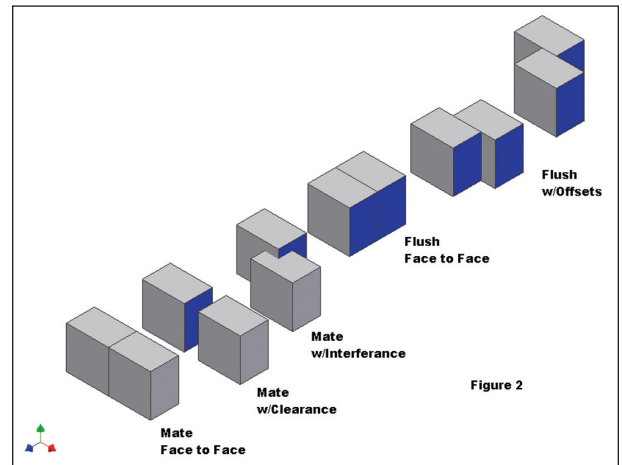


Figure 2

1. Do not create planes in assembly models.
2. Do create necessary planes in part models.
3. Always try to use existing dimensions to set your planes, d1/2 or -d1/2.

When you create a plane in the assembly model, they don't easily identify with which part they are associated. When they are defined in the part model, you can select any feature of the part in the assembly and all of the part is highlighted. This lets you know which plane is with which part. As the planes are constrained, so are the parts. If you are using centerline planes, then all the parts are easily constrained. You don't have to remember the dimensions for each part to set the offset dimension when defining the constraint. When working with several parts that need to be constrained by the center of each part, planes are an easy solution to setting up your constraints, whether using the Mate or Flush constraint. When selecting the plane, notice which direction the indicating arrow is displayed for each plane, which will determine if you need a Mate or Flush constraint.

Now is a good time to suggest some assembly tips with constraints. When selecting the first part for defining a constraint, select the part that is currently con-

strained; for the second part of the constraint, select the part that needs to be constrained. If you need to edit the constraint later in your design process, you will always know which part was selected first and which part was selected second. It does become frustrating when you get an error message due to some minor change you make someplace in the assembly and when you try to fix your constraint you don't remember which part you selected first and which part you selected second.

When you have two parts that need to be mated, such as the parts in figure 3, there are several ways to place the constraints. One method is remembering that the clearance where the two parts fit together is at .010. That means our mate needs a clearance of .005 (this will center the parts with each other).

However, if it has been several days since you started this project, and you have had many interruptions, you may not remember that the clearance was set at .010. You can go to each part and measure the length and find the numbers or you could have set a plane down the center of each part. If you plan your part when starting to design it, you can set one of the Origin Planes as a center plane. Sometimes we are in a rush to complete and don't always plan that far in advance. So, you need to create your plane in the center of the parts. See Figure 4. With the planes in the center of the parts, select each plane and, if the arrows are pointing in opposite directions, use the constraint for Mate. If the arrows are pointing in the

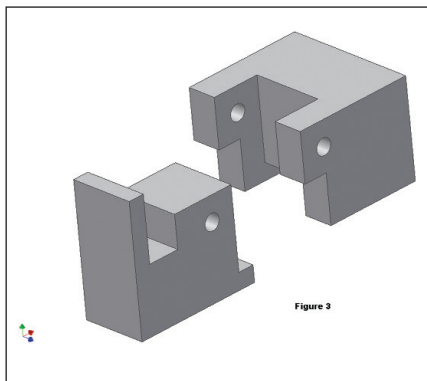


Figure 3

same directions, use the constraint for Flush. This aligns the parts center to center with each other.

To complete the assembly with the constraint for Mate, select the holes of each part, which highlights the center line, and apply the constraint. Now the two parts are centered with each other and the parts are in line with the holes. If you want to allow the parts to move about the centerline of the holes, you are done. If you want

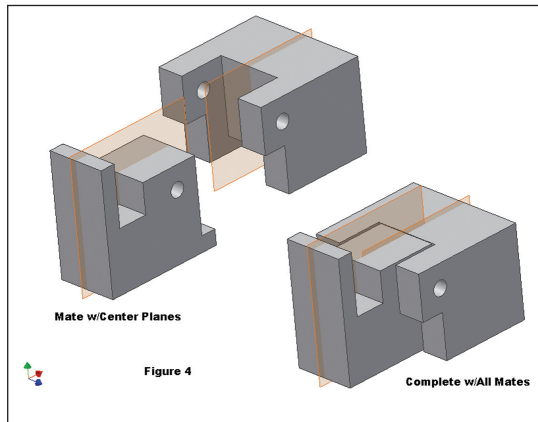


Figure 4

to keep the parts together, select the Flush constraint and select the top surfaces of each part and accept that.

When you have completed all your mates, and have accepted your last mate, you will notice the Constraint Dialog Box is still open. To close the dialog box, you must select cancel, which does not cancel all the constraints you just set, it only closes the dialog box. Tip: If you are on your last constraint setting, select OK, which accepts your constraint and also closes the dialog box.

This is just the beginning of Constraints for Mate and Flush. I touched briefly on using the Mate Constraint with hole centerlines. The Constraint dialog box has three tabs: Assembly, Motion, and Transitional. The assembly tab includes three other Constraints: Angle, Tangent, and Insert. Each one has their own features and benefits. Experiment and see what works for you, remember to save before you experiment, and remember there is always the undo button!



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Accurate Surface Modeling

A well-built surface helps you get the most from Autodesk Land Desktop

Many engineers and techs have tried the new toys in Autodesk® Land Desktop 2005 and found them lacking. Profiles are less than perfect and dirt volume calculations are far from accurate when compared to the results obtained by the old tried-and-true (albeit lengthy and time-consuming) method. Contours are ugly and in the end, those commands are relegated to the back shelf, collecting virtual dust. Why have we been teased with such promising software, and what, exactly, can one do about it?

The problem, in reality, is not a shortfall from the part of the software programmers, but rather a poorly built surface. Let's face it—building a surface that perfectly represents every nook and cranny of your design would take forever and a day, right? So you toss in a few points and maybe even some breaklines and call it good. The contours may be ugly, but with a little manual cleanup, you've got what you need for turn-in.

The reality is that the results obtained from using surface-based commands are only as good as the surface upon which those commands are executed. What follows is a tried-and-true method for building an accurate surface from which one can extract a wealth of accurate data, and spend more time on the golf course than at a desk.

First things first

Paving grades are the heart of any design surface and LDT 2005 makes it easy.

To begin, define your alignment by drawing a polyline, or a series of line segments and curves at your road centerline. Then use the ALIGNMENT > DEFINE FROM OBJECTS command for line segments and curves, or the DEFINE FROM POLYLINE command for polylines.

Next, build a profile. Go to PROFILES

> SURFACES > SET CURRENT SURFACE. Choose the project's existing surface. Go to PROFILES > EXISTING GROUND > SAMPLE FROM SURFACE. In this dialog box, left and right sampling is for profiles left and right of the centerline. (Note: if your surface only goes 40 feet left of center, and you choose 50 feet left in this dialog box, you will get an error at the command line.) Go to PROFILES > CREATE PROFILE > QUICK PROFILE. Make sure the start station in this dialog box is the beginning station of your alignment. If you want left and right profiles, toggle the check box under profile creation parameters.

Now choose a location for your profile. It really doesn't matter where you put it, so long as any plan view linework is far enough away so as not to show up in the profile viewport of a p&p sheet. After choosing a location, notice the question at the command line. Choose NO if you have other profiles that you want to keep.

Now that you have an existing grade profile, it's time to build a design grade profile. Go to PROFILES > FG CENTERLINE TANGENTS > CREATE TANGENTS. Follow the prompts at the command line to lay in your design grades.

Once your design grade is complete, it's time to define it so that the data associated with the profile will be available to other parts of the LDT program. Go to PROFILES > FG VERTICAL ALIGNMENTS > DEFINE FG CENTERLINE. Pick a point on the first tangent that is close to the beginning of that tangent. Select the remaining tangents and/or vertical curves. You have just created data that will be used to build your surface. Now complete the same process for all roads in your project.

Point generation

Open the drawing in which your design surface will be built. Set an alignment current by going to ALIGNMENTS > SET CURRENT ALIGNMENT. Position the plan view of the alignment in the center of your screen. Go to PROFILES > FG VERTICAL ALIGNMENTS > CREATE COGO POINTS. In the dialog box, enter stations for curb returns, curve PCs and PTs, and vertical PIs. Since you can only enter two stations at a time, along with an increment length, you may have to repeat this command several times depending on the length and complexity of the alignment. (Note: "Point Description" in this dialog box refers to the Description Key that will be used during point generation.)

Once you have created points along all alignment centerlines, it's time to move the points to their appropriate locations for surface construction. Go to POINTS > EDIT POINTS > MOVE. Select all points along a tangent (curve points must be moved individually) and select the node of any point as the reference point. Select the perpendicular point along the back of curb line in your drawing that is adjacent to that point. (See Figure 1.) Points that need to be on both sides, such as at vertical PIs and curve points, should be copied to the adjacent side using POINTS > EDIT POINTS > COPY.

Breaklines

Breaklines are critical to accurate surface modeling. Before beginning breakline construction, make sure all design points are at 3D elevation. Set the current layer to "0" and make the color yellow.

First, draw breaklines, using the AutoCAD 3d polyline command, between all points on straight line tangents. Next, go to a curve. Draw a 3d polyline between

the points at each end of the curve. (See Figure 2.)

Next, draw another 3d polyline from the first point to the midpoint of the first 3d polyline, then to the second point. Click on the new 3d polyline, and use the grip at the midpoint to stretch the polyline out until the ends are tangent to the ends of the curve. (See Figure 3.) You can tell that the ends are tangent when the polyline changes color as it lays over the curve.

Next, go to **TERRAIN > 3D POLYLINES > FILLET 3D POLYLINE**. Follow the prompts at the command line. Note that if your radius is 30 feet at the face of curb, and your curb is 8 inches, then the radius at the back of curb is actually 29.3 feet. Additional vertices should be set at a value of one (1). (Less than this, and your surface triangulation will become too complex and bog down your processor). Repeat this procedure for all curves.

Subgrade breaklines

Now that you have top of curb breaklines, you need to create breaklines for the subgrade surface features within the project paving. Fortunately, this is very simple to accomplish.

Go to **TERRAIN > 3D POLYLINES > CREATE CURB**. You will be prompted to select a polyline. Select one of the top of curb polylines you created earlier. Select the side toward the centerline when prompted for the offset side. If you are using 8-inch curbs, put in an offset distance of 0.67, and so on. When the elevation prompt appears, type "D" and press enter. This is to let the program know that you want to create a line that is uniformly up or down from the current polyline. Most subgrade is one foot below top of curb (consult your city standards to be sure). Type "-1" to let the program know you want to drop one foot. Repeat this for all 3d polylines that you created earlier.

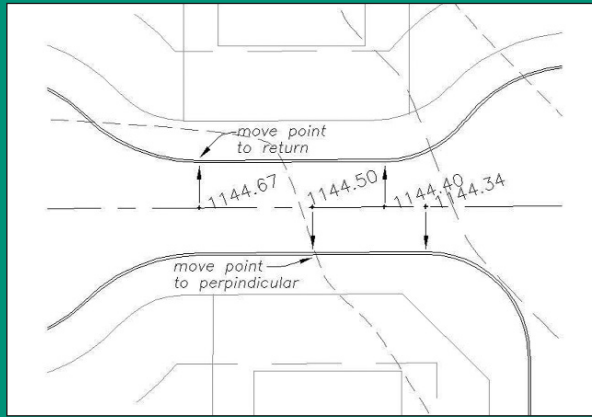


Figure 1: Move points to back of curb

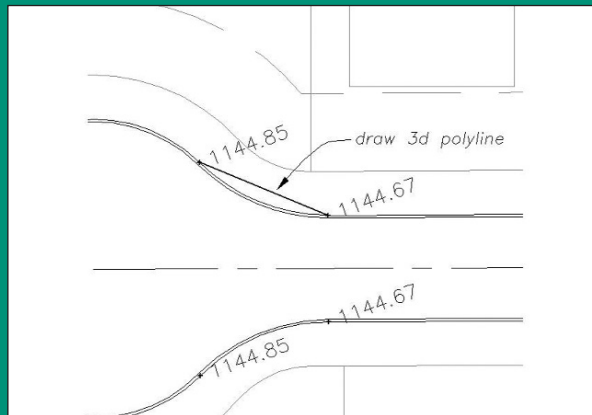


Figure 2: Draw a 3d polyline between points

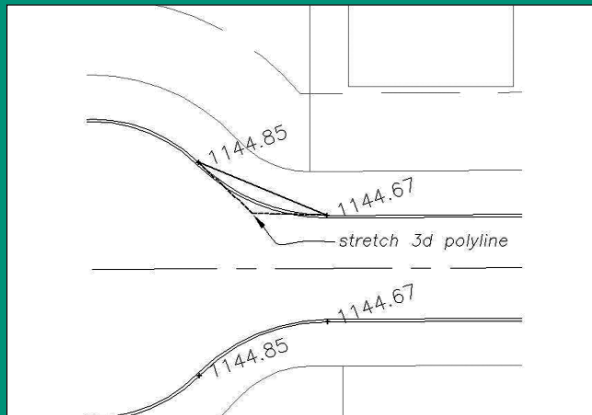


Figure 3: Stretch 3d polyline via midpoint

Surface tie-in

Now that you have completed breaklines for the paving, you need to create breaklines along the project boundary. These lines will make your design surface attach to the existing surface at the locations where grading will stop in the field. This is important, as it will not only help

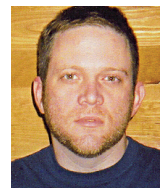
acquire accurate dirt numbers, but also allow you to design surface features that properly drain and tie back in the way they should in the field.

Draw a polyline around the entire project boundary, with the exception of locations where paving may terminate in anticipation of future development. Next, set the existing surface current. Go to **TERRAIN > SURFACE UTILITIES > OBJECT PROJECTION**. Select the polyline you just drew. When prompted, you may put a unique layer name for this line, or just leave it as is. (Note that you are asked whether or not to erase the old projection layer. If you say "yes," all objects on the projection layer will be erased.) The new polyline on the projection layer has now been created to represent existing surface features at the boundary.

Go to **TERRAIN MODEL EXPLORER**. Choose your design surface, and define all of these 3d polylines as breaklines for that surface. There is really no need to include your points in the surface, as the breaklines already have those elevation points covered.

Completing the surface

Technically, you now need only draw a polyline around all these things and define it as the surface boundary through Terrain Model Explorer. Then build the surface and you are done. In reality, you may want to place rectangular breaklines for building pads, 3d polylines for swales, etc. However, the work you have done to this point will provide you with a surface that will make all those neat little commands come to life. One note of advice: use composite volumes when calculating dirt, and use "1.10" for a 10 percent compaction factor, not "10." Good luck!



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Hidden Secrets of AutoCAD

Try some of these time-tested techniques

AUTODESK
HOW TO
GUIDE



I've been searching through the archives of my mind to find some of the hidden secrets of AutoCAD® that are long forgotten. I'm not resurrecting these secrets for posterity purposes, but to shed light on some old lost productivity techniques that are still useful with today's release.

Super Groups – productivity legends

The GROUP command has been around for a long time. It allows you to group objects so they act as one item. They will move as one unit as long as they are grouped. This command is most useful for items you need to move together frequently but you don't need to make into a block (though if you use them with blocks it gives you the ability to essentially have explodable nested blocks).

Grouping objects is more flexible than blocking, because you can easily turn the grouping feature on or off. However, it does not have the same memory advantages as blocks for multiple copies of objects.

A group is a named selection set of objects. Unlike unnamed selection sets, groups are saved with the drawing. Group definitions are maintained when you use a drawing as an external reference or insert it in another drawing. Until you have bound and exploded external references or exploded blocks, however, you cannot directly access groups that have been defined in an external reference or block.

When you create or edit a group, you can specify whether it is selectable. If a group is selectable, selecting one of its members selects all members in the current space that meet the selection criteria (for example, members on locked layers are not selectable). The ability to select groups is also affected by the PICKSTYLE system variable. When PICKSTYLE is off for group selection, you can individually select group members.

An object can be a member of more

than one group. You can list all the groups to which a selected object belongs by using the Find Name option in the Object Grouping dialog box. Highlight all the members of a specified group with the Highlight option. Group mem-

bers can also be highlighted, making it easy to track and find them for revisions.

Selecting Groups

You can select groups by name at the Select Objects prompt. If the PICK-

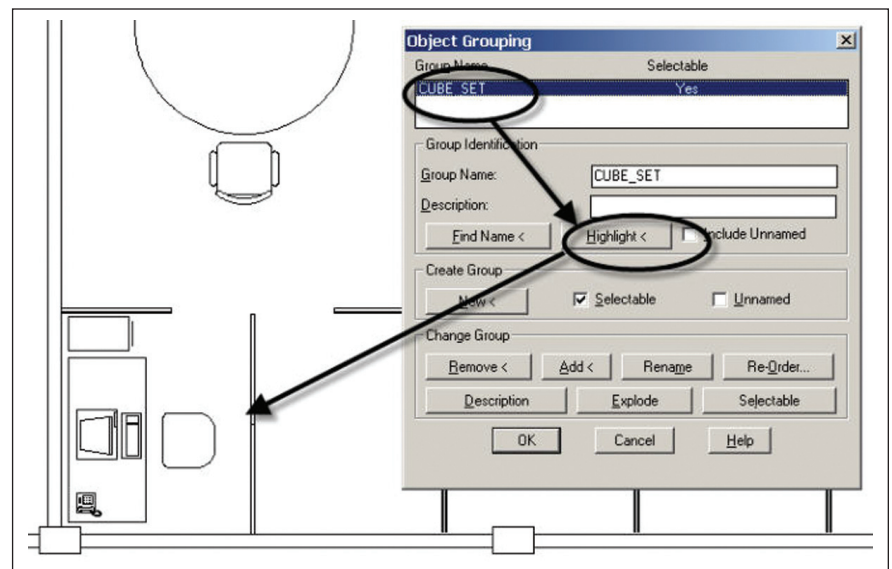


Figure 1: You can track and name each group you create.

bers are numerically ordered and can be reordered. Reordering may be useful in some batch operations on objects or when it's important which object is "on top" for display purposes.

Creating groups

When you create a group, you can give the group a name and description. If you copy a group, the copy is given the default name Ax and is considered unnamed. Unnamed groups are not listed in the Object Grouping dialog box unless you select Include Unnamed.

If you choose a member of a selectable group for inclusion in a new group, all members of that selectable group are included in the new group. Selectable

STYLE system variable is set to 1 or 3 and you select any member of a selectable group, AutoCAD selects all group members that meet the selection criteria. You can also toggle group selection on and off by pressing CTRL+H or CTRL+SHIFT+A.

All members of selectable groups are also selected when you use object selection cycling. Selecting an object that is a member of more than one selectable group selects all the members of all the groups that contain that object. To select groups for editing with grips, use the pointing device to select the group at the Command prompt.

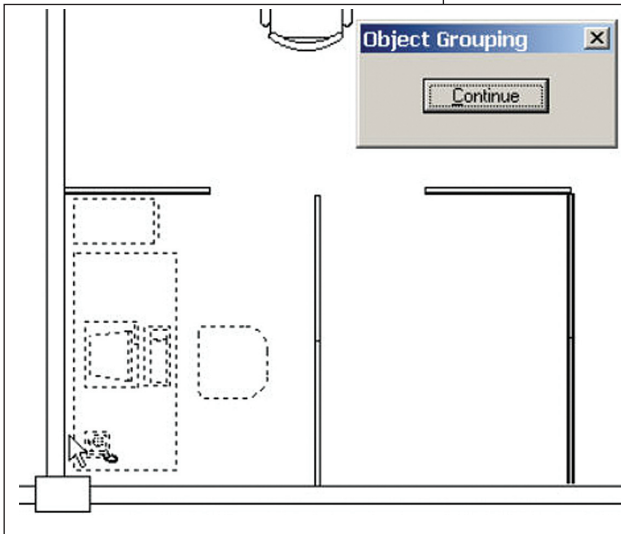


Figure 2: Unlike Blocks, Groups can be highlighted to show their location in the drawing.

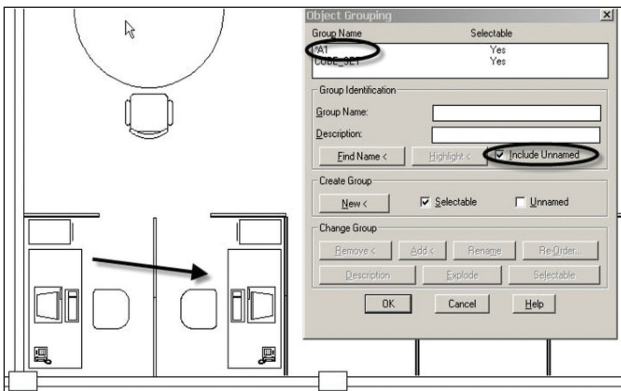


Figure 3: When you create a copy of a group the new group or copy is unnamed.

Editing groups

At any time, you can add or remove group members and rename groups. You can also copy, mirror, and array groups. Erasing a group member deletes that object from the group definition. When a group member is included in a deleted block, the object is deleted from the drawing and also from the group. If deleting an object or removing it from a group leaves the group empty, the group remains defined. You can remove the group definition by exploding the group. Exploding a group deletes it from a drawing. Objects that were part of the group remain in the drawing.

You can alter the group's member order (the order in which the objects were selected), its description, and whether it is selectable. You can

reorder group members in two ways: either change the numerical position of individual members or ranges of group members, or reverse the order of all members. The first object in each group is number 0, not number 1.

Summary

Groups give you the flexibility to track, order, reorder, name, and rename the originals and copies of groups without affecting and updating other groups. This gives you far more flexibility manipulating objects than using blocks.

If you haven't tried using groups, I hope you'll take some time to explore this hidden productivity treasure. Until next time, don't close that new dialog box!



Matt Murphy, chair of the Autodesk Training Center Advisory Board (ATCAB), is an Autodesk Certified Instructor (ACI). He teaches AutoCAD productivity seminars at ATCs, Autodesk University, AUGI CAD Camps, and private companies. He can be reached at matt.murphy@ACADventures.com.

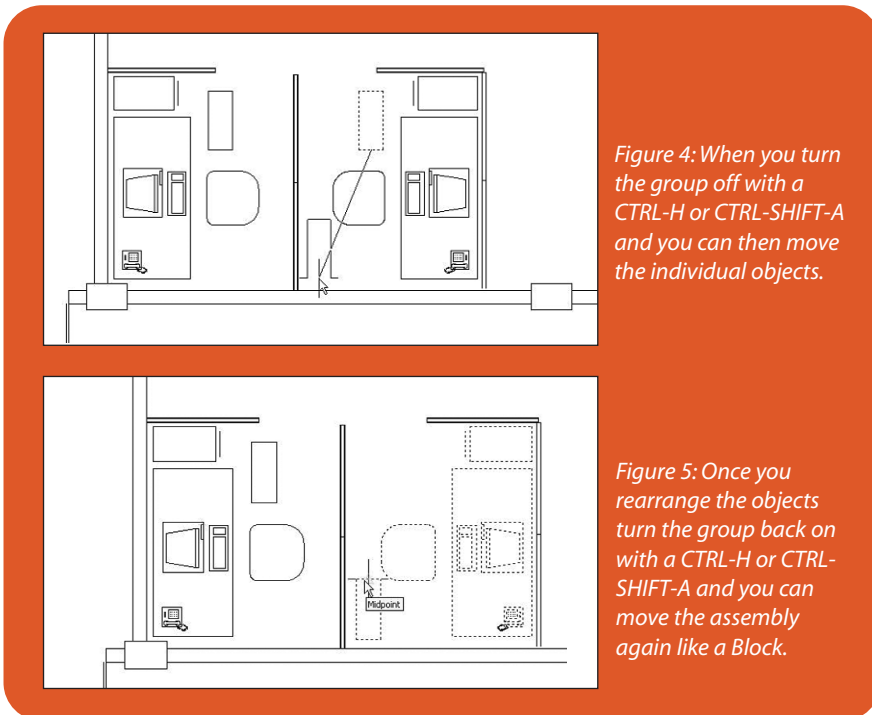


Figure 4: When you turn the group off with a CTRL-H or CTRL-SHIFT-A and you can then move the individual objects.

Figure 5: Once you rearrange the objects turn the group back on with a CTRL-H or CTRL-SHIFT-A and you can move the assembly again like a Block.

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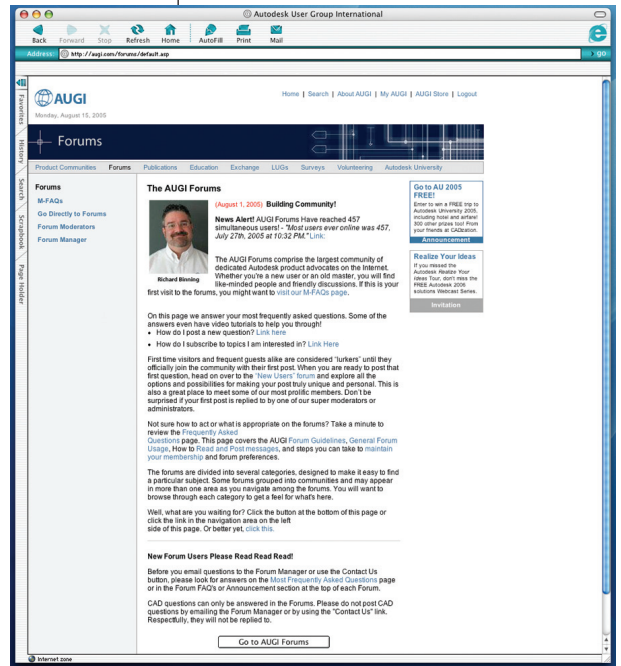
Check Out our Free Streaming Video Tutorials & Tips and Tricks Pages

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CADtech Seminars 1-800-454-4054

Welcome to the AUGI Forums

The Forums, AUGI's peer-to-peer web-based support group for Autodesk products, are continually developing and growing to meet the needs of members. Here's a get-started guide



Getting to the forums

Member Login -> <http://www.augi.com/login/login.asp> ->

Enter your E-mail address and Password ->

Click the Login button (Note the two tick boxes on this page "Remember my password" and "Enable Automatic Login," plus the two links if you experience any difficulties with logging in "Have you forgotten your password?" and "If you have problems logging in, please contact Member Services").

You should now find yourself on the Home page -> <http://www.augi.com/home/default.asp>

From the menu bar along the top (see image below) you have two means of access via either the "Product Communities" or "Forums"



1. Product Communities will take you here -> <http://www.augi.com/communities/default.asp>

Currently there are two Product Communities, Autodesk Revit and AutoCAD. More are definitely in the works and will be launched once the relevant community team has finished all of the behind-the-scenes development work necessary to bring a Product Community online.

- Revit Community -> <http://www.augi.com/revit/default.asp>
- AutoCAD Community -> <http://www.augi.com/autocad/default.asp>

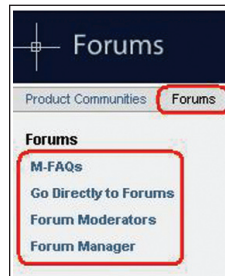
I highly recommend that you browse these pages and check back there at least once a month to see what is new and updated (the community team members update their respective pages at least once a month, so please take the time to support their efforts by browsing the content). I believe you might be pleasantly surprised by the information available in this section, though for the scope of this article I will be concentrating on the next area, the Forums.

2. Forums will take you here ->

<http://www.augi.com/forums/default.asp>

Note the links in the navigation area on the left-hand side (see image below), there you will find useful information relating to the forums. Also, take the time to read the information given on <http://www.augi.com/forums/default.asp>

I recommend you also take the time to browse that page at least once a month, as new and updated information relating to the forums is posted there for the benefit of everyone.



[Go to AUGI Forums](#)

Enter the forums by either clicking the "Go Directly to Forums" link (as highlighted above) or by scrolling to the bottom of page <http://www.augi.com/forums/default.asp> and clicking the "Go to AUGI Forums" button (see image below).

What awaits you inside the forums

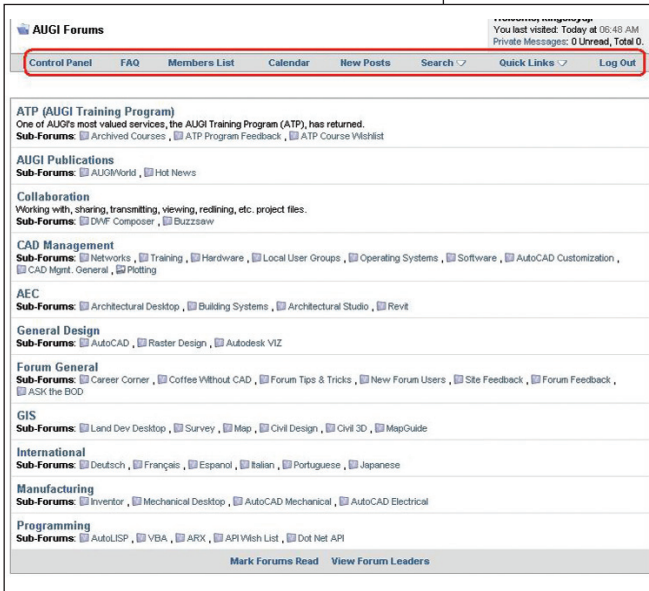
You should now be within the AUGI Forums -> <http://forums.augi.com/index.php>

The AUGI Forums image shows the main page, with the forum menu bar highlighted along the top. Note how Autodesk products have been grouped into relevant industry areas (working from top, downwards):

Collaboration consists of sub-forums for DWF Composer, Buzzsaw.

AEC consists of sub-forums for Architectural Desktop, Building Systems, Architectural Studio, Revit.

General Design consists of sub-forums for AutoCAD, AutoCAD LT, Raster Design, Autodesk VIZ.



AUGI Forums

GIS consists of sub-forums for Land Development Desktop, Survey, Map, Civil Design, Civil 3D, MapGuide.

Manufacturing consists of sub-forums for Inventor, Mechanical Desktop, AutoCAD Mechanical, AutoCAD Electrical.

In addition to the above, you will find forum areas for –

AUGI Training Program (ATP) refer to The AUGI Training Program (ATP) pages <http://www.augi.com/education/default.asp?page=728> found under the Education area of the AUGI website for more details on what ATP has to offer and how it uses the forums as a part of its program.

AUGI Publications – *AUGIWorld* is our official bi-monthly magazine, refer to *AUGIWorld* page <http://www.augi.com/publications/default.asp?page=63> found under the Publications area of the AUGI website for more details on this resource.

AUGI HotNews is the official monthly newsletter sent to all AUGI members (who have elected to receive it) via e-mail. Refer to Hot News page <http://www.augi.com/publications/hotnews.asp?page=64> found under the Publications area of the AUGI website for more details on this resource.

The sub-forums *AUGIWorld* and *Hot News* are both divided into two areas –

1. **AUGIWorld** <http://forums.augi.com/forumdisplay.php?f=30> and *Hot News* <http://forums.augi.com/forumdisplay.php?f=31> are for comments and/or discussion on articles that have been published in the relevant publication (Note: within these forums you cannot post a new thread; you can post a new message within threads that have been placed there in advance by Site Admin staff).
2. **AUGIWorld Feedback** <http://forums.augi.com/forumdisplay.php?f=122> and *Hot News Feedback* <http://forums.augi.com/forumdisplay.php?f=123> are for discussing content, ideas, suggestions, and general feedback relating to the relevant publication.

CAD Management consists of sub-forums relating to the general areas that typically fall under the responsibility of an in-house CAD Manager.

Forum General consists of sub-forums that have a broad feel about them, and do not really fit into any of the other forum areas.

- Career Corner is made up of two forums: Job Offers <http://forums.augi.com/forumdisplay.php?f=214> and “Job

Seekers <http://forums.augi.com/forumdisplay.php?f=213> this is where AUGI members can post job request (looking for work) and job offer (employers looking for staff) posts.

When posting within those two forums, please follow the Career Corner Guidelines http://forums.augi.com/faq.php?faq=vb_augi#faq_new_faq_item6.

- Coffee without CAD is where AUGI members are free to talk about non-CAD related topics, enter light-hearted chit-chat, make friends, relax, and have a little fun away from the daily stress of work (in fact ‘work’ is considered a four-letter word within this forum). Please, remember to keep things polite and professional when posting in this forum; though things are definitely more relaxed there, the AUGI Forum Guidelines still apply.
- Forum Tips & Tricks enables Site Admin staff and forum Moderators to post helpful tips relating to getting the most out of forum features. (Note: within this forum you cannot post a new thread, nor post a new message within a thread).
- New Forum User is where new users can experiment to become comfortable with the forum-posting editor and learn how to interact with the forums. It is not for technical questions relating to Autodesk products.
- Site Feedback – allows you to post ideas and suggestions about how to improve the AUGI website.
- Forum Feedback – permits you to post improvements or new features you would like to see on the Forums.
- Ask the BOD enables you to post questions, concerns, or requests about AUGI programs, projects, or events. If you are unable to find answers elsewhere on the website, use this resource.
- International consists of sub-forums that are broken down by (non-English) languages. This area is where AUGI members can post in their native tongue.
- Programming consists of sub-forums relating to the main APIs that Autodesk offers as a means of customization and development for their products.

General information about the forums

If you are new (or relatively new) to the forums, I recommend that you take the time to review the following pages.

AUGI Forum Guidelines

http://forums.augi.com/faq.php?faq=vb_augi

User Maintenance

http://forums.augi.com/faq.php?faq=vb_user_maintain

General Forum Usage

http://forums.augi.com/faq.php?faq=vb_board_usage

Reading and Posting Messages

http://forums.augi.com/faq.php?faq=vb_read_and_post

The above can be found by following the FAQ link on the forum menu bar.

Before you start posting in the forums, you should pay a visit to your Control Panel, accessed via the appropriate link found in the forum menu bar (see image on page 24).

Work through the options available there for setting personal information that relates solely to the forums, and settings that allow you customize the forum environment to your own personal liking. The options, settings, and their meanings are covered extensively within the links given above.

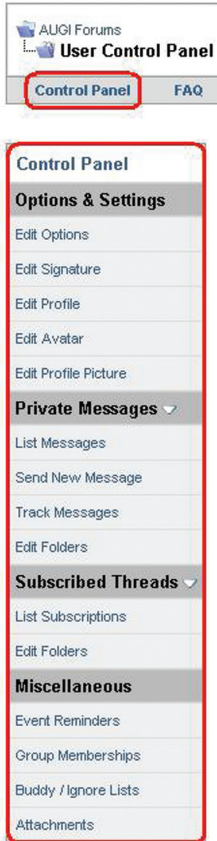
Following are additional Control Panel options that have been covered in the Forum Tips & Tricks forum.

Turning on WYSIWYG Text Editor

<http://forums.augi.com/showthread.php?t=15819>

Setting your clock to local time

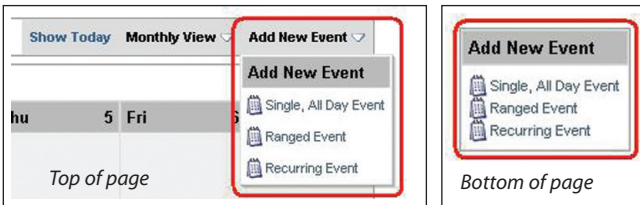
<http://forums.augi.com/showthread.php?t=16727>



AUGI Calendar. By clicking the Calendar link found in the forum menu bar you will be taken to <http://forums.augi.com/calendar.php?> From here you can view either the AUGI Calendar or the LUG Calendar. To switch between the two, scroll to the bottom of the page and use the Calendar Jump drop down box (see image below).



You also have the ability to add an event to either calendar by using the Add New Event links, which can be found at the top and bottom of the page (see images below).



Members List. By clicking the Members List link found in the forum menu bar you are taken to <http://forums.augi.com/memberlist.php?> From here you can see all AUGI members who have posted at least once in the forums. The Members List can be sorted by User Name (alphabetically), by number of Posts made, or by level of forum Reputation points (see image below).



The Members List also has a Search Members facility <http://forums.augi.com/memberlist.php?do=search> that allows you to search for forum users according to information you supply in the various option fields available.

Search by clicking the Search link found in the forum menu bar,

you are taken to <http://forums.augi.com/search.php?> This is the forum main search page, and really should become your best friend and resource here.

Why? The AUGI forums are an ever-expanding database of answers, information, solutions, tips, etc. that cover a wide variety of Autodesk products that we all use in our daily working lives; there is a good chance that any difficulty you are experiencing has already been resolved, and the answer is simply awaiting you within the forums.

The forum Search page has a variety of option fields that allow you to refine your search criteria, thus returning more applicable information.

Following are a couple of useful forum search hints that have been covered in the Forum Tips & Tricks:

Forum Searches using short words and abbreviations <http://forums.augi.com/showthread.php?t=8154>

Fast searches for posts within the last "X" days <http://forums.augi.com/showthread.php?t=4445>

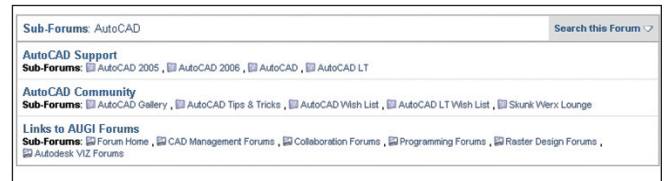
How to post a new thread

With your question in mind, you now need to decide which forum is the most relevant one in which to post your message (as a New Thread). A few simple questions such as the following should help you make the right choice:

What Autodesk product am I currently experiencing a problem with? Click the relevant Autodesk product link on the forum main page, this will take you into the forum area for that product. You will now see sub-forums that relate to that particular product (see images below).



Revit forum main page



AutoCAD forum main page

Remember the forums are all about AUGI members helping AUGI members

What version am I experiencing the problem with? Click the relevant version link, which will take you into the forum for that version. You will now see sub-forums that relate to that particular release (see images below).

Sub-Forums: Revit Building Support		Search this Forum	
Revit Building - General Main discussion area for the latest release of Revit.	Error message preventing any... by patricks Today 12:30 PM	5,722	38,041
Revit Building - Tips & Tricks Got a hot tip? Share it here!	ResCheck/ComCkeck by sjal Today 12:25 PM	261	1,392
Revit Building - Families Topics concerning family creation.	Lag bolt detail component by cranall Today 09:37 AM	892	4,348
Revit Building - Wish List Blow out the candles here	Single Click to... by claritelt Today 08:37 AM	1,298	5,924

Revit Building Support forum page

Sub-Forums: AutoCAD		Search this Forum	
AutoCAD FAQ	Export / Print the contents... by Mike Perry April 2nd, 2005 10:28 AM	14	14
AutoCAD General (2 Viewing)	File Sizes Too Large by ddrafer Today 11:14 AM	1,572	7,892
AutoCAD 3D	3D block disappears after... by johnbooge May 13th, 2005 01:29 PM	69	315
AutoCAD Customization		-	-
AutoCAD Fields	Customization of Fields - It... by stilesj Today 08:38 AM	39	218
AutoCAD Plotting (1 Viewing)	DesignJet 43t: 3 error lights... by Dano Today 10:55 AM	345	1,588
AutoCAD Sheet Sets	found layout end expected... by jlipfer May 27th, 2005 02:02 PM	66	255

AutoCAD forum page

What sub-category of that version am I experiencing the problem in? Click the relevant link, which will take you into the forum where you will post your question (see images below).

Revit Building - General forum page

AutoCAD General forum page

For the purposes of this article, I removed from these images the Currently Active Users; number of forum users browsing the particular forum; and their forum user names. Ordinarily, such information will be available to you during a forum visit.

At first glance, this might appear to be a long-winded procedure to get to where you need to be, but, in truth, it takes only a few seconds to arrive at the relevant forum.

Also, with this example, I have shown so-called “worst case scenarios” where you have to drill down a few levels. You will find other forum areas that do not require such deep navigation in order to get to the relevant forum.

There are many important reasons to try your best to post in the most relevant forum, a couple of which are listed below.

- Forum users (the people who will hopefully be able to answer your question) tend to monitor and quickly scan the Autodesk product forum(s) they have an interest in, so, by posting in the appropriate product forum, you are greatly increasing your chances of receiving the most relevant help from people that use that particular product in their working life.
- As I said earlier, the forums are a searchable database of information, and, like any database, the information stored inside is only as good as the information entered in the first place. Placing information in the most relevant and appropriate place will enable other forum users to get the most from the Forum Search facilities.

Remember the forums are all about AUGI members helping AUGI members (peer-to-peer support).

If you do post a thread in a less-than-appropriate location, no worries, as you will generally find a forum Moderator will come along and move the thread to a more pertinent place. Please do not view this action as a bad sign, the Moderator is only fulfilling part of his or her job, which is to help keep the forums tidy and functioning as best they can. If you do find a thread of yours has been moved, you should find a link (called a redirect) which has been left by the Moderator in the original location; simply clicking that link will take you to your thread in its new forum location.

When you are ready to post your question as a New Thread within the forum you have chosen, click the “New Thread” button located in the upper left corner (see image below).

The forum-posting editor opens (see image next page. Note: this screen capture shows the “Enhanced Interface – Full WYSIWYG Editing” option). Now you enter your detailed question and supporting relevant information.

Enter a suitable Title. Try to give it some real relevance to the question which you are about to ask, as doing so greatly helps the whole process, and definitely benefits you as most forum users will generally pay more attention to a Title that makes clear the problem, rather than something ambiguous such as “I need help” or “I have a question”.

Enter your question into the main area of the editor; try to give as much information as possible relating to the problem you require help with. The more relevant the information you supply, the greater your chance of receiving back accurate and useful information that will either answer your problem directly, or at least guide you in the right direction.

How to post a reply to a message

- Go to the forum where the thread is located.
 - Click the thread's link to view.
 - Click the Post Reply button located in the upper left or lower left corner OR click the Quote button located in the lower right corner of the actual message you want to reply to (see image below).
- Using any three of those buttons will open the forum-posting editor as described above. To post your reply, follow the same procedure as given for creating a New Thread.
- If you do not need the forum-posting editor, and only require a plain text editor to post a quick response, look at using the "Quick reply to this Message" button located next to the Quote button (see image below).



Summing up

Hopefully, the above has provided you with a good idea of what the AUGI forums have to offer and a basic understanding of how to use them. Within this article I have not had the time or space to cover a lot of the more advanced forum features and tools, such as:

- Editing your own posts.
- E-mail notification.
- Rating a thread (currently important when dealing with the Autodesk product Wish List forums).
- Sending E-mail or Private Message (PM) to forum users.
- Subscribing to a forum or thread.
- Using special codes and tags within forum posts.
- Using the forum reputation tool.

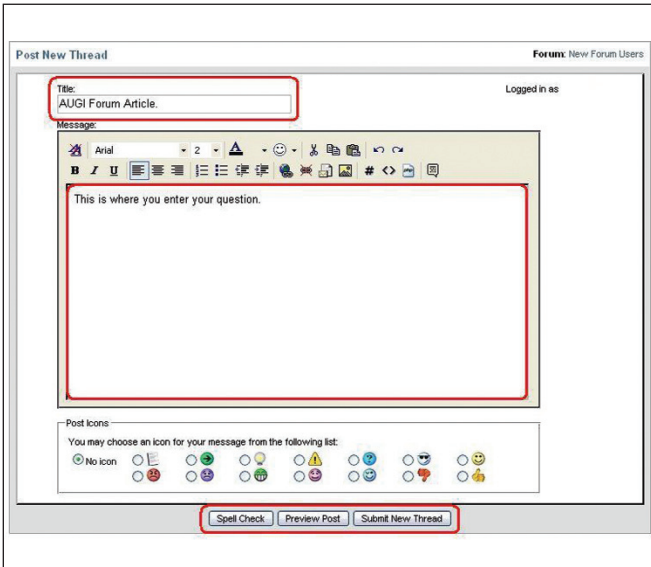
I would like to, therefore, encourage you to follow the links which I have provided in this article and read up on the things that I have skipped.

Also go to the New Forum User <http://forums.augi.com/forumdisplay.php?f=47> area and experiment further with the forum-posting editor; click the different links and menu items available; look at and try out the options and functionality which they offer.

See you on the forums soon! And please do not forget that if you require any assistance or help using the forums, you have only to ask. I believe you will be pleasantly surprised by how many of your fellow users will be more than willing to lend a hand and guide you in the right direction.



Mike Perry is Civil/Structural Senior CAD Technician in the bridges and special structures division of Faber Maunsell, a multi-discipline engineering consultancy in the UK. He has been using AutoCAD for 10 years. Mike is on the AUGI Board of Directors and can be contacted at mike.perry@augi.com.



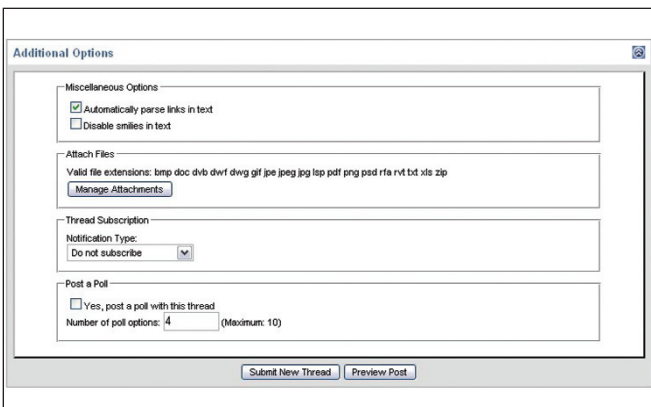
Before submitting the New Thread to the forum, look at using the Spell Check and Preview Post buttons. Doing so will enable you to catch any spelling mistakes or spot any other formatting issues you may want to correct before submitting your question.

Once you are happy with everything, its time to click the Submit New Thread button.

Your question is now posted in a New Thread within the forum you chose. Sit back, grab yourself some coffee and wait patiently for other forum users to arrive and read your post. The complexity of your question will sometimes greatly affect the amount of time you have to wait before you start seeing responses posted. If you are lucky, you may receive the correct answer almost immediately. On the other hand, your question may prompt forum users to request further information or clarification of the problem as they attempt to help you find the answer.

Whichever way it goes, please be patient and extend forum users the time they require to help you, if they can. Please, always try to remember that the other users have regular jobs just like you and no one is being paid to provide answers; we are all just there trying to help one another the best we can.

What if I want to post an attachment (a file) or include something like a poll (gather feedback and opinions) in my New Thread? Before you click the Submit New Thread button, scroll down beneath the posting editor and review the Additional Options area (see image below).



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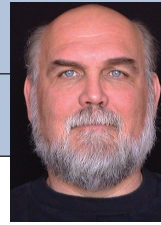
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On The Back Page



David Kingsley

When I first started this column, I said we would discuss the good, the bad, and the ugly. In this column, the names have been changed to protect the innocent.

Autodesk has been around for more than 20 years now, and several technologies and new products have been introduced. Believe it or not, at one point the introduction of “edit text” in AutoCAD® rocked people’s worlds! Things like XREFs, Paperspace, and Sheet Sets changed the way people worked. One of my all-time favorite AutoCAD enhancements is DIMASSOC value 2, introduced in 2004. Check it out. Products such as Inventor and Revit have simply changed the engineering landscape.

If one dog year equals seven people years, then CAD years are even worse. A five-year-old CAD product is clinging to life. As a result of the onward and upward march of technology, there are many CAD methodologies in use. Some companies settled into a groove (or “rut” as the case may be) early and never changed. *To get the best out of CAD and people, the group mindset must periodically be changed in concert with new CAD technologies.*

Three categories of CAD

There is an old saying: There are three kinds of people in the world, those that make things happen, those that know what’s happening, and those that ask “what happened?” Based on that, I have determined that there are three basic CAD mindsets.

The first mindset I’ll call “The Classics.” This group works in model space only, format blocks are scaled to 48x at insertion, dimscale is set to 48, and plot scale to .020833 (1/48). You have recently been heard to say, “Why can’t I buy 3.5” floppies any more?”, “XREFs and Paperspace suck!”, and “That’s not the way we do it here.” Is this jargon part of your daily mantra? If so, slower traffic please keep right. In the sense of a classic car, this serves as basic transportation when properly maintained, and you do have to know where to get parts for it, but today it is just plain foolish to get into the fast lane and try to roll with the big dogs.

The second mindset I’ll call the “Light Blue Collars.” Most companies fall in this category. Management understands the benefit of CAD and supports it. As a result, these folks have made moderate advances in technology. There is analysis supporting their software choices. They use the appropriate vertical software and they upgrade when they see the benefit. Many people in the company understand and use the advanced features of the software.



Mindset three I’ll call the “Creative Class.” They understand that to be competitive, they have to maintain a technological edge, thus, THEY HAVE A TRAINING BUDGET! They know what their software is capable of and make a concerted effort to apply it appropriately. They envision major and minor ways that software can be made better and are not afraid to ask for them. They set examples for other CAD groups to follow.

Toto! Why are we still in Kansas?

I am a consultant to a well-established (way before CAD) company making significant modifications to a large piece of existing hardware (I’m a mechanical guy). I am confident that the end product will be excellent because it is a good team of people. It involves hundreds of sheet metal parts and complex curves. Autodesk Inventor® sheet metal is the perfect tool for the job. This company’s only crime (apparently I have declared myself judge and jury!) is using obsolete CAD methodology.

Most of the senior engineering staff are early CAD converts, but are stranded on a technological plateau in the AutoCAD 14

era. The company standard is AutoCAD 2D (2002), but the method is pure R14.

What they do pushed paper drafters to the limits in the 1970s. I know because I was one of those guys, but not for this company. Before CAD, things got done by throwing hundreds of people on a job and running many parallel efforts. The efficiency of CAD has reduced the number of parallel efforts by enabling a typical person to manage much more information.

I called on this company in my days as an Inventor Application Engineer (CAD sales guy), unsuccessfully, I might add. What I can see now from the inside is that aside from not upgrading their software, they have not upgraded their methods of operation in 30 years. I understand now why their company mindset would not consider Inventor.

The big flip-flop

One major mistake a company can make is to use CAD in an unorthodox manner in order to avoid modifying their established workflow. What they should do is adjust their workflow to take advantage of new CAD technology.

The point I am trying to make is that a company can labor for years under a “false economy.” They believe it is too expensive to change, to upgrade software, and to train people. Things appear to be running smoothly to them, but in truth they are wasting a lot of money maintaining the status quo.

Economic times are getting tougher and tougher. It is common for a company to reduce operational costs to compete, or even survive. If your company is still one of the “Classics,” you could become a hero by putting together a comprehensive plan to bring them into the 21st century. If you can demonstrate how to spend less money and improve your product, you might not get voted off the island!

David Kingsley served from 1999-2004 on the AUGI Board of Directors and is the Director of Electrons at CADPlayer Web Courseware. He can be reached at djkingsley@cad-tv.com

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