Keep It Inside AutoCAD® : Data Extraction Direct to AutoCAD® Tables

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Independent Consultant

Evaluation Forms

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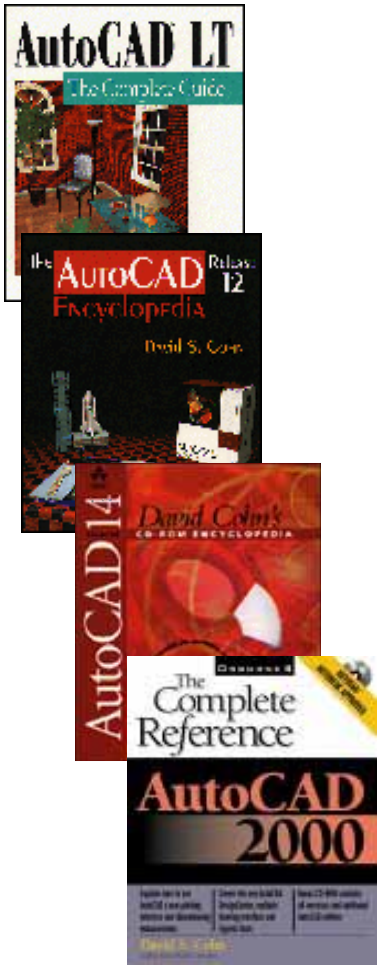
David S. Cohn



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- Former editor of *CADalyst*, *Engineering Automation Report* and *CADCAMNet*
- Frequent contributor to *Computer Graphics World*, *PC* Magazine, and others
- Registered architect—25+ years experience
- AutoCAD experience—20+ years
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Learning Objectives

- Extract attribute data using the Attribute Extraction Wizard
- Work with tables and table styles
- Use model space data in paper space
- Perform calculations on table data
- Link tables

Introduction

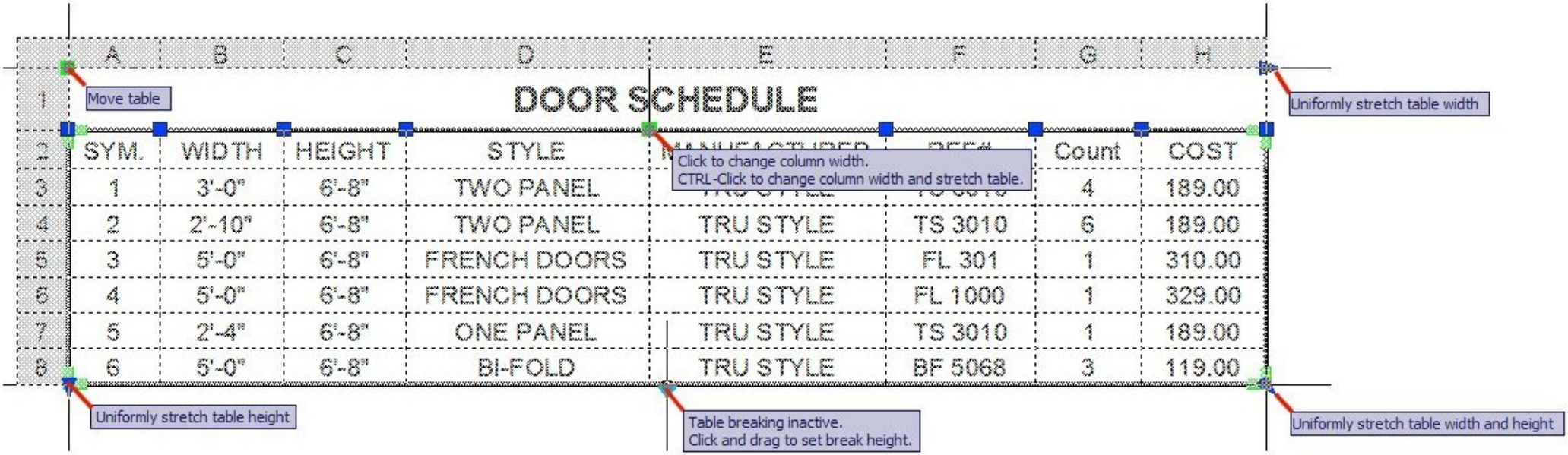
- Before AutoCAD 2005
  - If you wanted to extract attribute data and use it to create a table inside AutoCAD, you had to extract to an external file and then import it back into AutoCAD
- AutoCAD 2005
  - Added the ability to create tables, but there was still no link between attributes and tables
- AutoCAD 2006
  - Extract attribute data directly to a table
  - If the attribute data changes, the tables can be updated automatically

Tables are different in AutoCAD 2008/09

- Link table data to Excel spreadsheets
- Update data in both directions
  - Changes in spreadsheet causes table to update
  - Changes in table causes spreadsheet to update
- Tools used to create and manage tables have changed
- New tools to automatically fill table cells
- Tables can be broken into multiple fragments with titles and headers repeated for each fragment
- New number and currency formatting
- Extract properties, attributes, and basic drawing info
- Combine spreadsheet data and drawing data in same table
- Table and cell locking…and much more

Table Basics

- A table consists of data organized in a grid
  - Similar to a spreadsheet
  - First row can be a title
  - Second row can be headings



	A	B	C	D	E	F	G	H
1	DOOR SCHEDULE							
2	SYM.	WIDTH	HEIGHT	STYLE	MANUFACTURER	REF#	Count	COST
3	1	3'-0"	6'-8"	TWO PANEL	TRU STYLE	TS 3010	4	189.00
4	2	2'-10"	6'-8"	TWO PANEL	TRU STYLE	TS 3010	6	189.00
5	3	5'-0"	6'-8"	FRENCH DOORS	TRU STYLE	FL 301	1	310.00
6	4	5'-0"	6'-8"	FRENCH DOORS	TRU STYLE	FL 1000	1	329.00
7	5	2'-4"	6'-8"	ONE PANEL	TRU STYLE	TS 3010	1	189.00
8	6	5'-0"	6'-8"	BI-FOLD	TRU STYLE	BF 5068	3	119.00

Modifying Tables

- Click on a gridline to select the entire table, then modify using:
  - Properties palette
    - Style, Direction, Size, Breaks
  - Grips
    - Move, Stretch, Break height (if enabled)
  - Right-click shortcut menu:
    - Style, Size, Property overrides, Export, Table color indicator

NOTE: When dragging to change the width of a column, you must hold down the Ctrl key to change the column width and stretch the entire table. This is the opposite of the way it worked in previous versions.

Modifying Tables (cont.)

- Click inside any cell to select, then modify using:
  - Table ribbon tab
  - Properties palette
  - Grips
  - Right-click shortcut menu

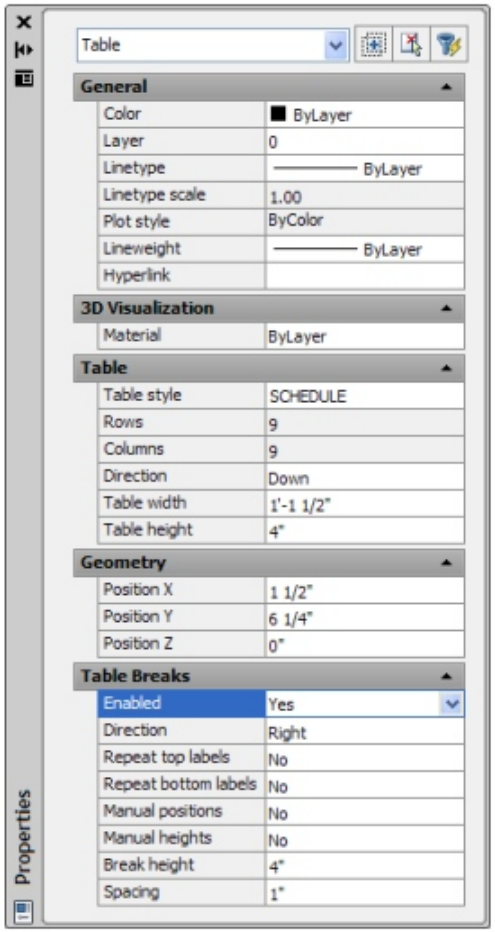
	A	B	C	D	E	F	G
1	DOOR AND FRAME SCHEDULE						
2	DOOR					FRAME MATL	NOTES
3	MARK	SIZE			MATL		
4		WD	HGT	THK			
5	1	1'-3"	2.0	0.04		HOLLOW METAL	--
6	2		2.0	0.04	--	ALUMINUM	--
7					--	ALUMINUM	--
8			2.0	0.04	--	WOOD	--
9			2.0	0.04	--	WOOD	--
10			2.0	0.04	--	WOOD	--

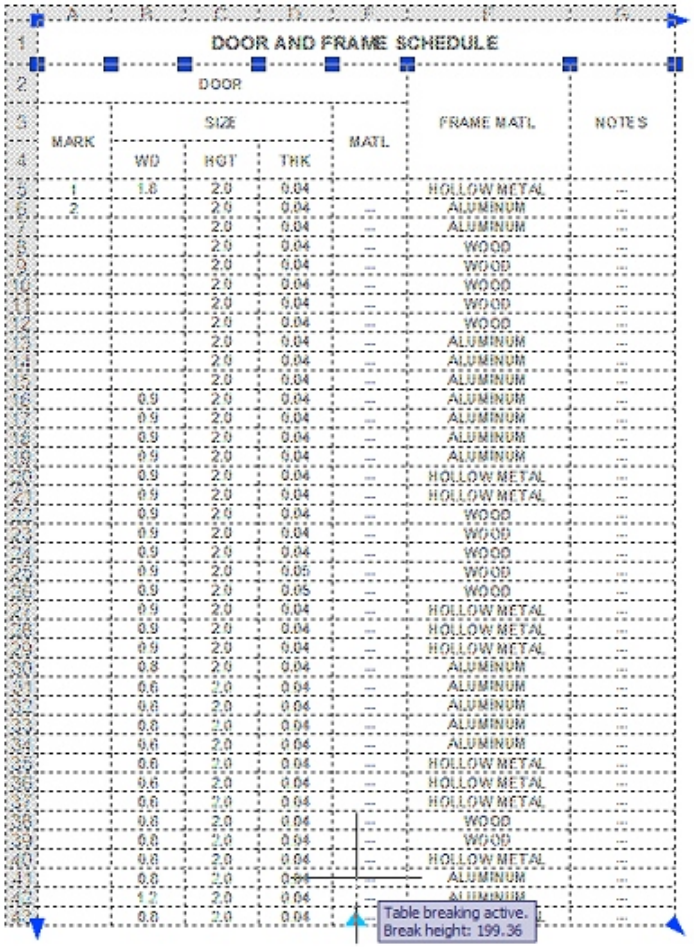
Click and drag to auto-fill cells.
Right-click for auto-fill options.

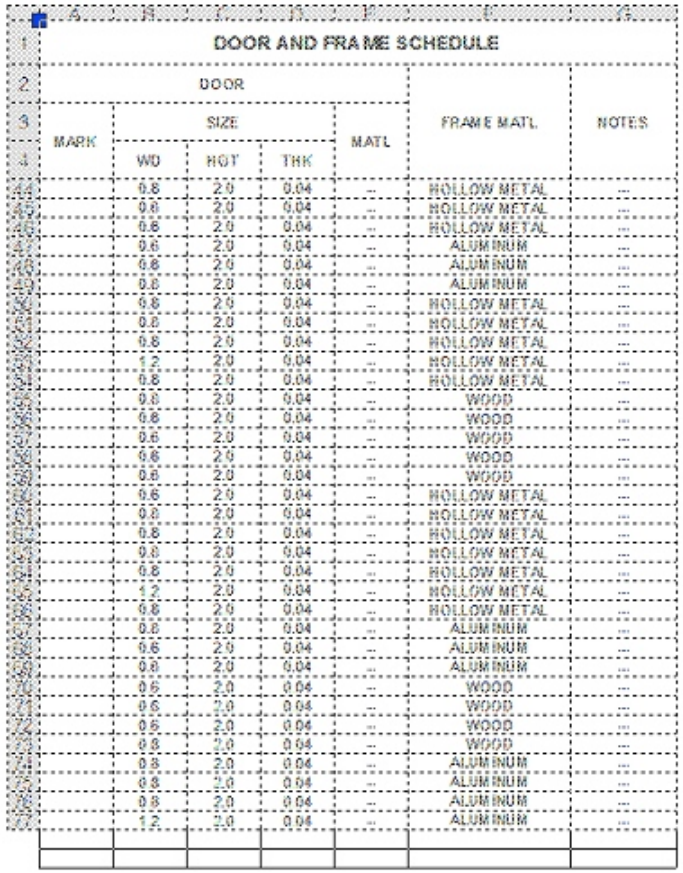
NOTE: When dragging to change the width or height of a cell, the overall size of the table also changes. Holding down the Ctrl key no longer has any effect on this type of change, which is different from previous versions.

Modifying Tables (cont.)

- Breaking tables into multiple fragments



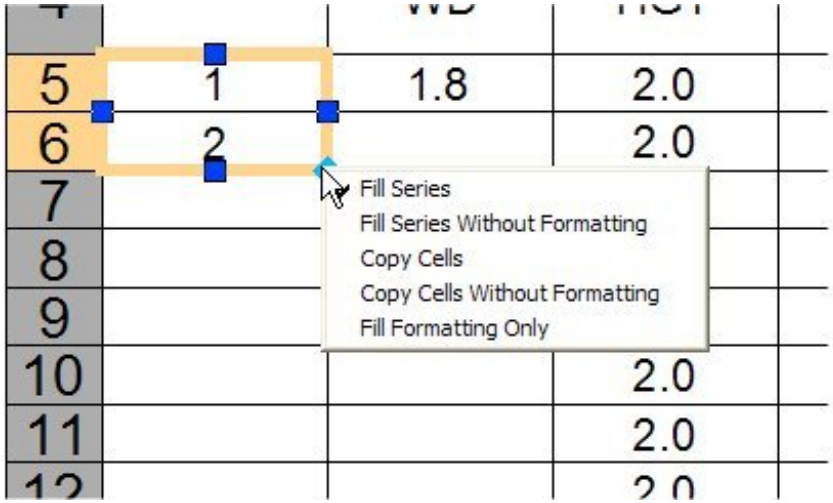


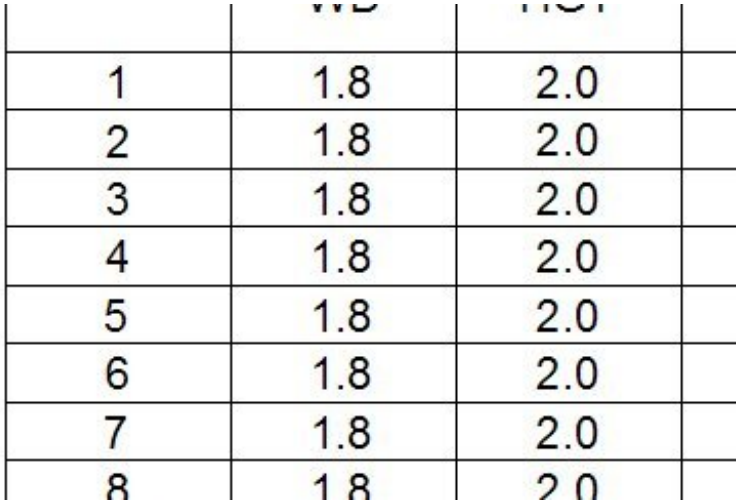


NOTE: Controlled from the Properties palette and accomplished by using the new grips.

Modifying Tables (cont.)

- AutoFill (similar to Excel)





NOTE: Change the AutoFill options by right-clicking on the AutoFill grip to display the shortcut menu.

Table Styles

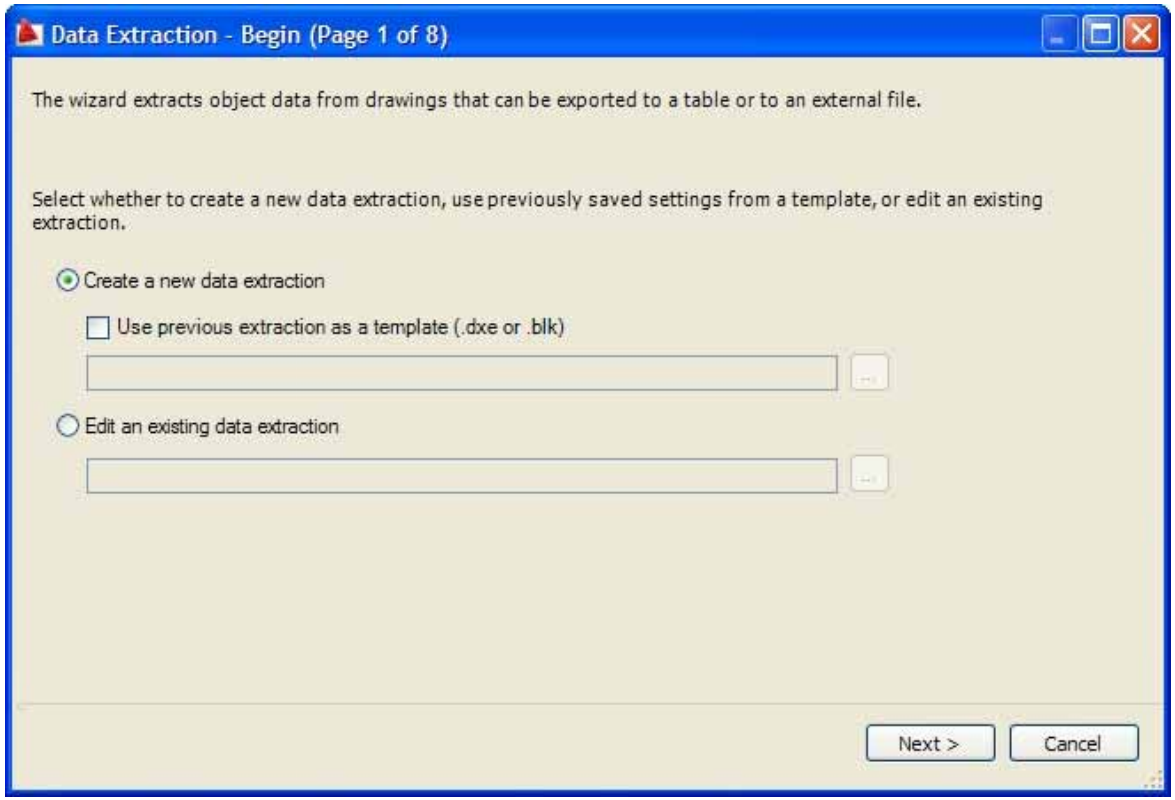
- Appearance of table controlled by table style (similar to text style)
- AutoCAD supplies STANDARD table style
- Controls appearance of text and gridlines
- Appearance of text controlled by text style specified in table style
- Controlled using Table Styles dialog box
- Can use DesignCenter to copy table styles from other drawings

NOTE: Tools for creating and modifying table styles have changed significantly in AutoCAD 2008. You can now specify a starting table as an example and copy its structure and contents. Cell styles can be created and applied upon insertion of a new table and you can specify different cell styles for each cell. Table Style dialog box vastly different than previous versions.

The Data Extraction wizard has changed

Steps for the new wizard:

- Select the source data
- Filter objects (blocks and non-blocks) and select properties to be extracted
- Organize and refine extracted data
- Merge Excel data with extracted data
- Choose output format
- Format extracted data



NOTE: Extraction settings are saved in a new type of data extraction (DXE) file. You can use an attributed extraction (BLK) file as a template, but must save to DXE.

WARNING

Until you install Service Pack 1 for AutoCAD 2008, tables created from data extracted from dynamic blocks will not display properly, although the data extracted to an external file will be correct.

SYM.	WIDTH	HEIGHT	STYLE	MANUFACTURER	REF#	Count	COST
1	3'	6'-8"	TWO PANEL	TRU STYLE	TS 3010	2	189.00
2	3'	6'-8"	TWO PANEL	TRU STYLE	TS 3010	7	189.00
3	5'	6'-8"	FRENCH DOORS	TRU STYLE	FL 301	1	310.00
4	5'	6'-8"	FRENCH DOORS	TRU STYLE	FL 1000	1	329.00
5	2'-4"	6'-8"	ONE PANEL	TRU STYLE	TS 3010	1	189.00
6	5'	6'-8"	BI-FOLD	TRU STYLE	BF 5068	4	119.00

DOOR SCHEDULE

SYM.	WIDTH	HEIGHT	STYLE	MANUFACTURER	REF#	Count	COST
		6'-8"				1	189.00
						1	189.00
		6'-8"		TRU STYLE		1	189.00
		6'-8"	TWO PANEL	TRU STYLE	TS 3010	1	189.00
		6'-8"		TRU STYLE	TS 3010	1	189.00
		6'-8"		TRU STYLE	BF 5068	1	119.00
		6'-8"				1	329.00
						1	310.00
						1	119.00
		6'-8"		TRU STYLE		1	119.00
		6'-8"				1	119.00
2	3'	6'-8"	TWO PANEL	TRU STYLE	TS 3010	3	189.00
2		6'-8"	TWO PANEL	TRU STYLE	TS 3010	1	189.00
5	2'-4"	6'-8"	ONE PANEL	TRU STYLE	TS 3010	1	189.00

	A	B	C	D	E	F	G	H
1	SYM\U+002E	WIDTH	HEIGHT	STYLE	MANUFACTURER	REF\U+0023	Count	COST
2	1	3'	6'-8"	TWO PANEL	TRU STYLE	TS 3010	2	189.00
3	2	3'	6'-8"	TWO PANEL	TRU STYLE	TS 3010	7	189.00
4	3	5'	6'-8"	FRENCH DOORS	TRU STYLE	FL 301	1	310.00
5	4	5'	6'-8"	FRENCH DOORS	TRU STYLE	FL 1000	1	329.00
6	5	2'-4"	6'-8"	ONE PANEL	TRU STYLE	TS 3010	1	189.00
7	6	5'	6'-8"	BI-FOLD	TRU STYLE	BF 5068	4	119.00
8								

NOTE: Be sure to install the Service Pack to correct this problem.

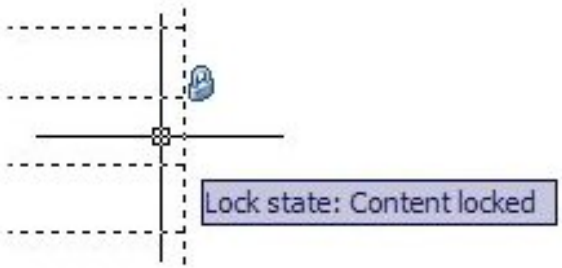
Performing Calculations in Tables

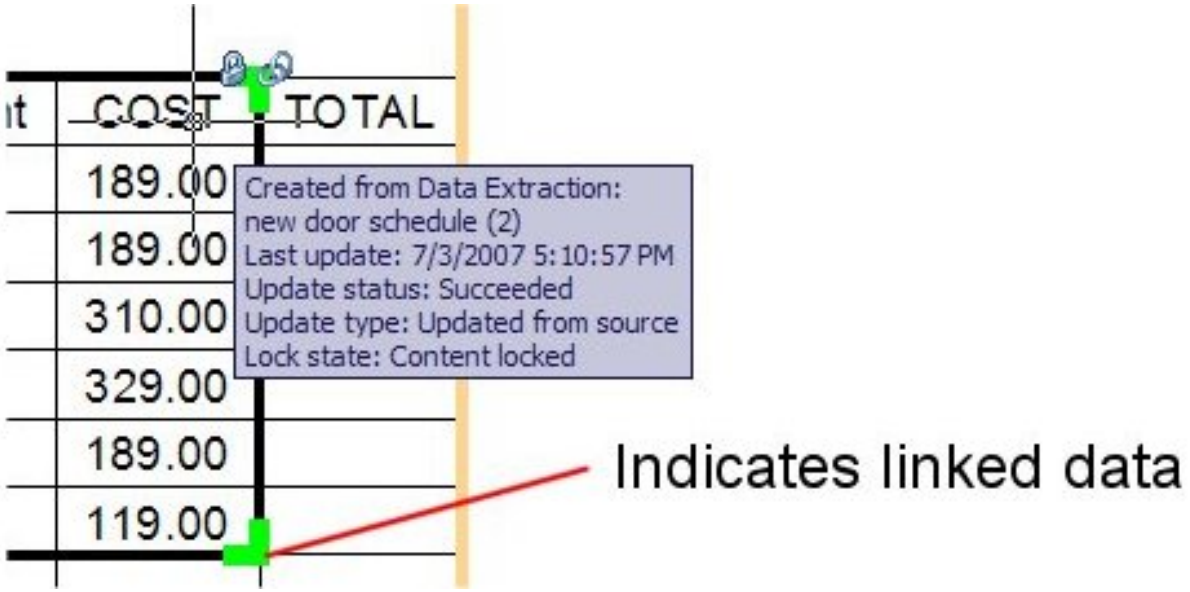
Table cells can contain formulas that do calculations using values in other cells:

- Cells are referred to by column letter and row number (just like MS Excel)
- Formulas must start with an equal sign
- Errors display as #
- You can type, use the shortcut menu, or use AutoFill

	A	B	C	D	E	F	G	H	I
1	DOOR SCHEDULE								
2	SYM.	WIDTH	HEIGHT	STYLE	MANUFACTURER	REF#	Count	COST	TOTAL
3	1	3'-0"	6'-8"	TWO PANEL	TRU STYLE	TS 3010	4	189.00	=g3*h3
4	2	2'-10"	6'-8"	TWO PANEL	TRU STYLE	TS 3010	6	189.00	
5	3	5'-0"	6'-8"	FRENCH DOORS	TRU STYLE	FL 301	1	310.00	
6	4	5'-0"	6'-8"	FRENCH DOORS	TRU STYLE	FL 1000	1	329.00	
7	5	2'-4"	6'-8"	ONE PANEL	TRU STYLE	TS 3010	1	189.00	
8	6	5'-0"	6'-8"	BI-FOLD	TRU STYLE	BF 5068	3	119.00	

Cell locking and linked data

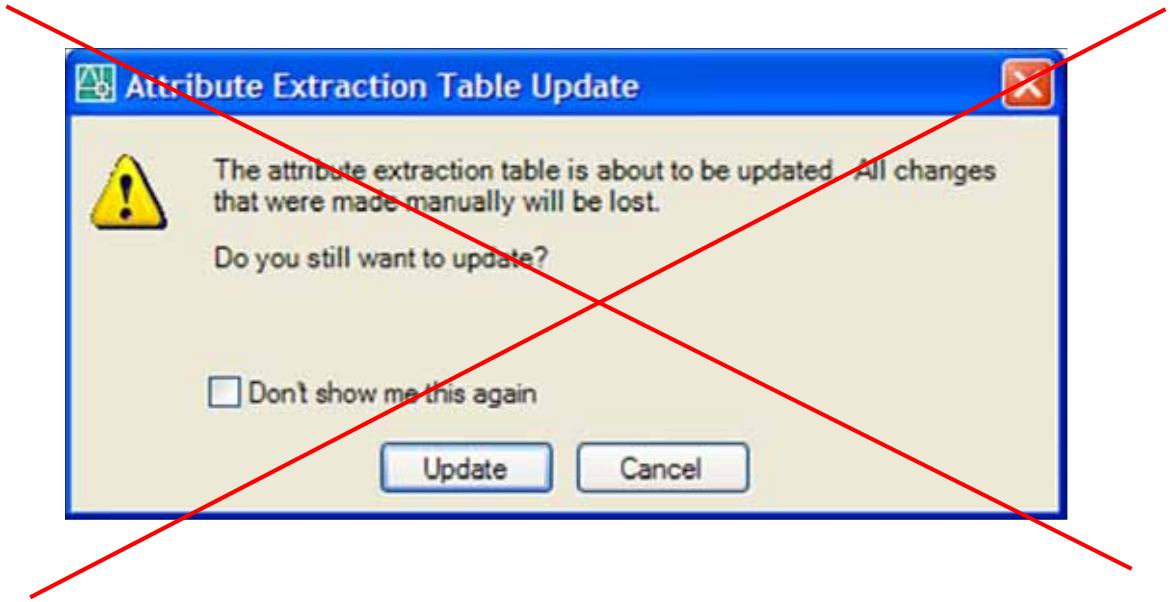




NOTE: Tables created using the Data Extraction wizard are initially locked. You cannot do anything to a cell while it is locked. Unlock using Tables toolbar or right-click shortcut menu.

If you make manual modifications to a table, such as adding columns and/or rows to perform calculations, those changes will no longer be lost when you update the table.

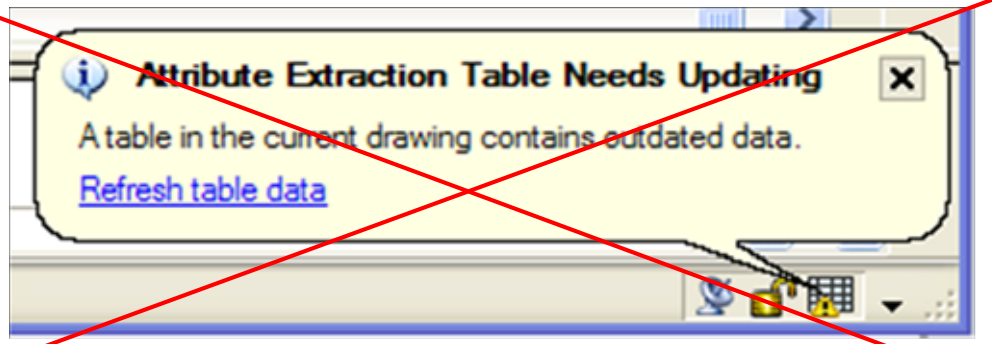
GOOD NEWS



NOTE: But if DXEVAL is set to update data extraction tables automatically, some manual modifications WILL BE LOST!

In previous versions, AutoCAD would display a notification balloon if attribute data used to create a table was subsequently updated.

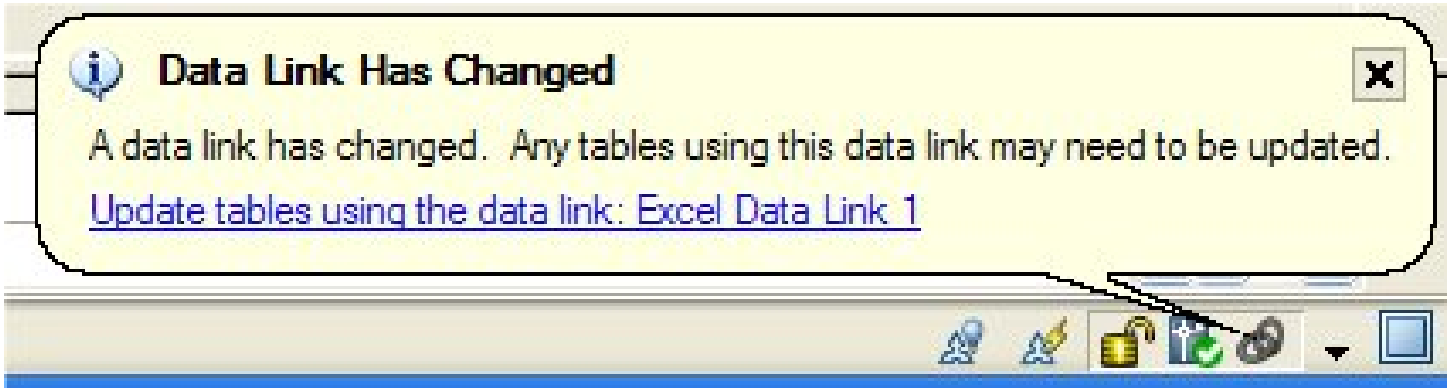
BAD NEWS



NOTE: AutoCAD 2008/2009 no longer alerts you when the attribute data changes. You will need to manually force the table to update.

If you've linked an Excel spreadsheet to an AutoCAD table, if changes are made to data in the spreadsheet, AutoCAD DOES display a balloon notifying you of the changes. You can then quickly update the table by clicking on the link inside the balloon.

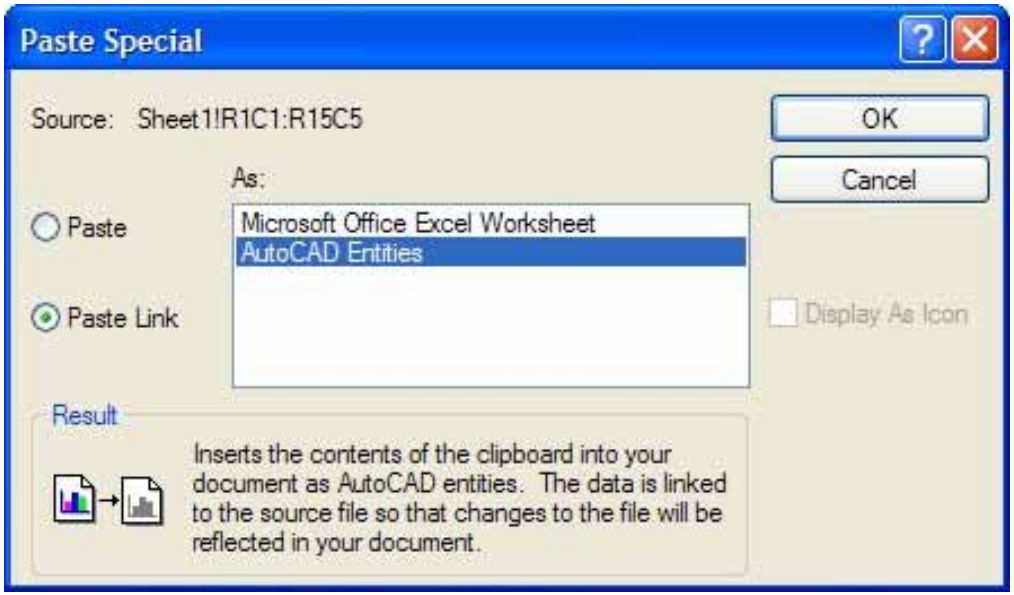
MORE GOOD NEWS



Data Linking

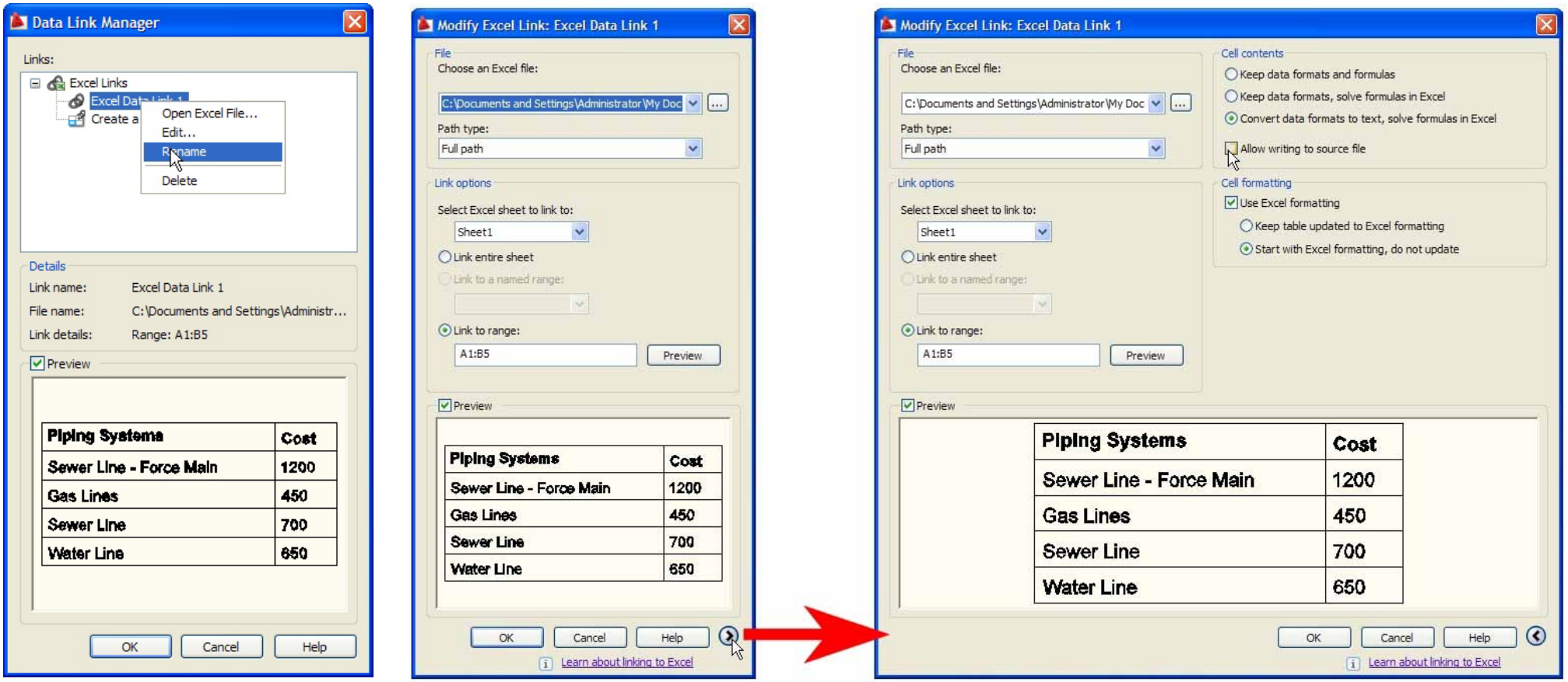
You can create AutoCAD table cells that link to an Excel spreadsheet

- One method
  - Copy data from Excel and then paste using Paste Special



Data Linking (cont.)

- Change the names of data links
- Edit data links so you can write data back to Excel



Combining Extracted and Linked Data

You can create a table that combines data extracted from properties in a drawing with data from an Excel spreadsheet.

Example:

Combine pricing data from a spreadsheet with quantities from an AutoCAD drawing.

Conclusions

- AutoCAD 2008 and 2009 bring incredible new power to AutoCAD tables.
- Tables are different than in previous versions and there are still some rough edges.

But finally, all users can make tables work for them…

…without any programming required!

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