

# New Features

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# Introduction and Setup



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© 2002 Buckminster Fuller Institute and Jim Knighton. Coordinate transformation software written by Robert W. Gray and modified by Jim Knighton.

Unlike the popular Mercator projection, Buckminster Fuller's Dymaxion™ world map suffers no obvious distortion. The genius of his invention is not that it can fold into a regular 20-sided icosahedron, but that it can be laid flat. For posters of this map and for more information about his work, visit the Buckminster Fuller website at [www.bfi.org](http://www.bfi.org).

## Welcome to AutoCAD 2008

Across the world, people are installing and becoming familiar with AutoCAD 2008.

To make the learning process as easy as possible, we have designed this guide to provide

- An easy overview to the major new features
- Immediate hands-on experience
- Realistic files useful for additional experiments
- Chapters that can each be completed in a single lunch break
- References for further study

### Setup

Set the workspace to AutoCAD Classic.

The tutorial files that you will be using are located in the following folder:

```
\Program Files\AutoCAD  
2008\Help\newfeatures
```

**Note** If you are new to AutoCAD, first complete the exercises in the *AutoCAD 2008 Getting Started Guide*, which is included as a PDF file in the product CD.



# Dimension Enhancements

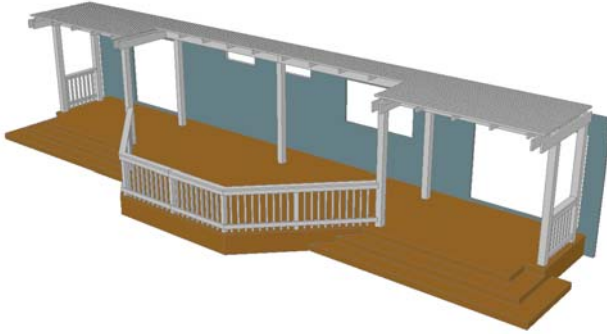


Deck design  
courtesy of Dieter Schlaepfer

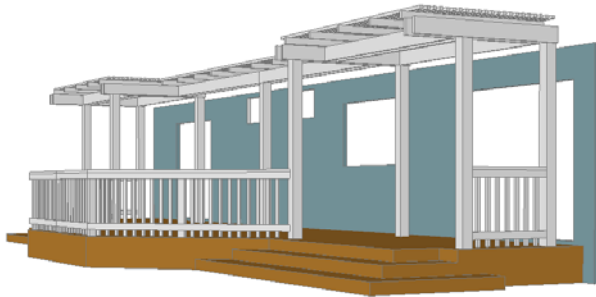


## Design and Visualize the Deck in 3D

- 1 Open the drawing, *01 Deck Solid.dwg*.



- 2 From the View menu, click Orbit > Constrained Orbit.
- 3 Click and drag to view the deck in 3D.



- 4 Close the file.

### Introduction

■ Before it was built, the deck shown in the illustration was designed using AutoCAD's 3D solid modeling features.

■ The 3D model was then converted into a 2D drawing using the FLATTEN Express Tool. Alternatively, the FLATSHOT command could have been used.

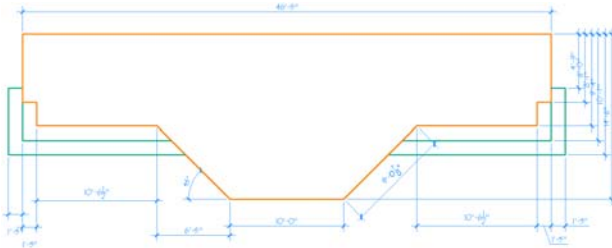
■ Using both the 3D model and the 2D drawing, the contractor could easily visualize the design, plan the framing, and anticipate complications.

### Further study...

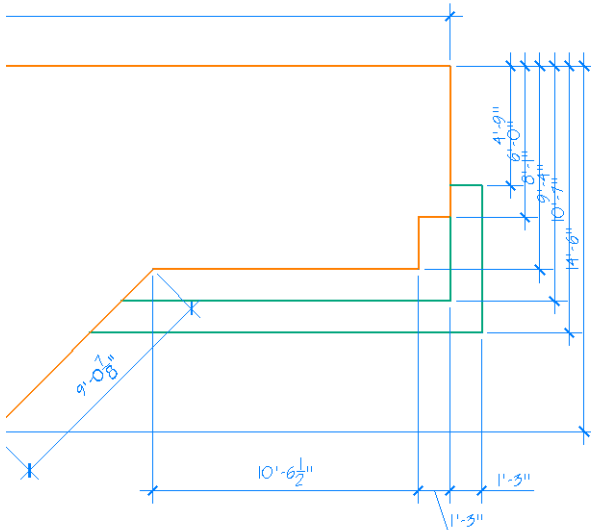
To become more familiar with the power of 3D solid modeling, view the PDF file of *Building Your World* included on your install media.

## Space and Align Dimensions Automatically

- 1 Open the drawing, *01 Deck Plan.dwg*.



- 2 Zoom into the right side of the deck showing the baseline dimensions.



- 3 From the Dimension menu, click Dimension Space.

### Spacing Dimensions

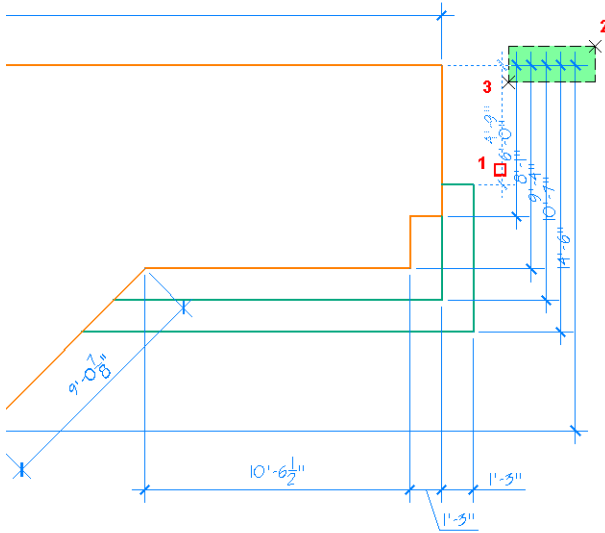
- This is the plan view of the deck without the deck cover. The drawing uses several types of dimensions, which, for the purposes of this exercise, need modification.

- As you can see, the baseline dimensions are crowded and would normally require several minutes to adjust manually.

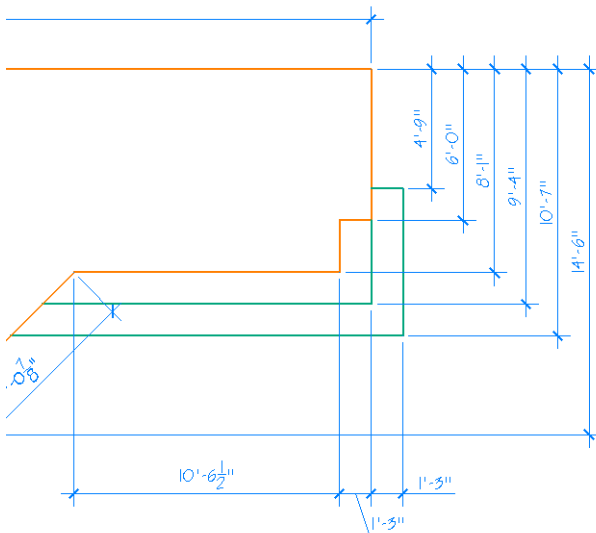
- You will space these dimensions automatically from a base dimension that you select, and at a distance that you specify.

## 6 | Dimension Enhancements

- At the prompt, click the dimension to use as the reference. Then, select the remaining dimensions using a crossing selection and press ENTER.



- Enter the spacing distance in drawing units: in this case, enter 15.



- The base dimension that you select will remain stationary.

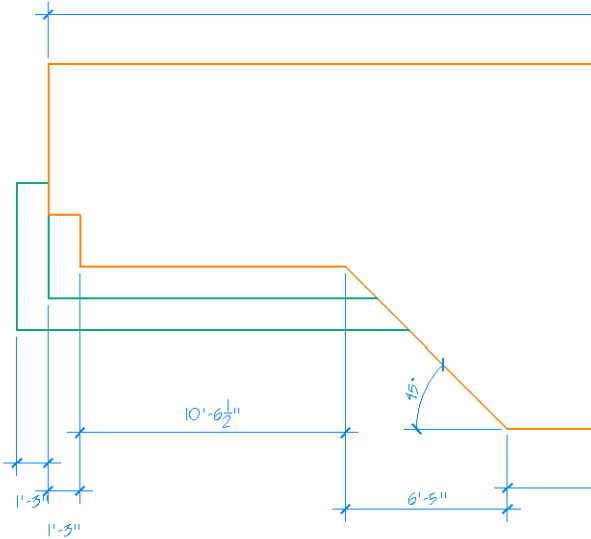
**Note** After you select the base dimension, you are immediately prompted to select the dimensions to be modified. Resist the urge to press ENTER after selecting the base dimension.

- The Auto option uses an automatic spacing based on the current value of the DIMDLI system variable.
- The result is a nice, evenly spaced set of baseline dimensions.

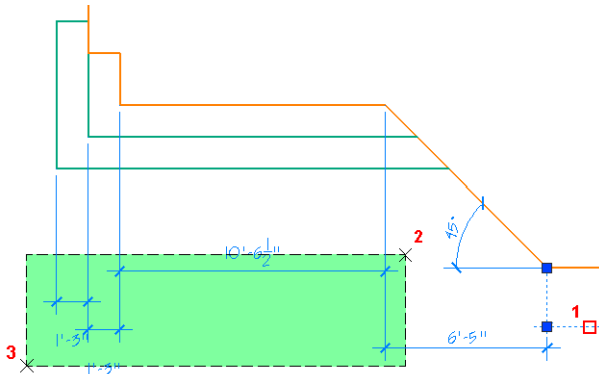
### Things to Try...

Undo the previous operation and try using several different dimensions as the base dimension. Also try using the Auto option.

- 1 Perform a Zoom Extents and then zoom into the lower-left area of the deck plan as shown.



- 2 On the Dimension menu, click Dimension Space.
- 3 At the prompt, click the dimension to use as the reference. Then, select the remaining dimensions using a crossing selection and press ENTER.

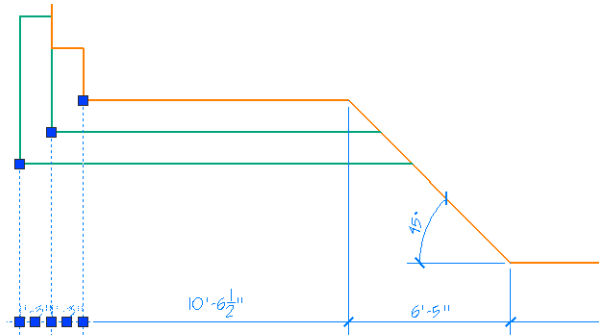


- 4 Enter the spacing distance in drawing units: in this case, enter 0.

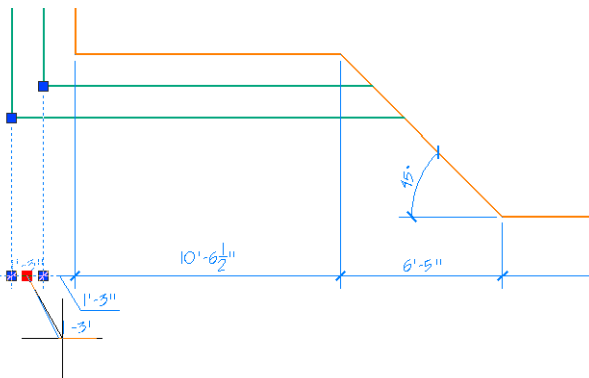
## Aligning Dimensions

- You can also quickly align continued dimensions.
- As you can see, the linear dimensions are not aligned and would also normally require several minutes to adjust manually.
- Who dimensioned this drawing anyway?
- You will space these dimensions automatically from a base dimension that you select, and at a distance of 0.
- All the selected dimensions are now in a straight line.
- But it's not perfect...

- 1 Select the overlapping dimensions as shown.



- 2 Open the Properties palette, and under the Fit category, click Text Movement. On the drop-down list, click "Move text, add leader." Close or hide the Properties palette.
- 3 Using grips, drag the dimension text into place as shown.



### Final Clean Up

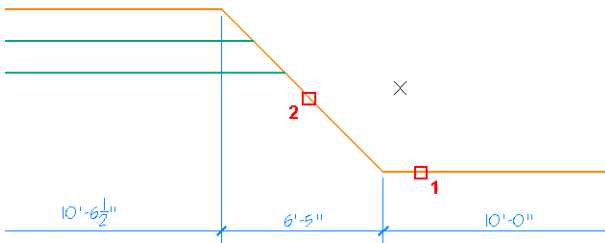
- This is not a new feature, but you don't want to leave the overlapped dimension text alone.
- You can change the setting of the DIMTMOVE system variable for the selected dimension directly from the Properties palette.
- While it is likely that your dimensioning standards differ from those used in the exercise, you can get an idea of the power of the new dimensioning features in AutoCAD.

### Things to Try...

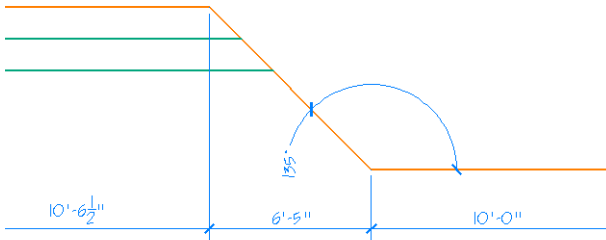
Revise the dimensions using your own dimension styles.

## Locate Dimension Text Anywhere

- 1 Erase the angular dimension.
- 2 On the Dimension menu, click Angular.
- 3 Click the two lines, enter **Q** (quadrant), and click in the quadrant as shown.



- 4 Move your cursor to the left and click the location of the dimension text as shown.



### Angular Dimensions

- A new option has been added for creating angular dimensions.

- The Quadrant option lets you choose the angle that you want to dimension. This allows you place the dimension text anywhere.

- Where you click controls both the location of the dimension text and the length of the extended dimension line.

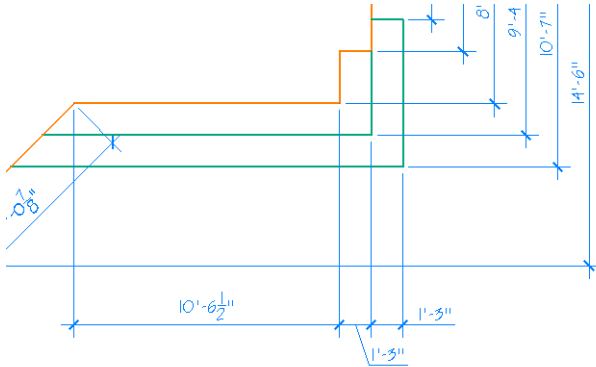
### Things to Try...

Extended dimension lines are also available for radial dimensions.

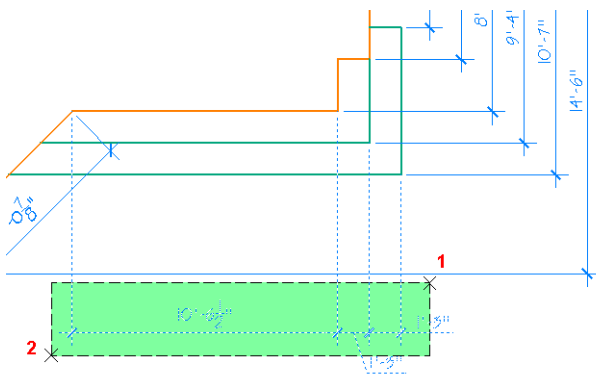
Create an arc anywhere on the drawing and then create a radius or diameter dimension, moving the dimension text location off the end of the selected arc.

## Break Dimension Lines

- 1 Perform a Zoom Extents and zoom into the lower-right area of the deck plan.



- 2 On the Dimension menu, click Dimension Break.
- 3 At the prompt, enter **m** (for multiple) and specify a crossing selection as shown.



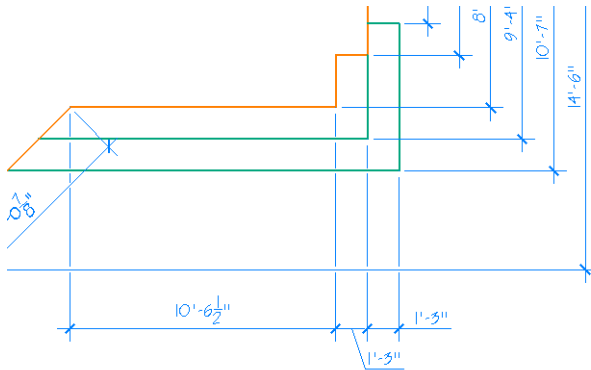
## Crossing Dimensions

- While it is not considered good drafting practice to cross dimension or extension lines, you do see drawings where it is done.

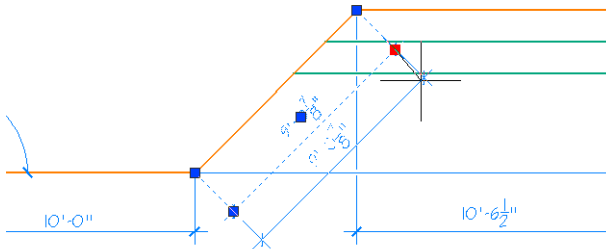
- Instead of exploding and editing dimension geometry, to create breaks manually, you can save a lot of time creating automatic breaks when necessary.

- Selecting a single dimension at a time is not as fast, but it gives you more control over what is to be broken.

- 4 At the prompt, press ENTER twice.



- 5 Select the diagonal dimension. Click the grip as shown and move it to a new location.



- All objects that intersect the selected dimensions act as locations that create breaks.
- The resulting breaks are dynamic, changing when either the broken dimension or the object is moved.
- Notice how the breaks change when you stretch the dimension.

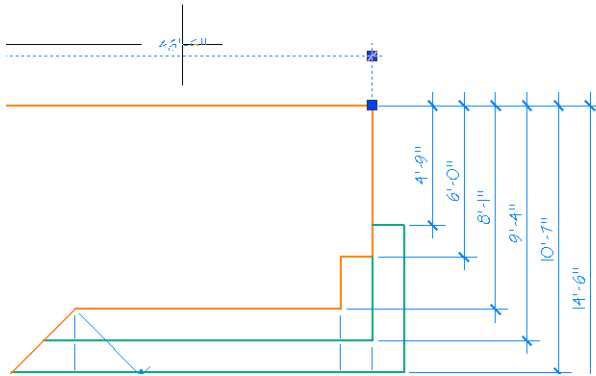
### Things to Try...

Create breaks in the other dimensions on the drawing.

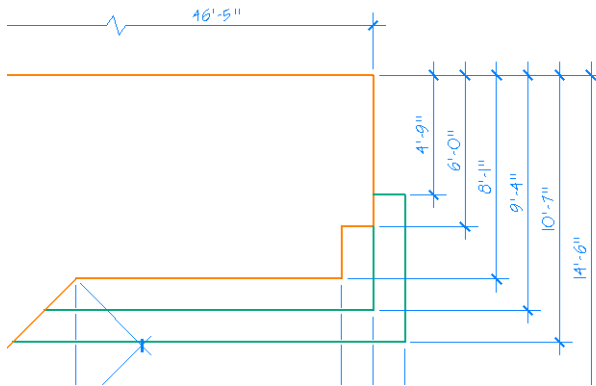
Notice that when the extension lines of two dimensions overlap, both dimensions need to be broken to display the dimension breaks on their common extension lines.

Repeat the Dimension Break operation, but this time, select each dimension individually and try each of the options.

- 1 Perform a Zoom Extents on the deck plan. Grip edit the dimension text as shown and zoom into the upper-right area of the deck.



- 2 On the Dimension menu, click Jogged Linear. Select the dimension, and click the dimension line to the left of the dimension text.



- 3 Select the jogged linear dimension and use the grip on the jog to move it.
- 4 Close the file without saving it.

## Jagged Dimensions

- When dimensioning large objects, you might need to create jogged breaks in linear dimension lines.

### Things to Try...

On the Dimension menu, use Jogged Linear to remove the jog.

### Further Study...

Review these commands and associated User's Guide topics in the Help system:

DIMSPACE

DIMBREAK

DIMJOGLINE

DIMINSPECT

# Leader Enhancements

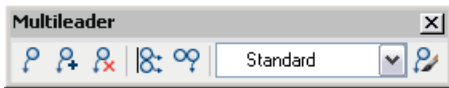


"Hawaiian Time" wooden clock courtesy of Clayton Boyer  
<http://www.lisaboyer.com> (click Clayton Boyer's Clocks)  
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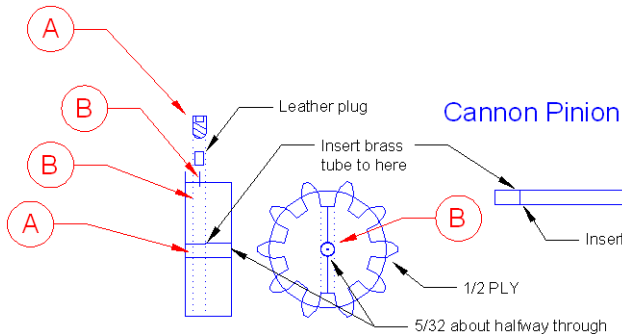
# 2

## Create a Multileader Object

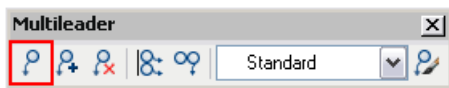
- 1 Open the drawing, *02 Clock p5.dwg*.
- 2 Right-click any toolbar and, on the shortcut menu, click Multileader to display the Multileader toolbar.



- 3 Delete the leader "Leather plug."



- 4 On the Multileader toolbar, click the Multileader button.



- 5 Click to specify the location of the arrowhead. Click again to specify the location of the last point, which is the beginning of the landing.
- 6 Enter the text, **Leather plug** and click OK.

## Multileader Objects

- Using a sheet from the plans of a wooden clock, you can explore some "time-saving" features of a new, more powerful leader object.

- This drawing includes a collection of types of leaders and bubbles.

**Note** For the purposes of the exercise, this sheet was significantly modified from the original.

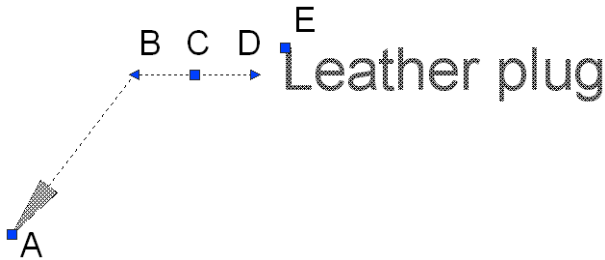
- Notice the red reference labels, often known by different names. These are also multileaders; you will create these later.

- The length of the landing is controlled by a setting in the multileader style.

- When this value is greater than zero, it determines the maximum width of the multiline text.

## Use Grips with Multileaders

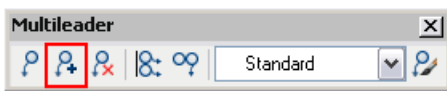
- 1 Click the multileader to display its grips.



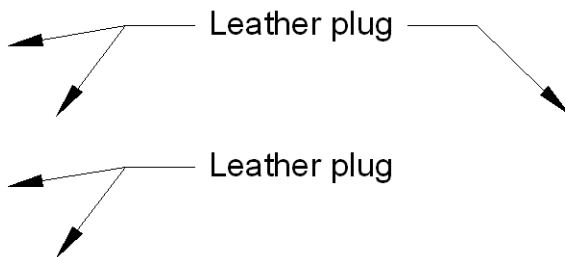
- 2 Click each grip and adjust its location with your mouse.

## Add and Remove Leader Lines

- 1 On the Multileader toolbar, click Add Leader and then select the same multileader.



- 2 Click a location for the new leader line.



Notice that the leader is a single object and has five grips. For Stretch mode

**A** controls the arrowhead location

**B** controls the opposite end of the leader

**C** controls the length of the landing

**D** controls the location of the entire multileader

**E** controls the alignment of the multileader text

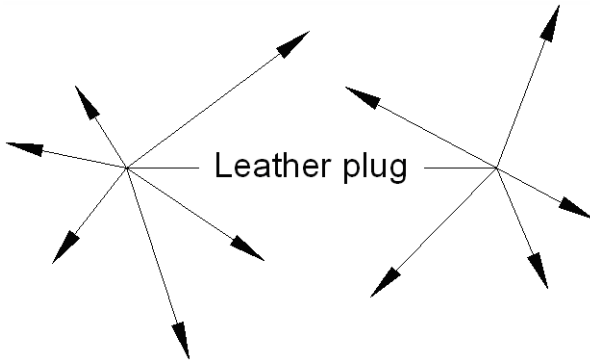
### Add Leader Lines

- When you move the cursor to place the head of the new leader line, notice that you can force it to either side of the leader text.

### Things to Try...

Add some more leader lines, but try to resist adding too many of them.

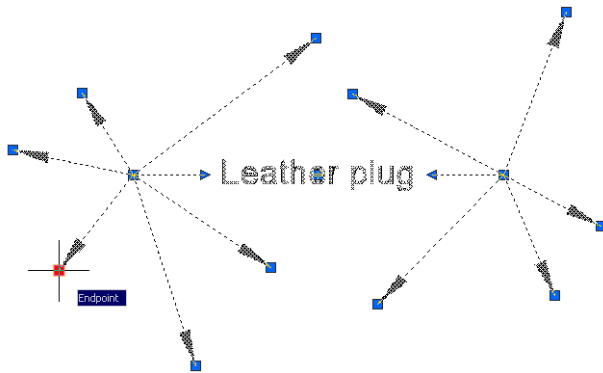
## Align the Arrowheads



- 1 If necessary, turn on object snap tracking.



- 2 Select the multileader and click the grip at one of the arrowheads.

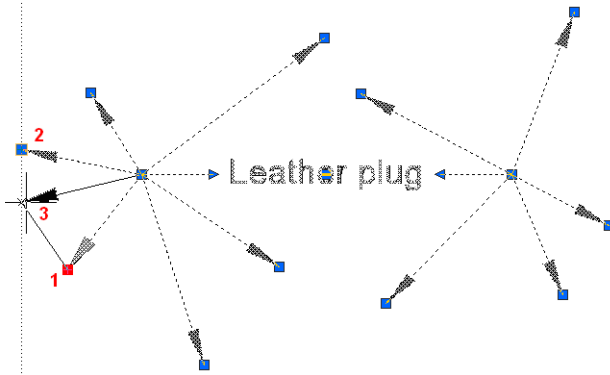


Okay, this is a little overboard...

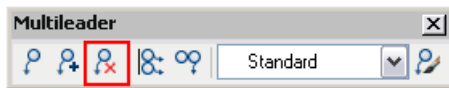
- But now that there are more than a few leader lines, there is a nice trick to line them up neatly.

- You probably already use object snap tracking to align objects and endpoints. This feature is also useful for aligning the arrowheads of multileaders.

- Slide the arrowhead grip from 1 to the grip at 2, down to 3, and click.



- Use the same method to align the rest of the arrowheads.
- On the Multileader toolbar, click Remove Leader and remove most of the extra leader lines.



## Align Arrowheads

- In addition to grips, you can reference any object location with object snap turned on.

## Remove Leader Lines

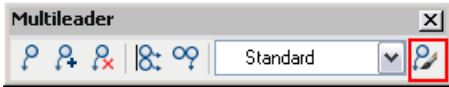
- After you align the arrowheads, you might also want to remove some of the extra leader lines.

## Things to Try...

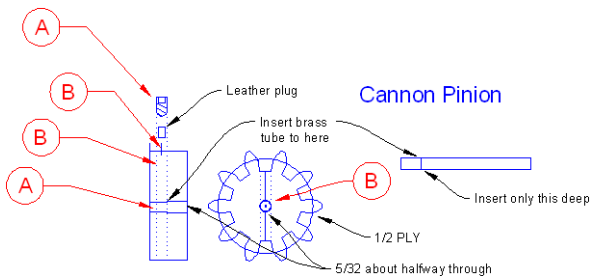
Remove all of the leader lines. Then use the Add Leader button to recreate a leader in any location.

## Use Multileader Styles

- 1 On the Multileader toolbar, click Multileader Styles.



- 2 In the Multileader Style Manager, click Modify.
- 3 On the Leader Format tab, change the type of leader to Spline. Click OK and then click Close to accept the change.



Multileaders use styles similar to dimension styles. If you create several multileader styles in your drawing template (DWT) files, you can access a "library" of predefined multileaders.

### Use Curved Leaders

- To control the leader type in specific multileader objects, you can navigate to the Type option in the MLEADER command, or you can use the Properties palette to change the leader type.

- Notice that all multileaders in the drawing now use curved leader lines.

- As with dimensions, it is strongly recommended that you organize your drawings with styles.

### Things to Try...

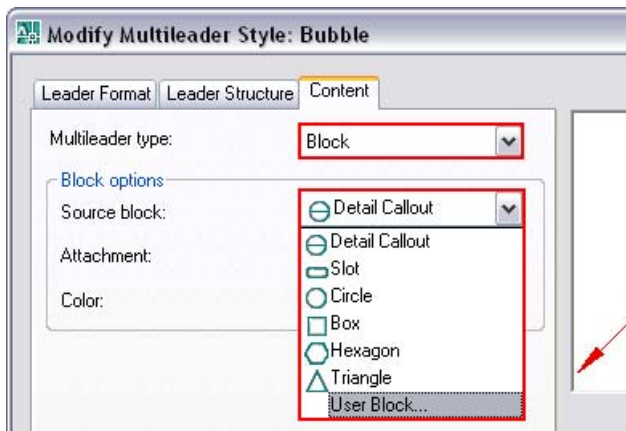
Open the Multileader Style Manager and explore the settings on each tab.

## Create Reference Labels (Bubbles)

- 1 Close and reopen, *02 Clock p5.dwg* for a fresh start.
- 2 Open the Multileader Styles Manager and click New.
- 3 In the Create New Multileader Style dialog box, under New Style Name, enter **Bubble**, and then click Continue.



- 4 On the Content tab, for Multileader Type, click Block. Then, for Source Block, click User Block.



### Specify a Block

- A block named BUBBLE has already been defined in the drawing.
- There are several different names commonly used for multileaders that use blocks.
- There are several predefined blocks displayed in the list, but it is likely that you will need to create blocks that conform to your standards.

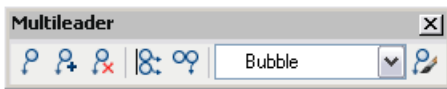
### Things to Try...

Try using several of the predefined blocks.

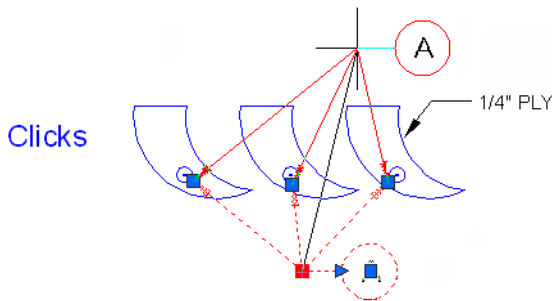
- In the Select Custom Block dialog box, click BUBBLE, and then click OK.



- Close the Multileader Style Manager. The Multileader toolbar is updated.



- On the Multileader toolbar, click Multileader and create a new bubble.
- Click Multileader again, but this time, on the command line, specify the Content First option. Create several new multileaders.
- Click the multileader at the bottom of the drawing and use the grip to change its location as shown.



## Create a New Multileader Style

- Plan on creating several new multileader styles for your projects.

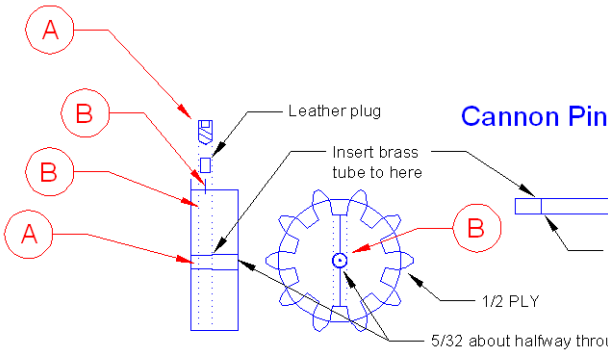
- The Bubble style is now the current style. You can now easily change multileader styles, depending whether you want to create a note with a leader or a bubble.

- Depending on how you work, this option might be more useful.

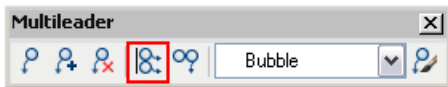
- Multileaders with blocks can also have multiple leader lines and can easily be edited.

## Arrange Multileaders

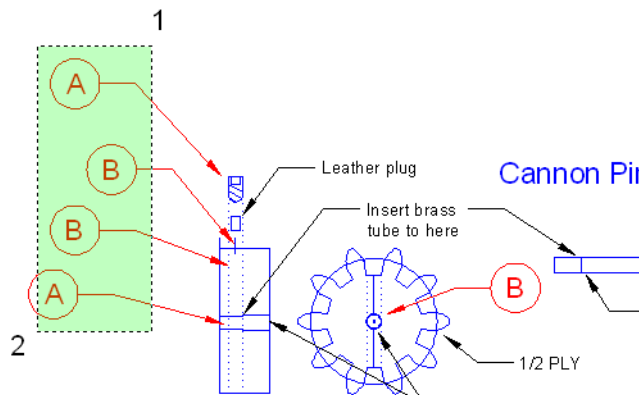
- 1 Zoom into the upper portion of the drawing.



- 2 Click Align Multileaders.



- 3 Select the multileaders using a crossing selection and press ENTER.



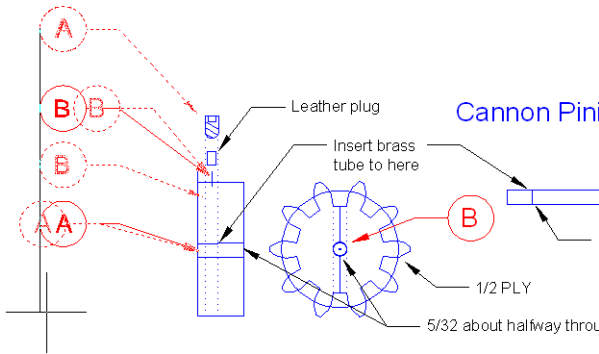
- 4 At the Select Multileader prompt, click the top bubble.
- 5 Move your cursor downward along the object snap tracking path.

### Align Multileaders

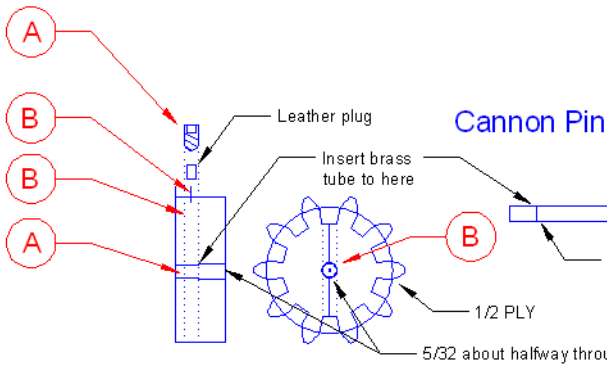
- Once multileaders are placed on a drawing, you can align them neatly.

- You can align all types of multileaders. Let's align the bubbles.

- The multileader that you select aligns the others vertically to itself, but keeps the horizontal spacing unchanged.



6 Click a location when the alignment path is vertical.



7 Close the file without saving it.

## Specify the Spacing

- The Options in the Multileader Align command provide several ways to change the horizontal spacing between the leaders.

### Things to Try...

Create several other types of multileaders and align them using different alignment options.

Use the Multileader Collect command to assemble any related multileaders with one leader.

### Further Study...

Review these commands and associated User's Guide topics in the Help system:

MLEADER

MLEADERALIGN

MLEADERCOLLECT

MLEADEREDIT

MLEADERSTYLE

# Multiline Text Enhancements



Green flag at the Indianapolis 500®  
IMS Photo by Dan Helrigel  
<http://www.indianapolismotorspeedway.com>

For use with the AutoCAD 2008 New Features guide only.  
Reproduction of this image is prohibited.

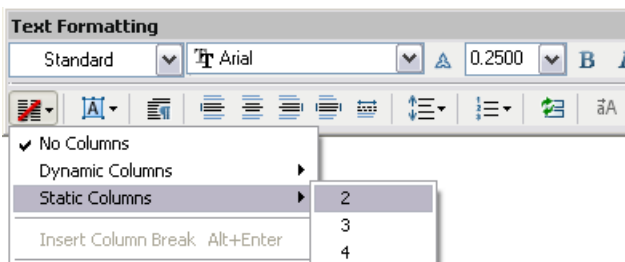
# 3

## Control Multiline Text Formatting

- 1 Open the drawing, *03 Indy500.dwg*.
- 2 Open the text file, *03 Indy500.rtf* in WordPad or Microsoft Word.
- 3 Highlight the text and copy it to the Windows clipboard (CTRL+C).
- 4 In AutoCAD, use the MTEXT command to define a text box the same size as the empty rectangle. Then paste the contents of the clipboard into the text box (CTRL+V). Change the text size to .25 inches.



- 5 Double-click the text. On the Text Formatting toolbar, click the Column button, and specify 2 static columns.



### Introduction

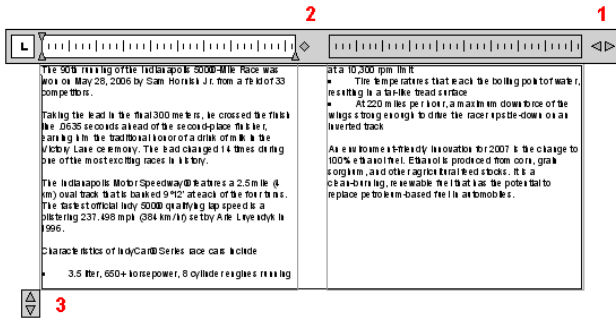
- When you are racing to finish a project, the new formatting features that are available for multiline text are real winners.

- Oh, sorry. The text needs to be in two columns for easier reading.

- Dynamic columns change the number of columns depending on the width of the MTEXT object. Static columns specify the number of columns to use.

- To start out, use static columns.

- 6 Adjust the width of the multiline text object by sliding the width adjustment on the right side of the ruler (1), sliding the separation adjustment between the two columns (2), and sliding the column length adjustment (3). Repeat as needed.



- 7 Move the multiline text object to center it within the rectangle.

### "The Greatest Spectacle in Racing"

The 90th running of the Indianapolis 500® Mile Race was won on May 28, 2006 by Sam Hornish Jr. from a field of 33 competitors.

Taking the lead in the final 300 meters, he crossed the finish line .0635 seconds ahead of the second-place finisher, earning him the traditional honor of a drink of milk in the Victory Lane ceremony. The lead changed 14 times during one of the most exciting races in history.

The Indianapolis Motor Speedway® features a 2.5-mile (4 km) oval track that is banked 9°12' at each of the four turns. The fastest official Indy 500® qualifying lap speed is a blistering 237.498 mph (384 km/h) set by Arie Luyendyk in 1996.

Characteristics of IndyCar® Series race cars include

- 3.5 liter, 650+ horsepower, 8 cylinder engines running at a 10,300 rpm limit
- Tire temperatures that reach the boiling point of water, resulting in a tar-like tread surface
- At 220 miles per hour, a maximum downforce of the wings strong enough to drive the racer upside-down on an inverted track

An environment-friendly innovation for 2007 is the change to 100% ethanol fuel. Ethanol is produced from corn, grain sorghum, and other agricultural feed stocks. It is a clean-burning, renewable fuel that has the potential to replace petroleum-based fuel in automobiles.

## Adjusting the Columns

- If you have a wheel mouse or similar input device, zoom in and out as needed even while you edit the text or make changes to the columns.

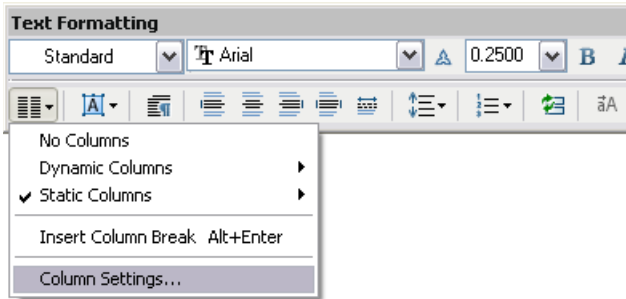
- You can adjust the length, width, and separation of the columns, and the text automatically responds.

- You can also use grips to change the column distances; however, the multiline text editor provides a greater range of options.

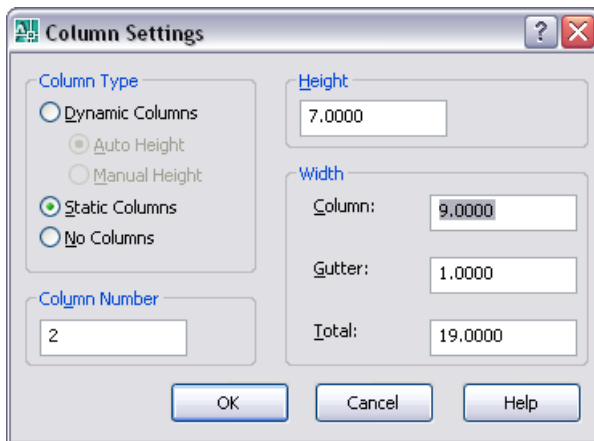
## Things to Try...

On the Text Formatting toolbar, specify 3 static columns and make any needed adjustments.

- 8 Open the Column Settings dialog box.



- 9 Use this dialog box to enter rounded values for each distance. For example, enter 9 for the column width and then enter 1 for the gutter width.



- 10 Repeat with different values and click OK.

## Using Precision

- With the multiple-column feature, you are not limited to visual adjustments. You can also specify precise distances for column width, column separation (gutter), and other adjustments.
- Notice that changing one value in the dialog box can automatically affect the others.

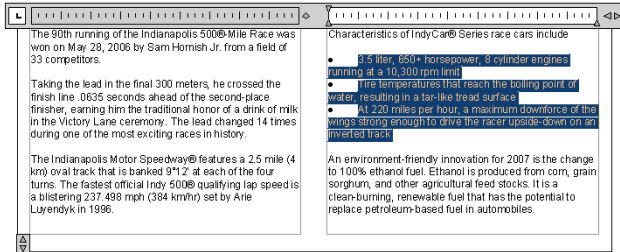
## Things to Try...

Changing different numbers and types of columns is also very smooth.

Try specifying dynamic columns and click OK. Then, adjust the column widths on the ruler.

## Control Paragraph Spacing

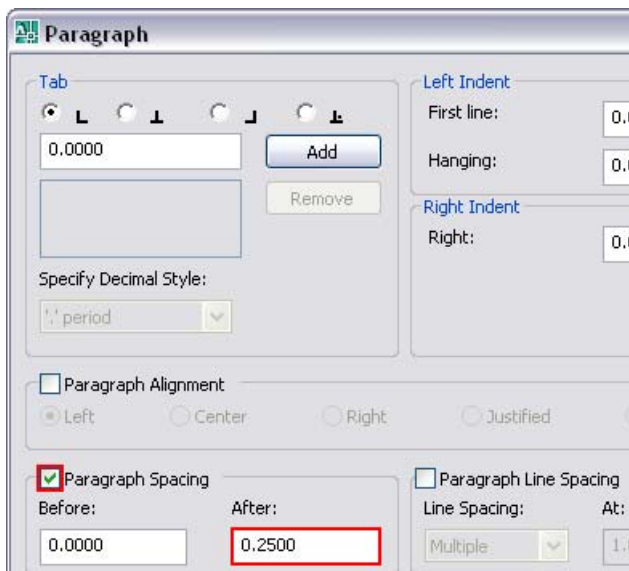
- 1 Click within any of the bulleted lines or highlight them for clarity.



- 2 On the Text Formatting toolbar, click Paragraph.



- 3 In the Paragraph dialog box, click Paragraph Spacing and then, under After, enter 0.25. Click OK on the Paragraph dialog box.



### Additional Formatting

What if you need additional space between each bullet in the right column?

- Bullets are treated as a single paragraph.

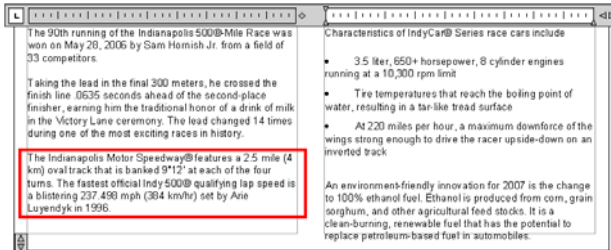
- Notice that the results space the bullets, but not each line of every bullet.

#### Things to Try...

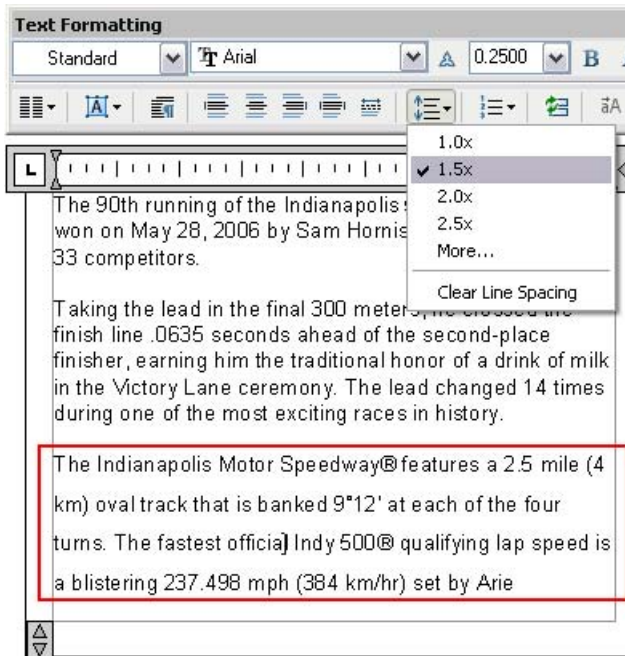
Try adjusting various settings to become more familiar with their effects.

## Control Line Spacing

- 1 Click anywhere within the lower-left paragraph.



- 2 On the Text Formatting toolbar, click Line Spacing and then 1.5x.



- 3 Click OK on the Text Formatting toolbar dialog box to accept the results.

## Additional Formatting

What if you need additional space between each line of text in a paragraph?

- Notice that the results are applied to each line in the current paragraph only, not to the entire multiline text object.

### Things to Try...

Click a paragraph. On the Text Formatting toolbar, click the Distribute button. Then click the Justify button.

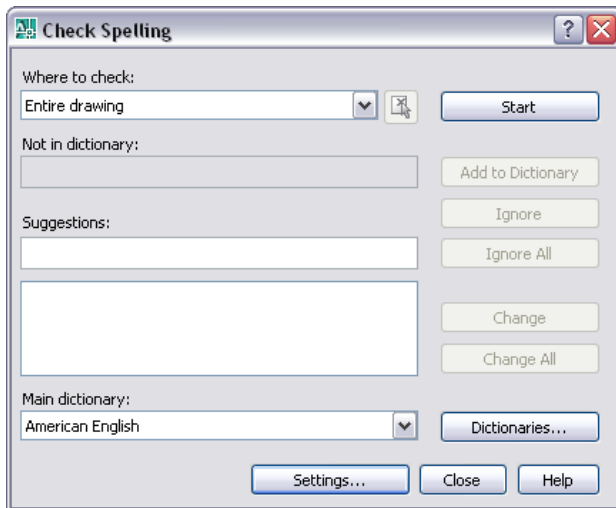
Set several tabs on the ruler. Click the tab icon to access additional types of tabs.

## Check Spelling

- 1 Right-click any toolbar and then click Text on the shortcut menu.



- 2 Click the Spell Check button. In the Check Spelling dialog box, click Start.



- 3 Continue by clicking Ignore to examine the other words that might be misspelled.

### Highlight and Zoom

- Spell checking has been significantly improved.

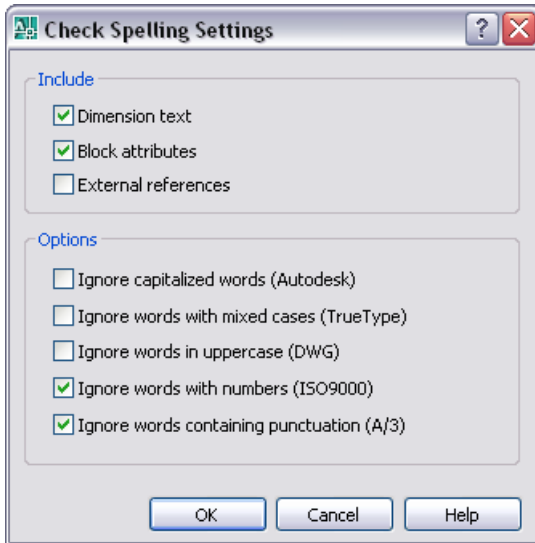
- Notice that any words that are misspelled or not in the current dictionary are highlighted, and that AutoCAD zooms into the text in question.

**Note** The check spelling feature supports 19 dictionaries, but it does not currently support Asian languages. However, it still could be useful in Asian languages for collaborative situations that require more than one language.

### Things to Try...

Add several misspelled words to the text. Use Spell Checking to find and correct them.

- 4 Click Settings to display the Check Spelling Settings dialog box. Examine the new control options available.



- 5 Click cancel, and then close the drawing file.

## Control Spell Checking

- With specific control settings, you can avoid performing spell checks on possibly hundreds of irrelevant words.

### Things to Try...

Check or clear several options in the Check Spelling Settings dialog box. Paste some additional text into the drawing and check for spelling errors.

### Further Study...

Review these commands and associated User's Guide topics in the Help system:

MTEXT

SPELL

# Table Enhancements and Data Links

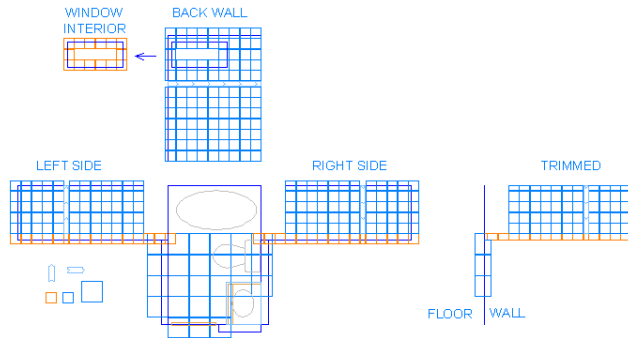


Bathroom tile layout  
Courtesy of Dieter Schlaepfer

4

## Import a Spreadsheet

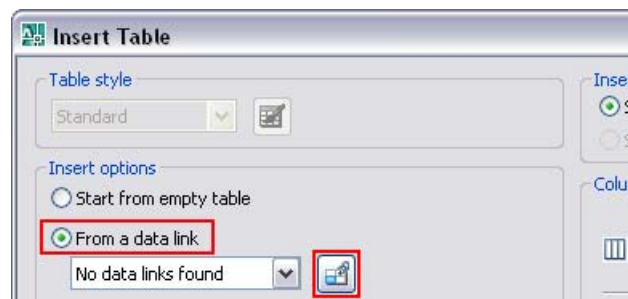
- 1 Open and examine the drawing, *04 Bath Tiles.dwg*.



- 2 Open and examine the spreadsheet file, *04 Tiles.xls* in Microsoft Excel.

BATHROOM TILES						
Price						
Description	Size (cm)	Price/Tile	Price/Square Foot	Area (sq ft)	Number of Tiles	Price (USD)
PERGAMENA	33 x 33		\$2.69	26.31	22	\$70.78
PERGAMENA-SBN	33 x 33				0	\$0.00
PERGAMENA	16.5 x 16.5		\$4.95	62.78	216	\$310.76
PERGAMENA-SBN	16.5 x 16.5	\$4.30			54	\$232.20
REGIA-BLU	25 x 8	\$10.95			12	\$131.40
TOTAL						\$745.14

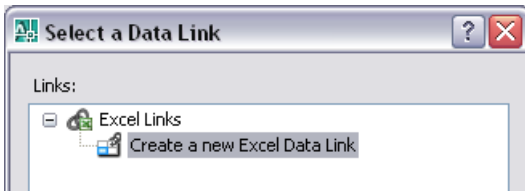
- 3 On the Draw menu, click Table. Click From a Data Link, and then click the Data Link Manager button.



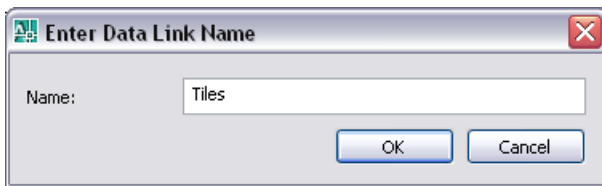
## Introduction

- Spreadsheet data used in a project might need to be displayed in an AutoCAD table.
- This bathroom tile project required visual design and planning in AutoCAD, and materials, quantity, and cost data in Microsoft Excel.
- The walls are laid out flat.
- You can import part or all of a spreadsheet into an AutoCAD table. The data is linked to the spreadsheet and can be updated in either direction at any time.
- Thus, data can be imported from the spreadsheet into a drawing, or exported from a drawing into a spreadsheet.

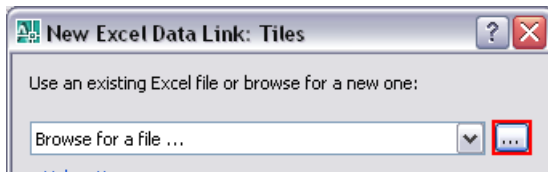
- 4 Click Create a New Excel Data Link.



- 5 Enter **Tiles** as the name of the data link. Click OK.



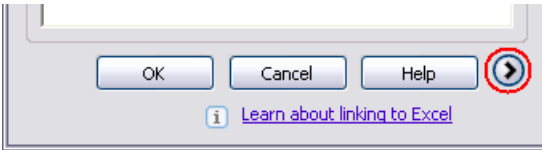
- 6 Click Browse and select the *04 Tiles.xls* spreadsheet.



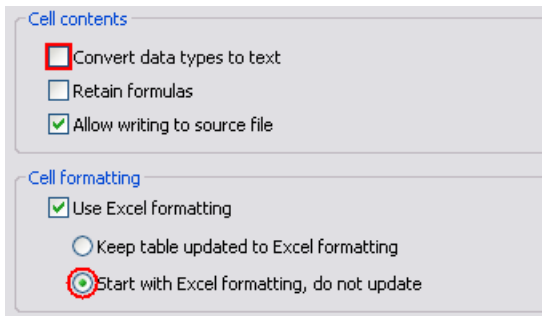
## Creating a Data Link

- A *data link* is a named path to an external data file for reference in AutoCAD.
- There are several methods for creating links from an AutoCAD drawing to a spreadsheet. This chapter will cover one of them.
- Currently, the only data link available is to Excel.

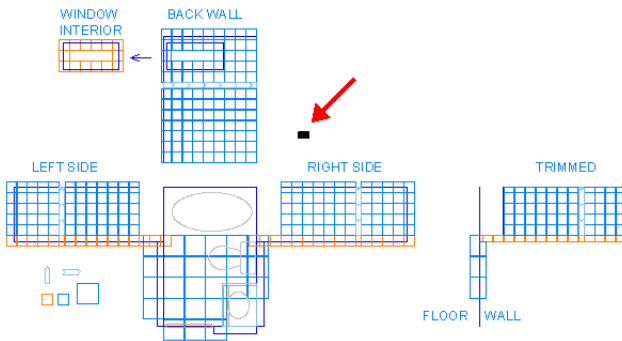
7 Expand the New Excel Data Link dialog box.



8 Clear the Convert Data Types check box and click the Start with Excel Formatting radio button.



9 Click OK to close each dialog box. Then, in the drawing, click a location for the table as shown.



## Set Data Link Options

- You can choose several options when you create a data link.
- By default, all data types are converted to text because, although AutoCAD supports many commonly used data types, there are some data types that are not supported.

## Locate the Table

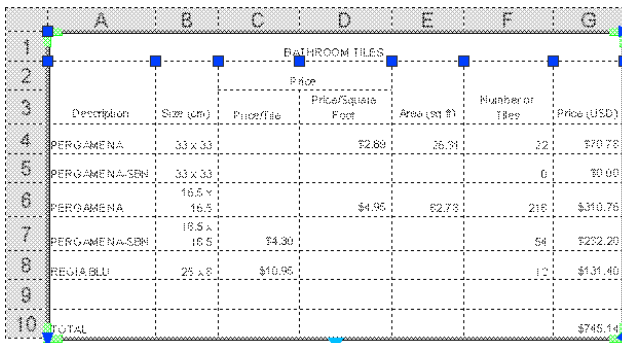
- A table with the required number of rows and columns is created automatically with the content from the Excel spreadsheet.
- However, the table is much too small, so you need to scale it to make it larger.

## Modify the Table

- 1 On the Modify menu, click Scale. Locate the base point at the lower-left corner of the table. Enter a scale factor of 25.

BATHROOM TILES						
Description	Size (cm)	Price		Area (sq ft)	Number of Tiles	Price (USD)
		Price/Tile	Price/Square Foot			
PERGAMENA	33 x 33		\$2.69	26.31	22	\$70.78
PERGAMENA-SBN	33 x 33				0	\$0.00
PERGAMENA	16.5 x 16.5		\$4.95	62.78	216	\$310.76
PERGAMENA-SBN	16.5 x 16.5	\$4.30			54	\$232.20
REGIABLU	25 x 8	\$10.95			12	\$131.40
TOTAL						\$745.14

- 2 Click the outer edge of the table.



BATHROOM TILES						
Description	Size (cm)	Price		Area (sq ft)	Number of Tiles	Price (USD)
		Price/Tile	Price/Square Foot			
PERGAMENA	33 x 33		\$2.69	26.31	22	\$70.78
PERGAMENA-SBN	33 x 33				0	\$0.00
PERGAMENA	16.5 x 16.5		\$4.95	62.78	216	\$310.76
PERGAMENA-SBN	16.5 x 16.5	\$4.30			54	\$232.20
REGIABLU	25 x 8	\$10.95			12	\$131.40
TOTAL						\$745.14

- 3 Move the cursor over the table. Notice the two icons.



## Scale the Table

- The point size of the text in the spreadsheet determined the approximate size of the text and the table in the drawing.
- If you create a data-linked table on a layout tab rather than in Model space, the initial size of the text will be closer to what you expect.
- The Excel data format is preserved in AutoCAD as much as possible.

## Display the Grips

- Grips are available for modifying the placement and size of the table, and the width of each row.
- The lock icon indicates that the data in the table is currently locked. This is the default condition. The link icon indicates that the data is linked to a spreadsheet.

- 4 Move the cursor onto each grip. Notice the information in the tooltips.
- 5 Stretch the second column as shown.

	A	B	C	D	E	F	G
1	BATHROOM TILES						
2			Price				
3	Description	Size (cm)	Price/Tile	Price/Square Foot	Area (sq ft)	Number of Tiles	Price (USD)
4	PERGAMENA	33 x 33		\$2.69	26.31	22	\$70.78
5	PERGAMENA-SBN	33 x 33				0	\$0.00
6	PERGAMENA	16.5 x 16.5		\$4.95	62.78	216	\$310.76
7	PERGAMENA-SBN	16.5 x 16.5	\$4.30			54	\$232.20
8	REGIABLU	25 x 8	\$10.95			12	\$131.40
9							
10	TOTAL						\$745.14

- 6 Click row 10 and open the Properties palette. Using the Properties palette, change the Background Fill color of the row to yellow. Close the Properties palette.

	A	B	C	D	E	F	G
1	BATHROOM TILES						
2			Price				
3	Description	Size (cm)	Price/Tile	Price/Square Foot	Area (sq ft)	Number of Tiles	Price (USD)
4	PERGAMENA	33 x 33		\$2.69	26.31	22	\$70.78
5	PERGAMENA-SBN	33 x 33				0	\$0.00
6	PERGAMENA	16.5 x 16.5		\$4.95	62.78	216	\$310.76
7	PERGAMENA-SBN	16.5 x 16.5	\$4.30			54	\$232.20
8	REGIABLU	25 x 8	\$10.95			12	\$131.40
9							
10	TOTAL						\$745.14

### Stretch a Column

Resizing columns and several other features of tables have not changed significantly since the last release.

You can use the light blue triangle at the bottom-center to split long tables.

### Add Color to a Row

Several table controls are available only on the Properties palette. The options that are available depend on whether you select a cell, column, row, or table.

### Things to Try...

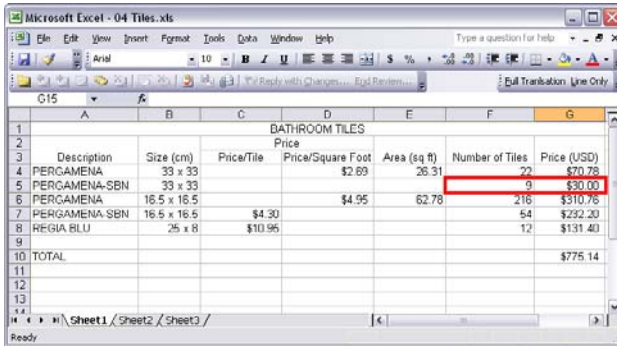
Select the edge of the table and change its size using the Properties palette.

Turn linewidth display on. Click row 10. Using the Properties palette, click Border Lineweight and change several border display and color options.



## Test the Data Link

- In the spreadsheet file, *04 Tiles.xls*, change cell F5 to 9 and G5 to \$30 and save the changes. Close the spreadsheet file.



- In the drawing, click row 5.

	A	B	C	D	E	F	G
1	BATHROOM TILES						
2			Price				
3	Description	Size (cm)	Price/Tile	Price/Square Foot	Area (sq ft)	Number of Tiles	Price (USD)
4	PERGAMENA	33 x 33		\$2.69	26.31	22	\$70.78
5	PERGAMENA-SBN	33 x 33				9	\$30.00
6	PERGAMENA	16.5 x 16.5		\$4.95	62.78	216	\$310.76
7	PERGAMENA-SBN	16.5 x 16.5	\$4.30			54	\$232.20
8	REGIA BLU	25 x 8	\$10.95			12	\$131.40
9							
10	TOTAL						\$775.14

- On the Table toolbar, click the Download Changes button as shown below.

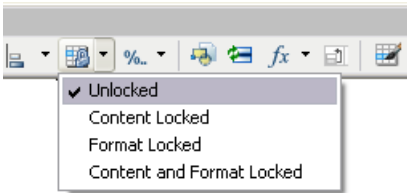


## Change the Data

- The tiles for the baseboard need to be rounded at the top edge. This is an extra charge added to nine tiles.
- The initial values in cells F5 and G5 were set to 0 and \$0.00 to maintain their data types in AutoCAD.
- The *04 Tiles.xls* file must be closed for AutoCAD to be able to import the changes.
- It doesn't matter whether you select a cell, a row, a column, or the entire table. When you update a data link, *all* the changes in the spreadsheet are updated.
- "Download" in this case means the same thing as import.

	A	B	C	D	E	F	G
1	BATHROOM TILES						
2	Description	Size (cm)	Price		Area (sq ft)	Number of Tiles	Price (USD)
3			Price/Tile	Price/Square Foot			
4	PERGAMENA	33 x 33		\$2.69	26.31	22	\$70.78
5	PERGAMENA-SBN	33 x 33				9	\$30.00
6	PERGAMENA	16.5 x 16.5		\$4.95	62.78	216	\$310.76
7	PERGAMENA-SBN	16.5 x 16.5	\$4.30			54	\$232.20
8	REGIABLU	25 x 8	\$10.95			12	\$131.40
9							
10	TOTAL						\$775.14

- 1 Click the Select All button in the upper left corner of the table. Click the Locking button on the toolbar and click Unlocked.



- 2 Double-click in cell F8 and change the number from 12 to 14 and click OK.
- 3 Double-click in cell G8 and change the number from \$131.40 to \$153.30 and click OK.

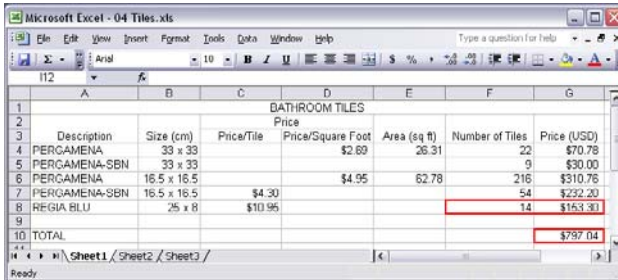
	BATHROOM TILES						
	Description	Size (cm)	Price		Area (sq ft)	Number of Tiles	Price (USD)
			Price/Tile	Price/Square Foot			
	PERGAMENA	33 x 33		\$2.69	26.31	22	\$70.78
	PERGAMENA-SBN	33 x 33				9	\$30.00
	PERGAMENA	16.5 x 16.5		\$4.95	62.78	216	\$310.76
	PERGAMENA-SBN	16.5 x 16.5	\$4.30			54	\$232.20
	REGIABLU	25 x 8	\$10.95			14	\$153.30
	TOTAL						\$775.14

- You might need to adjust the text style of the new data. This is why it is a good idea to define table and text styles.
- The data is updated and the total at the bottom of the table displays the revised cost of the tiles.

## Save Data to Spreadsheet

- You can also export changes from the table back into the spreadsheet. In this case, you decide to add two more decorative tiles to the total for breakage.
- You can lock or unlock the data, the formatting, or any combination in a table, row, column, or cell, or specified range.
- You have to change the cost manually in the drawing because a formula was not saved in this cell.
- Notice that the total was not automatically updated.

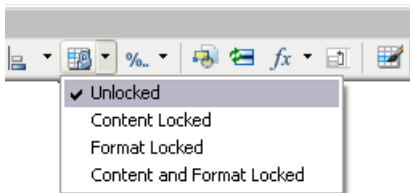
- 4 Click the Select All button in the upper left corner of the table.
- 5 Right-click to display the shortcut menu. Click Data Links > Upload User Changes to Source File.
- 6 Open the spreadsheet file, 04 Tiles.xls.



- 7 Close the spreadsheet.
- 8 On the Table toolbar, click the Download Changes button as shown below. Click Yes to import the changes.



- 9 With the entire table selected, click the Locking button and click Unlocked.



- You can select any element in the table for this step.
- "Upload" in this case means the same thing as export.
- You can confirm that the data was saved to the spreadsheet.
- Notice that the total cost in the Excel spreadsheet is updated.
- To update the total cost in the drawing, download the changes from the spreadsheet. This also updates the text formatting.
- Notice that the table locks automatically after you download changes from the spreadsheet.

1 Click to select column A.

	A	B	C	D	E	F	G
1	BATHROOM TILES						
2			Price				
3	Description	Size (cm)	Price/Tile	Price/Square Foot	Area (sq ft)	Number of Tiles	Price (USD)
4	PERGAMENA	33 x 33		\$2.69	26.31	22	\$70.78
5	PERGAMENA-SBN	33 x 33				9	\$30.00
6	PERGAMENA	16.5 x 16.5		\$4.95	62.78	216	\$310.76
7	PERGAMENA-SBN	16.5 x 16.5	\$4.30			54	\$232.20
8	REGIABLU	25 x 8	\$10.95			14	\$153.30
9							
10	TOTAL						\$797.04

2 Click the Insert Column to the Left button.



3 Click to select the A4 cell.

	A	B	C	D	E	F	G
1	BATHROOM TILES						
2			Price				
3	Description	Size (cm)	Price/Tile	Price/Square Foot	Area (sq ft)	Number of Tiles	
4	PERGAMENA	33 x 33		\$2.69	26.31		
5	PERGAMENA-SBN	33 x 33					
6	PERGAMENA	16.5 x 16.5		\$4.95	62.78		
7	PERGAMENA-SBN	16.5 x 16.5	\$4.30				
8	REGIABLU	25 x 8	\$10.95				
9							
10	TOTAL						

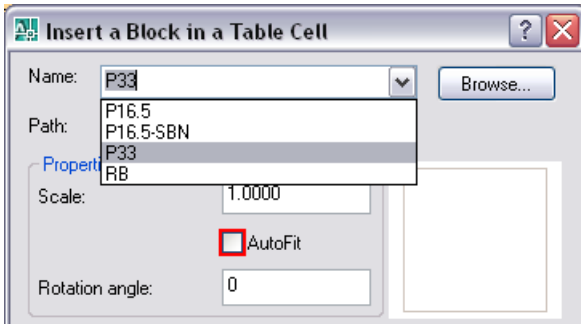
## Add a Column

- You can add a column or a row outside the data linked area of the table.
- Several blocks representing the tiles have been saved in the drawing. Adding these blocks to the table improves clarity.

4 Click the Insert Block button.



5 Click P33 and then clear the AutoFit check box.



6 Insert the rest of the blocks as shown.

BATHROOM TILES						
	Description	Size (cm)	Price		Area (sq ft)	Number of Tiles
			Price/Tile	Price/Square Foot		
	PERGAMENA	33 x 33		\$2.69	26.31	22
	PERGAMENA-SBN	33 x 33				9
	PERGAMENA	16.5 x 16.5		\$4.95	62.78	216
	PERGAMENA-SBN	16.5 x 16.5	\$4.30			54
	REGIABLU	25 x 8	\$10.95			14
	TOTAL					

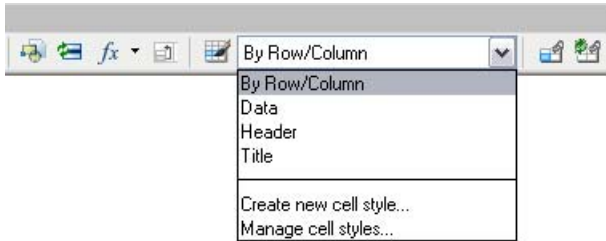
## Insert Blocks

- AutoFit automatically scales the selected block to fit in the cell.
- In this case, it is more helpful to change the size of the cell to fit the block.
- You can double-click each block to confirm its name

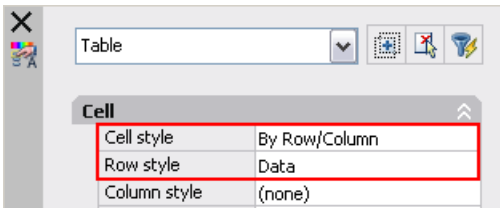
## Things to Try...

Clean up the table by merging the cells in row 9 and cells B10 to G10.

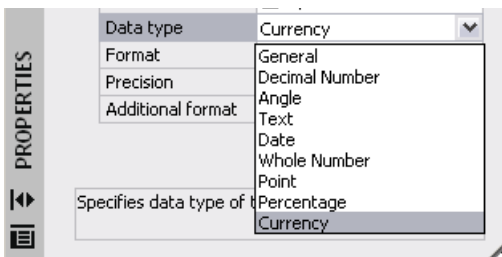
## Cell Styles



- 1 Click a cell in the table and then open the Properties palette.



- 2 Click each cell to see how the information in the Properties palette changes.
- 3 Click the H10 cell and then click Data Type on the Properties palette.



- 4 Close the drawing and spreadsheet files.

### Types of Cells

- There are three types of cells: Data, Heading, and Title.
- It is common that an entire row or column is a single type of cell. Thus, setting the type of cell to By Row/Column is similar to setting layer properties to BYLAYER.
- Notice that the Cell Style is set to Row/Column. The Row Style is set to Data for the entire row.

### Things to Try...

Create several table and cell styles. Apply them to the table.

### Further Study...

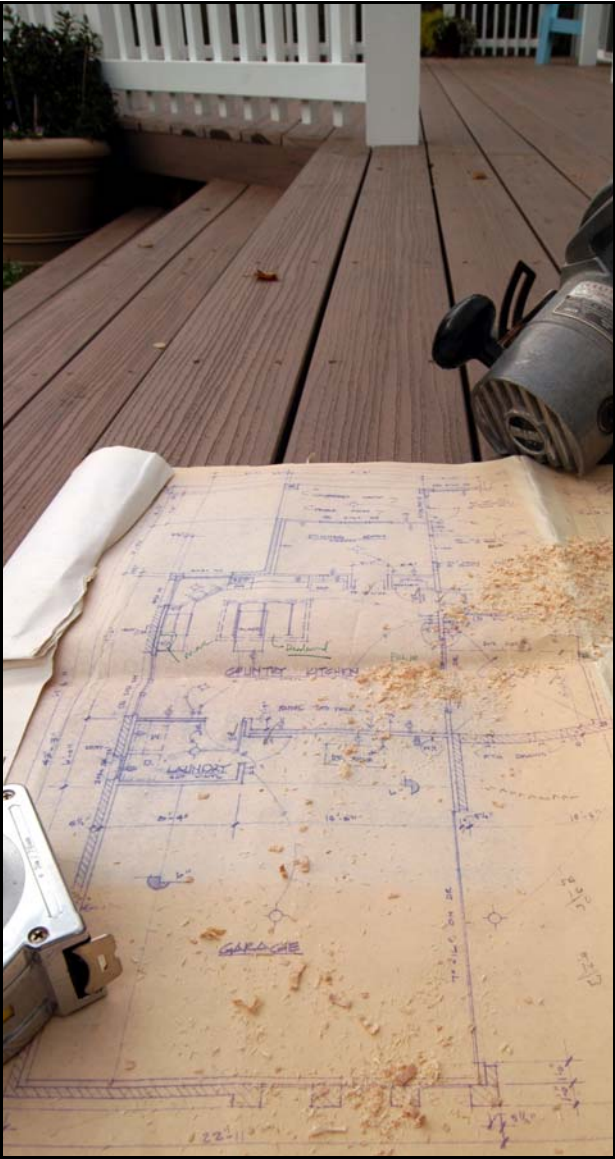
Review these commands and associated User's Guide topics in the Help system:

DATALINK

DATALINKUPDATE



# Layer Display Enhancements

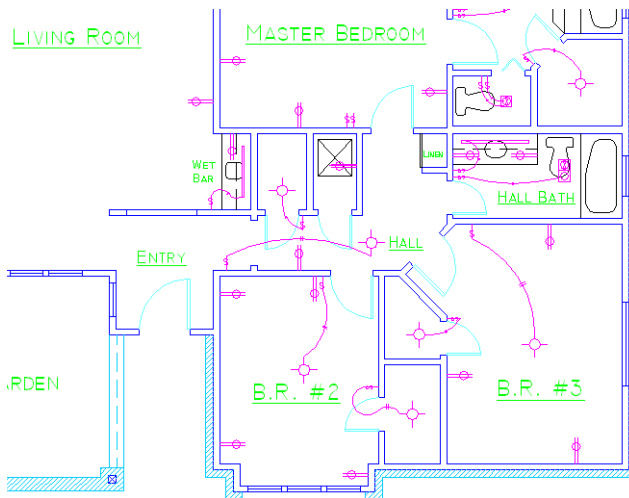


Floor plan courtesy of Trinity Developers, Inc.

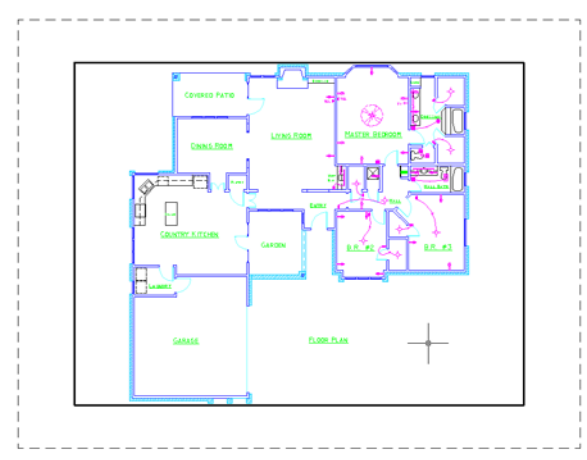
5

## Override Layer Properties in Layout Viewports

- 1 Open the drawing, *05 Floor Plan.dwg*.



- 2 Click the Layout tab or button. If necessary, double-click within the layout viewport to access model space in that viewport.



### Rationale

For this floor plan, the color properties assigned to the layers make it clearer and easier to work on.

In some cases, you might find it convenient to override the properties of objects in different layout viewports.

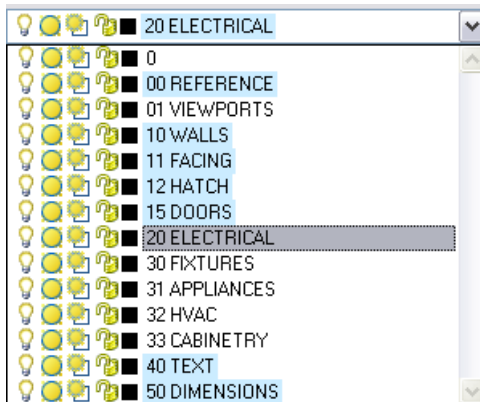
For example, you might want to do one of the following:

- Send a quick check plot to a monochrome printer.
- Create two layout viewports, one in black and white, and the other in color.
- Create a layout tab that displays the color of only one of the layers.
- Change other property assignments by layout viewport, such as linetype and lineweight

- 3 Open the Layer Properties Manager. Right-click in the list of layers and click Select All on the shortcut menu.
- 4 Within the VP Color column on the right side, right-click on the layer 0 color and click Select Color.



- 5 Click OK in the Select Color dialog box and in the Layer Properties Manager.
- 6 View the layers in the Layer control.



## Override the Color

- If necessary, resize the Layer Properties Manager and the VP Color column.
- The choices on the shortcut menu change depending on which column you right-click.
- For convenience, the color that you right-click in the VP Color column sets the default color in the Select Color dialog box.
- The colors in the current layout viewport are no longer displayed.
- Layers with property overrides in the current layout viewport are highlighted. The overrides can be different for each layout viewport.

## Things to Try...

Use different color overrides for each layer. Then try overriding some different layer properties.

- 1 In the current layout viewport, open the Layer Properties Manager. Right-click in the list of layers and click Select All on the shortcut menu.
- 2 Within the VP Color column, right-click and click Remove Viewport Overrides For > Color > In Current Viewport Only.
- 3 Click OK to accept the change and close the Layer Properties Manager.
- 4 Close the drawing without saving it.

## Remove the Overrides

- The steps to remove the layer property overrides are similar to setting them.

### Things to Try...

- Examine the other choices in the Remove Viewport Overrides shortcut menu.
- Specify several viewport overrides in different layout viewports. Make different layout viewports current.
- Remove layout viewport overrides selectively: only for some layers, only some properties, only for the current layout viewport.

### Further Study...

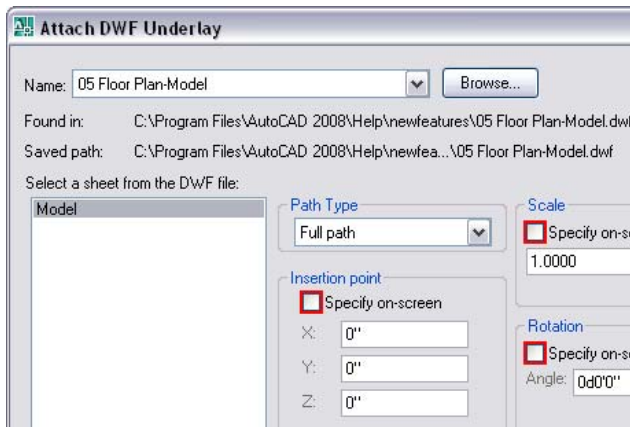
Review these system variables and associated User's Guide topics in the Help system:

VPLAYEROVERRIDES

VPLAYEROVERRIDES-MODE

## Control Layers in DWF Underlays

- 1 Start a new drawing. Use *Tutorial-iArch.dwt* as the drawing template file.
- 2 Click the Model tab or button.
- 3 Click Insert menu > DWF Underlay.
- 4 Select the file, *05 Floor Plan-Model.dwf*.
- 5 In the Attach DWF Underlay dialog box, clear the Specify On-Screen options. Click OK.



- 6 Zoom to extents.

### Rationale

Professionals often need to share drawing information but may not want to release the DWG files for a project. In those situations, they often provide the information as plots, PDF files, or DWF files.

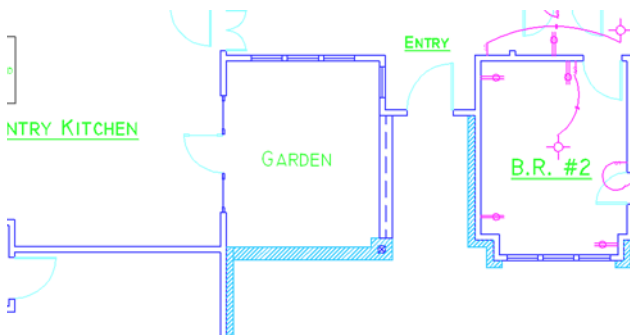
### Why use DWF?

DWF files have the following advantages:

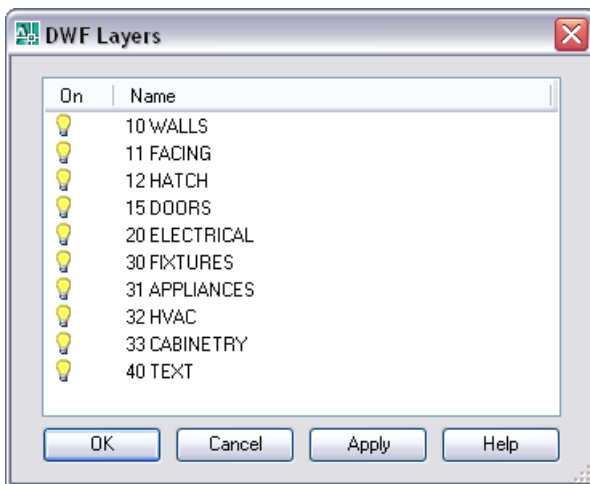
- Significantly smaller than PDF files
- Provide vector rather than raster graphics
- Can be viewed with the free Autodesk® DWF™ Viewer
- Can be viewed directly from the Autodesk website
- Provide object snaps and control over layer display

**Note** DWF files have reduced precision. The default precision is set to 1200 dpi (dots per inch), which is controlled in the DWF6 ePlot Properties dialog box (custom properties).

- 1 Zoom into the enclosed garden area.



- 2 Click on any object in the DWF underlay. Then right-click and click DWF Layers on the shortcut menu.



- 3 Click the icons to turn off layers 12 HATCH, 20 ELECTRICAL, and 40 TEXT. Then click OK.

## Turn Off Layers

- Your job is to create a potting bench that is 16" wide along the hatched wall inside the garden area.

- Clicking on an object in the DWF underlay selects the entire DWF underlay.

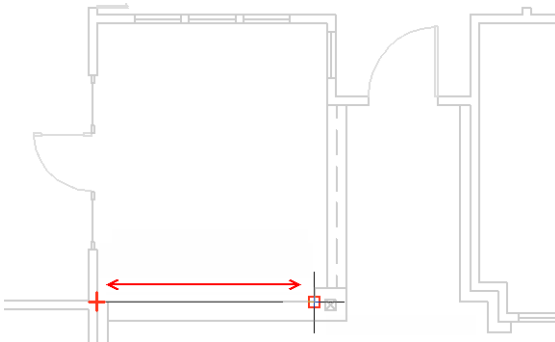
- The display is complicated with objects that you do not need to see, so you turn off several layers.

**Note** The DWF file was plotted with layers turned on. This option is available in the DWF6 ePlot Properties dialog box.

## Things to Try...

Plot the floor plan drawing to a PDF file using the DWG to PDF.pc3 option under Name in the Plot dialog box. Compare this file to the DWF file.

- 1 At the Command prompt, enter **dwfadjust**. Select any object in the DWF underlay and press ENTER.
- 2 Set the Fade option to increase the dimming to 60 (percent).
- 3 Repeat the DWFADJUST command and set the Monochrome option to On.
- 4 Use the DIST command to measure the distance as shown.



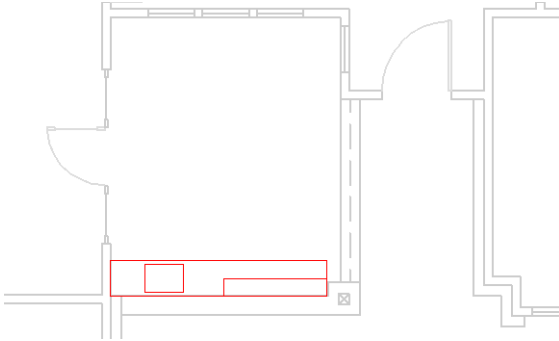
## Control DWF Fade

- You decide that the objects in the DWF underlay are still a little too bright and colorful.
- The distance is reported as 9'4-9/16". In the DWG file, the true distance is 9'4-1/2". This is a deviation of 1/16" or about 1.6 mm.
- For higher precision, the DWF file could be created at 2400 or 4800 dpi instead of the default 1200 dpi. Either of these settings will report a more precise distance.

### Things to Try...

Experiment with different fade levels from 0 (no fading) to 80 (maximum fading).

- 1 Create a potting bench with the dimensions 112" x 18". The stainless steel sink is 20" x 14", and the shelves are 53" x 9".



- 2 Click Insert menu > External References.
- 3 Right-click *05 Floor Plan-Model*. On the shortcut menu, click Detach.



- 4 Close the drawing file.

## Create the Bench

- After you finish the deluxe potting bench, you can detach the DWF underlay.

- The potting bench drawing is now ready for dimensions and annotation.

## Further Study...

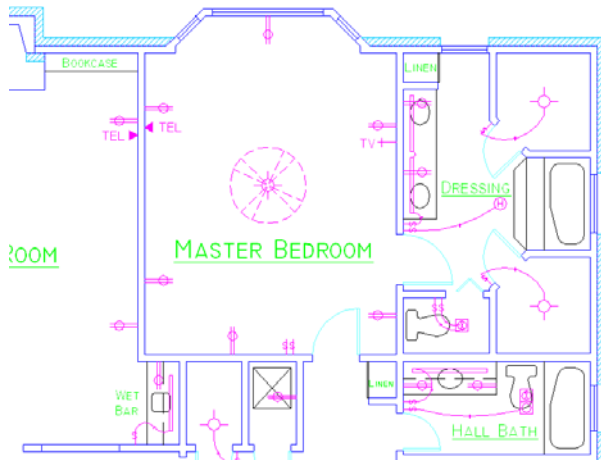
Review these commands and associated User's Guide topics in the Help system:

DWFADJUST

DWFLAYERS

## Control Layer Fading

- 1 Open the drawing, *05 Floor Plan.dwg*.
- 2 Zoom into the master bedroom area.



- 3 Click Format menu > Layer Tools > Layer Isolate.
- 4 At the Select Objects prompt, select any magenta object on the 20 ELECTRICAL layer and press ENTER.
- 5 At the Command prompt, enter **laylockfadectl**. Enter **80** for the fade percent.

### Rationale

When you work on a complex drawing that displays a lot of objects with different colors, it can be easy to become fatigued or select the wrong object.

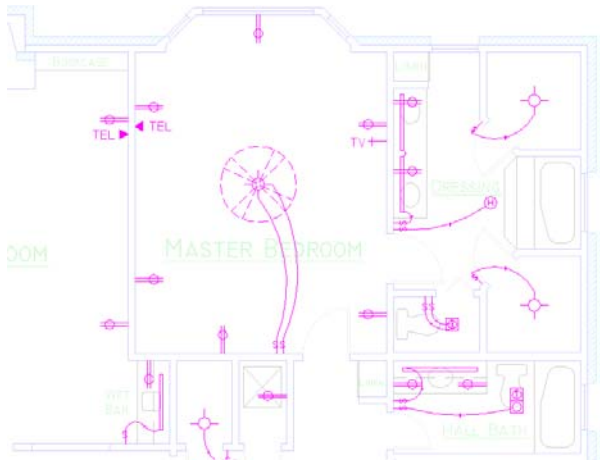
Previously, your only option was to completely turn off or freeze layers.

### Lock and Fade Layers

As you complete the electrical work, you notice that the bedroom light and fan are not shown as hooked up to the wall switches. So, you simplify the display and lock all layers except the one you are working on

- Notice that the other layers have faded slightly. You can increase the fading effect.
- A value of 0 turns off the fading effect.

- 6 Add two arcs to the fan and light as shown.



- 7 Click Format menu > Layer Tools > Layer Unisolate.
- 8 Close the file without saving it.

## Work with Faded Layers

- Working with the faded layers provides a visual reference and, because the layers are locked, you cannot select objects on them by accident.
- As you move your cursor over objects on locked layers, a lock icon is displayed.

## Undo Layer Locking

- To undo the layer isolation is also easy.

### Further Study...

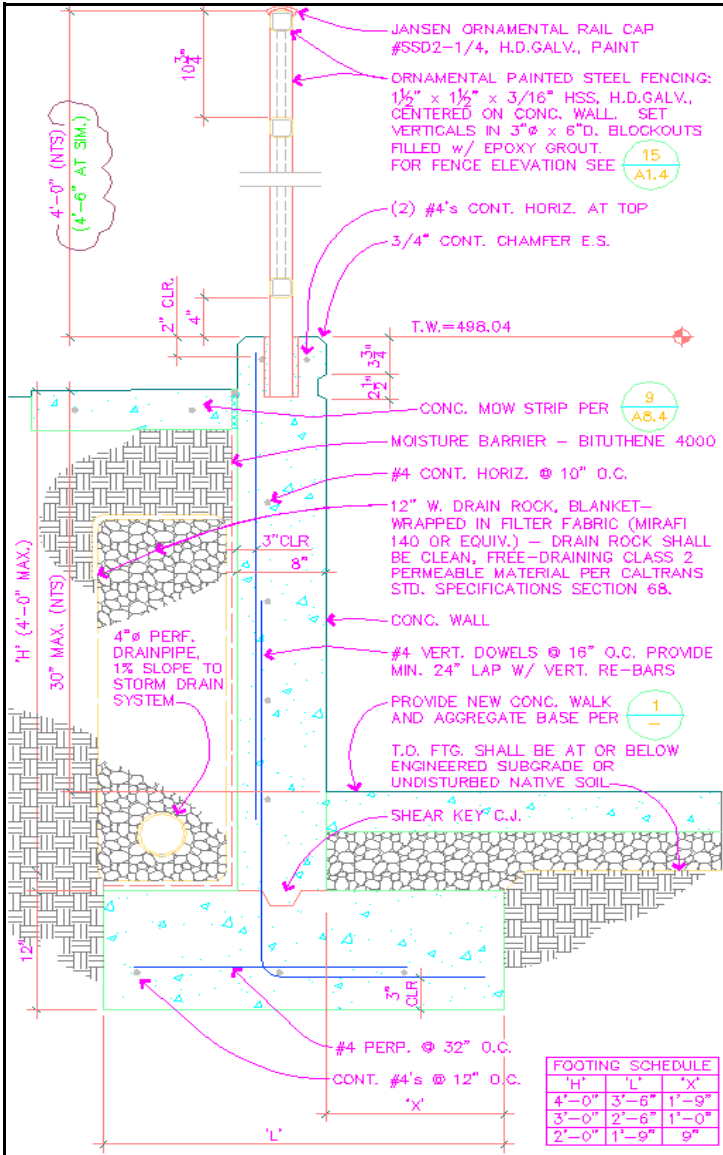
Review these commands and associated User's Guide topics in the Help system:

LAYISO

LAYUNISO

LAYLOCKFADECTL

# Automatic Annotation Scaling

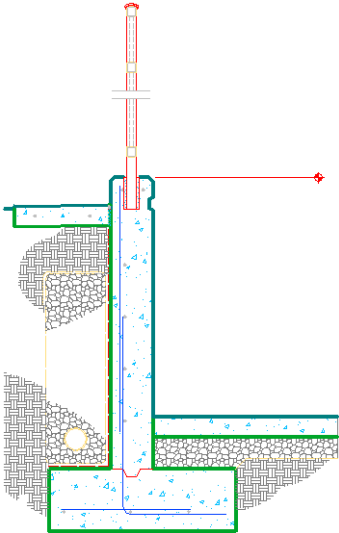


Retaining wall drawing courtesy of  
 David L. English, Architect  
 Rohnert Park, California

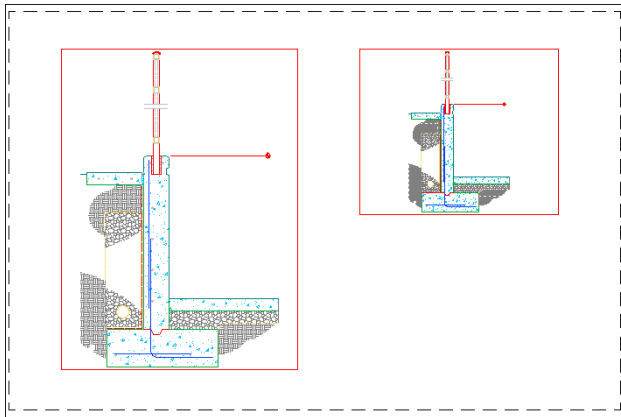


## Create Annotation in Model Space

- 1 Open the drawing, *06 Wall Section.dwg*.



- 2 Click the Layout tab or button. Use the MVIEW command on the command line to create two layout viewports as shown.



### Rationale

This is a section of a retaining wall used as a detail on several sheets at different scales. The annotation for this drawing includes

- Text
- Hatches
- Leaders
- Dimensions
- Blocks and attributes

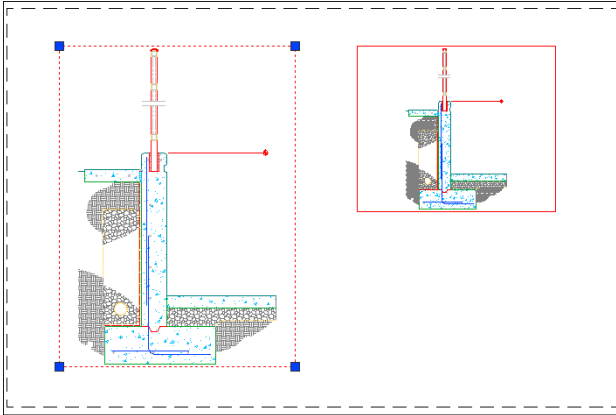
In this case, the annotation is created in model space for convenience and portability.

Normally, you would duplicate the annotations at different scales and use additional layers to control their display at each scale in each layout viewport. Now, there is a better way.

### Create Layout Viewports

- You are creating two detail views at different scales on the same layout for easy comparison.

- 3 Select the left viewport object. Then click the VP Scale button below.

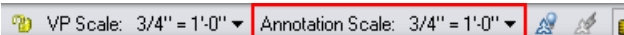


- 4 On the list of scales, click to select a scale of  $1-1/2" = 1'$ .
- 5 Right-click anywhere in the drawing. On the shortcut menu, click Display Locked > Yes.
- 6 Select the right viewport object. Then click the VP Scale button.



- 7 On the list of scales, click to select a scale of  $3/4" = 1'-0"$ .

Notice that the *annotation scale* is now set automatically to the VP scale.



- 8 Then, right-click anywhere in the drawing. On the shortcut menu, click Display Locked > Yes.

## Set Viewport Scales

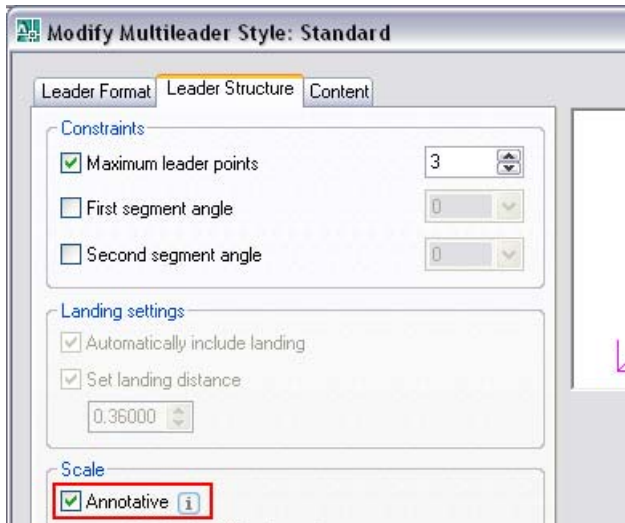
- For metric drawings, the scales you specify might be 1:20 and 1:10.

- When layout viewports are locked, all pan and zoom operations apply automatically to the paper space layout rather than model space.

### Things to Try...

Create an additional viewport at a smaller scale. You can use it for more experiments later.

- 1 Click Format menu > Multileader Style
- 2 In the Multileader Style Manager, click Modify. Then click the Leader Structure tab.



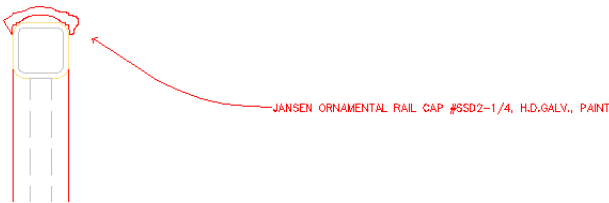
- 3 Click the other two tabs and verify that the text and arrow sizes are specified as their true size for display on the layout. Then press ESC twice to exit the Multileader Style Manager.
- 4 Click the Model tab or button to return to model space.
- 5 Zoom into the railing at the top of the retaining wall.

## Create Annotative Objects

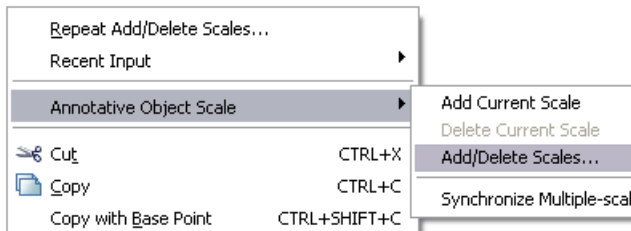
- Notice that the current multileader style is set to annotative. Annotative objects adjust automatically for specified scales.
- This new setting is available for the styles of all objects that are used to annotate drawings such as text, dimensions, hatches, and so on.
- To use this feature, it is recommended that you create new annotative styles in each of your drawing styles in each of your drawing template (DWT) files.
- It is easiest to create annotative objects in model space.

## Set Scales for Annotative Objects

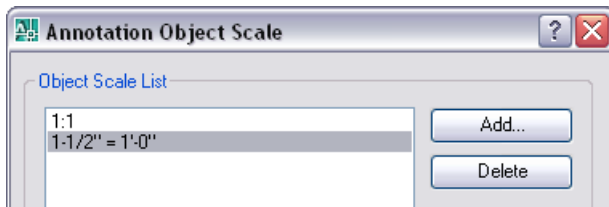
- 1 Set the current layer to TEXT-NOTES.
- 2 Click Dimension menu > Multileader. In the dialog box, accept the 1:1 scale and click OK.
- 3 Enter the following text: JANSEN ORNAMENTAL RAIL CAP #SSD2-1/4, H.D.GALV., PAINT. Make the multileader look like the following illustration.



- 4 Select the multileader and right-click. On the shortcut menu, click Annotative Object Scale > Add/Delete Scales.



- 5 In the Annotation Object Scale dialog box, click Add. Then click the 1-1/2" = 1'-0" scale on the list and click OK. The scale is added as shown. Click OK.



### Create a Multileader

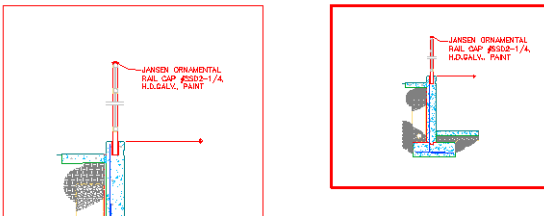
- The multileader style uses a spline leader with three points.
- You need to define a scale to display the mleader.

- This added scale will be applied to the selected mleader object in all layout viewports that are set to the 1-1/2" scale.

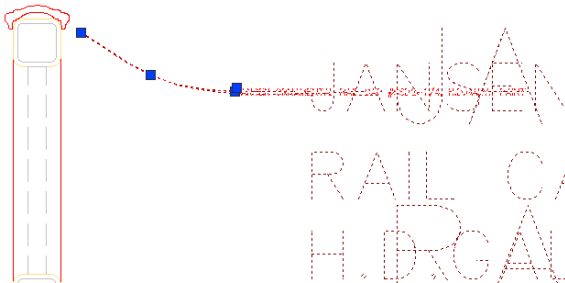
- Click the Layout tab or button. Enter model space in the left viewport. Double-click the text in the multileader and resize the width as shown.



- Click the Model tab or button.
- Select the multileader and right-click. On the shortcut menu, click Annotative Object Scale > Add/Delete Scales.
- In the Annotation Object Scale dialog box, click Add. Then click the 3/4" = 1'-0" scale on the list and click OK.
- Click the Layout tab or button. Resize the width of the multileader text as shown.



- Click the Model tab or button and then select the mleader. Then click ESC to deselect the multileader.



- Notice that the mleader is displayed at the correct scale in the left viewport.
- It is not displayed in the right viewport because that viewport is at a different scale.

- Both views now display a correctly scaled mleader.

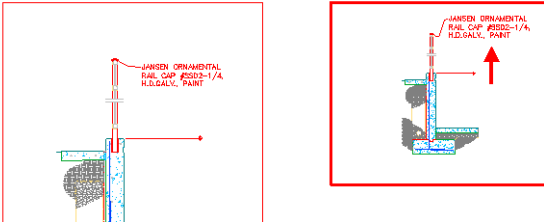
- Notice that all scales of the mleader are made visible. This effect can be turned on and off with a system variable.

### Things to Try...

Add several other multileaders, repeating the process. Then add some annotative dimensions.

## Adjust Annotative Objects

- 1 Click the Layout tab or button.
- 2 In the right viewport, select the mleader and use grip editing to relocate the mleader text as shown.



- 3 Press ESC to exit grip editing and return to paper space.
- 4 Click the Model tab or button and create a new mleader object with an annotative scale of 1:1.
- 5 Click the Layout tab or button.
- 6 On the Status bar, click to turn the Annotation Visibility on and off.



### Create Versions of the Same Annotative Object

- With different scales, annotative objects might need to be relocated to prevent them from overlapping other objects.

- The same mleader object is displayed differently in both viewports.

### Annotation Visibility

- The display of the new multileader is turned on and off in both layout viewports.

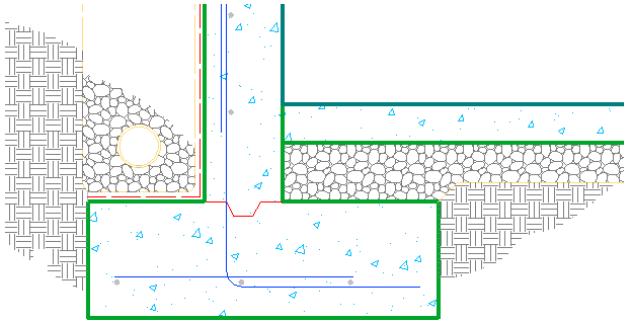
- The Annotation Visibility button can also be used on the Model tab to display all annotative objects regardless of scale. This can be useful as a reference when creating annotative objects.

### Things to Try...

Add more mleaders. Modify their locations in different layout viewports.

## Make Existing Objects Annotative

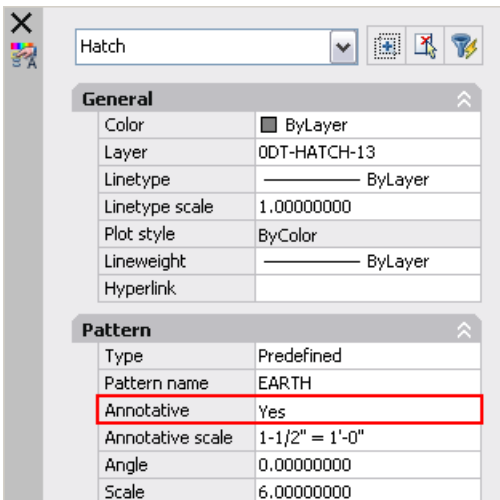
- 1 Click the Model tab or button and zoom to the bottom area of the retaining wall section.



- 2 Change the current annotation scale to  $1\text{-}1/2'' = 1\text{'-}0''$ .



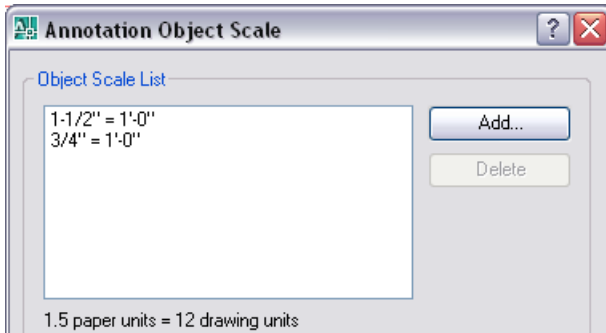
- 3 Select the EARTH hatch on the far-left side of the drawing. Then open the Properties palette.
- 4 Change the Annotative property to Yes, but leave the hatch scale set to 6.



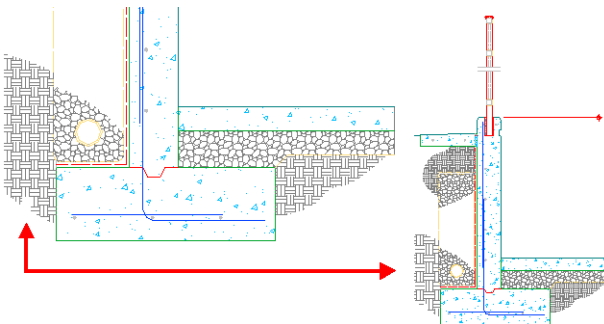
## Scaling Hatches

- The details in some of your existing drawings can be modified to take advantage of annotative scaling.
- In this drawing, you will change the EARTH hatch to become annotative. The other hatches can be left as they are.
- The EARTH hatch has a model space scale of 6.0, but you want it to display using the same relative size at the  $1\text{-}1/2'' = 1\text{'-}0''$  scale as on the Model tab.
- Setting the annotation scale in Model space first is the key.
- Notice that the Annotative Scale property of the selected hatch changes automatically.

- 5 Close the Properties palette.
- 6 With the hatch selected, right-click. On the shortcut menu, click Annotative Object Scale > Add/Delete Scales.
- 7 Click Add and then add the 3/4" = 1'-0" scale to the hatch. Click OK to close each dialog box.



- 8 Click the Layout tab or button and compare the hatches.



- 9 When you are done experimenting, close the file without saving it.

## Add Another Scale

- Notice that the selected hatch already has the 1-1/2" scale assigned.

- The hatches in both layout viewports are displayed at the same size. All the scaling calculations were done automatically.

## Things to Try...

Make the other EARTH hatches annotative using the same steps.

## What Should You Do Next?

The *AutoCAD 2008 New Features* guide has provided you with an introduction to the major new features in AutoCAD 2008. There are many other features in this release that can make your work significantly faster and easier. Most of these features are described in the *New Features Workshop*.

When you have reviewed these new features, carefully work through the descriptions and procedures in the Help system and experiment with them on your own drawings.

Additional resources include the following:

- Learn how others are using AutoCAD 2008 by visiting the AutoCAD 2008 discussion groups.
- Enroll in an update class that uses Autodesk Official Training Courseware (AOTC). You can locate an authorized Autodesk Training Center (ATC) near you through the Authorized Training Centers page on [www.autodesk.com](http://www.autodesk.com).
- Access the many self-paced e-Learning lessons right in the Help system if you are an Autodesk Subscription customer.

*Best wishes!*

There is a lot more to learn about annotation scaling. You have learned the two most common workflows for using this feature. Use the Help system to explore the rich set of capabilities and options.

### Further Study...

Review the following commands and system variables, and associated *User's Guide* topics in the Help system:

#### Commands

ANNORESET

ANNOUPDATE

OBJECTSCALE

#### System Variables

ANNOALLVISIBLE

ANNOAUTOSCALE

ANNOTATIVEDWG

DIMANNO

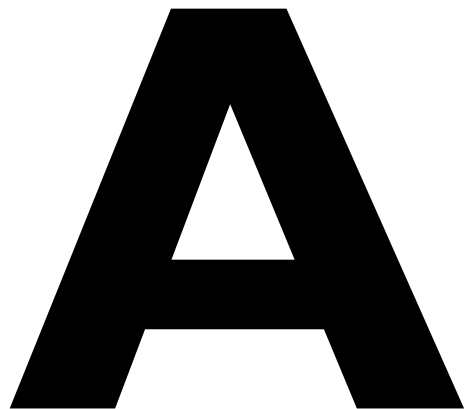
CANNOSCALE

CANNOSCALEVALUE

MSLTSCALE

SELECTIONANNODISPLAY

# New and Changed Commands and System Variables



## Commands

(\* = changed command)

### **-3DCONFIG\***

Added plot emulation and texture compression options

### **ANNORESET**

Resets the location of all scale representations for an annotative object to that of the current scale representation

### **ANNOUPDATE**

Updates existing annotative objects to match the current properties of their styles

### **ATTDEF\***

Added support for annotative scaling

### **-ATTDEF\***

Added support for annotative scaling

### **ATTEDIT\***

Multiple-line attribute support

### **ATTIPEDIT**

Changes the textual content of an attribute within a block

### **AUTOPUBLISH**

Publishes drawings to DWF files automatically

### **BATTMAN\***

Added support for annotative scaling

### **BLOCK\***

Added support for annotative scaling

### **-BLOCK\***

Added support for annotative scaling

### **CHPROP\***

Added support for annotative scaling

### **CUI\***

Added dashboard panel customization and some enhancements for customizing toolbars

### **DASHBOARD\***

Added access to the Customize User Interface from the right-click menu

**DATAEXTRACTION**

Starts the Data Extraction wizard

**-DATAEXTRACTION**

Extracts data as specified in an existing attribute extraction template file (BLK, DXE)

**DATALINK**

Opens the Data Link Manager

**DATALINKUPDATE**

Updates data to or from an established external data link

**DGNADJUST**

Changes the display options of selected DGN underlays

**DGNATTACH**

Attaches a DGN underlay to the current drawing

**DGNCLIP**

Defines a clipping boundary for a selected DGN underlay

**DGNEXPORT**

Creates one or more V8 DGN files from the current drawing

**DGNIMPORT**

Imports the data from a V8 DGN file into a new DWG file

**DIMANGULAR\***

Added the Quadrant option

**DIMBREAK**

Adds or removes a dimension break

**DIMDIAMETER\***

Added the Extension line option

**DIMINSPECT**

Create or remove inspection dimensions

**-DIMINSPECT**

Command prompt version of DIMINSPECT

**DIMJOGGED\***

Added the Extension line option

**DIMJOGLINE**

Adds or removes a jog line to a linear or aligned dimension

**DIMRADIUS\***

Added the Extension line option

**DIMSPACE**

Adjusts the spacing equally between parallel linear and angular dimensions

**DIMSTYLE\***

Added new tolerance alignment option, size option for linear jog, and break spacing

**-DIMSTYLE\***

Command prompt version of DIMSTYLE

**DISTANTLIGHT\***

Modified to support entering photometric properties

**DWFLAYERS**

Controls the display of layers in a DWF underlay

**EATTEXT\***

Now activates the DATAEXTRACTION command rather than the Attribute Extraction wizard

**-EATTEXT\***

Command prompt version of the EATTEXT command

**ETRANSMIT\***

Added support for visual fidelity

**FREESPOT**

Creates free spotlight which is similar to a spotlight without a specified target

**FREEWEB**

Creates a free web light which is similar to a web light without a specified target

**HATCH\***

Added support for annotative scaling

**-HATCH\***

Added support for annotative scaling

**HATCHEDIT\***

Added support for annotative scaling

**-HATCHEDIT\***

Added support for annotative scaling

**INSERT\***

Added support for annotative scaling

**-INSERT\***

Added support for annotative scaling

**-LAYER\***

Added option to import layer states from drawings, the Edit option now includes Material and Description suboptions, the Import option now includes DWG/DWS/DWT formats, and the Export option includes the .LAY file format

**LAYERSTATE**

Saves, restores, and manages named layer states

**MATCHCELL\***

Added support for double line borders, border linetypes, and new cell formats

**MLEADER**

Creates a line that connects annotation to a feature

**MLEADERALIGN**

Organizes selected multileaders along a specified line

**MLEADERCOLLECT**

Organizes selected multileaders containing blocks as content into a group attached to a single leader line

**MLEADEREDIT**

Adds leader lines to, or removes leader lines from, a multileader object

**MLEADERSTYLE**

Defines a new multileader style

**MTEXT\***

Added support for annotative scaling

**-MTEXT\***

Added support for annotative scaling

**MVIEW\***

When used on a layout, a new option, Layer, removes all layer property override values and resets them back to their corresponding global properties

**NEWVIEW**

Expedites the creation of a new view

**OBJECTSCALE**

Adds or deletes supported scales for annotative objects

**OPTIONS\***

Added the Maintain Visual Fidelity checkbox to the Open and Save tab, Added the Display Drawing Status Bar checkbox to the Display tab

**PASTESPEC\***

Enhanced for when Microsoft Excel data is pasted from the clipboard and you want to create a Data Link to this information immediately

**PLOT\***

Affected by the hardware configuration settings plot emulation and texture compression

**POINTLIGHT\***

Start and end limits for attenuation are supported with the Direct 3D driver; also added prompting for area-sampled shadow options and photometric prompting

**QSELECT\***

Added support for annotative scaling

**QUICKCUI**

Displays the Customize User Interface dialog box in a collapsed state

**RECOVERALL**

Repairs a damaged drawing and xrefs

**-RENDER**

Added a Command prompt version of the RENDER command

**RENDEREXPOSURE**

Provides settings to interactively adjust the lighting global for the most recent rendered output

**SCALETEXT\***

Added support for annotative scaling

**SETBYLAYER**

Changes property and ByBlock settings for selected objects to ByLayer

**SPELL\***

Now checks words in dimensions, zooms into words being corrected; added option to ignore words with numbers or words with special characters

**SPOTLIGHT\***

Start and end limits for attenuation are supported with the Direct 3D driver; also added prompting for area-sampled shadow options and photometric prompting

**STYLE\***

Added support for annotative scaling

**-STYLE\***

Added support for annotative scaling

**TABLE\***

Added From Style" and Data Link branches

**-TABLE\***

Added From Style" and Data Link branches

**TABLESTYLE\***

Defines a new table style

**TARGETPOINT**

Creates a target point light

**TEXT\***

Added support for annotative scaling

**TPNAVIGATE**

Displays a specified tool palette or palette group

**VIEW\***

Modified to support the new sky background option, when applicable

**-VPORIS\***

Added option, LAYEr, removes all layer property override values and resets them back to their corresponding global properties

**WEBLIGHT**

Creates a web light

**XCLIP\***

Added the Invert option

## System Variables

(\* = changed system variable)

### **3DCONVERSIONMODE**

Used to convert material and light definitions

### **3DSELECTIONMODE**

Controls the selection precedence of visually overlapping objects when using 3D visual styles

### **AFLAGS\***

Added a value for the new 'Multiple lines' mode.

### **ANNOALLVISIBLE**

Hides or displays annotative objects that do not support the current annotation scale

### **ANNOAUTOSCALE**

Updates annotative objects to support the annotation scale when the annotation scale is changed

### **ANNOTATIVEDWG**

Specifies whether or not the drawing will behave as an annotative block when inserted into another drawing

### **ATTIPE**

Controls the display of the in-place editor used to create multiline attributes

### **ATTMULTI**

Controls whether multiline attributes can be created

### **AUTODWFPUBLISH**

Controls whether the AutoPublish feature is on or off

### **CANNOSCALE**

Sets the name of the current annotation scale for the current space

### **CANNOSCALEVALUE**

Returns the value of the current annotation scale

### **CMLEADERSTYLE**

Determines the current multileader style

### **COPYMODE**

Controls whether the COPY command repeats automatically

### **DATALINKNOTIFY**

Controls the notification for updated or missing data links

**DCTMAIN\***

Displays the three letter keyword of the current main spelling dictionary

**DGNFRAME**

Determines whether DGN underlay frames are visible or plotted in the current drawing

**DGNOSNAP**

Controls object snapping for geometry in DGN underlays

**DIMANNO**

Indicates whether or not the current dimension style is annotative

**DIMSCALE\***

Now is automatically set to 0 when an annotative dimension style is made current

**DXEVAL**

Controls when data extraction tables are compared against the data source, and if the data is not current, displays an update notification

**HPMAXLINES**

Controls the maximum number of hatch lines that will generate

**LAYEREVAL**

Controls when the Unreconciled New Layer filter list in the Layer Properties Manager is evaluated for new layers

**LAYERNOTIFY**

Specifies when an alert displays for new layers that have not yet been reconciled

**LAYLOCKFADECTL**

Controls the dimming for objects on locked layers

**LIGHTINGUNITS**

Controls whether generic or photometric lights are used, and indicates the current lighting units

**LIGHTSINBLOCKS**

Controls whether lights contained in blocks are used when rendering

**LINEARBRIGHTNESS**

Controls the global brightness level of the drawing when using default lighting or generic lights

**LINEARCONTRAST**

Controls the global contrast level of the drawing when using default lighting or generic lights

**LOGEXPBRIGHTNESS**

Controls the global brightness level of the drawing when using photometric lighting

**LOGEXPCONTRAST**

Controls the global contrast level of the drawing when using photometric lighting

**LOGEXPDAYLIGHT**

Controls if exterior daylight is used when using photometric lighting

**LOGEXPMIDTONES**

Controls the global mid tones level of the drawing when using photometric lighting

**MSLTSCALE**

Scales linetypes displayed on the model tab by the annotation scale

**PERSPECTIVECLIP**

Determines the location of eye-point clipping

**PUBLISHCOLLATE**

Controls whether plotting a sheet set, multi-sheet plot file, or plot spool file can be interrupted by other plot jobs

**RENDERUSERLIGHTS**

Controls whether user-lights are translated during rendering

**SAVEFIDELITY**

Controls whether the drawing is saved with visual fidelity

**SELECTIONANNODISPLAY**

Controls whether alternate scale representations are temporarily displayed in a dimmed state when an annotative object is selected

**SETBYLAYERMODE**

Controls which properties are selected for SETBYLAYER

**TABLETOOLBAR**

Controls the display of the Table Toolbar

**TEXTOUTPUTFILEFORMAT**

Provides Unicode options for plot and text window log files

**VPLAYEROVERRIDES**

Indicates if there are any layers with viewport (VP) property overrides for the current layout viewport

**VPLAYEROVERRIDESMODE**

Controls whether layer property overrides associated with layout viewports are displayed and plotted