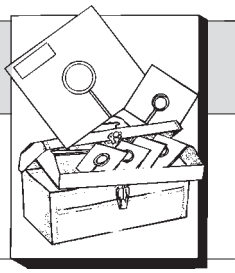
Make a Mac Estimator Program with Excel

by Craig Savage



Spreadsheets, among the most common personal computer programs, are considered by many as tools for accountants.

But on the Macintosh, these powerful programs can be customized to accomplish many useful tasks for the contractor. Using the Excel spreadsheet program by Microsoft, you can make a simple-to-use, but powerful estimator, for a Macintosh. By the way, Excel is available in a version for IBM-compatible computers too.

Spreadsheet Basics

A spreadsheet is very simply an electronic version of the paper columnar pad that almost everyone in business uses daily. Columnar pads are used as check registers, expense reports, job costing journals, ledgers, and virtually any paper list or table you need.

Where the columnar pad uses lines, the spreadsheet uses cells to form horizontal rows and vertical columns. The columns have an alphabetical ordering system, and the rows have a numerical one. The first cell in the upper left corner of the spreadsheet is usually labeled 1A.

You can put numbers, text, or formulas into the cells. The spreadsheet will then change depending on the content of the cells. Nothing more magical than standard arithmetic is usually happening, but it is happening immediately, accurately, and perhaps most important, repeatedly.

Of course, there are other functions available to the formula cells besides addition, subtraction, multiplication, and division. There are trigonometry functions of sine, cosine, and tangent, as well as financial functions such as present rate of return and loan amortization. There are even functions that will look up values and place them in prescribed cells. This later function is useful when you want to have the computer find information in an "electronic" price book.

Along with the number crunching capability of a spreadsheet is text editing, which permits the creation of custom forms, which can be contracts, invoices, and proposals.

Making a Generic Estimating Template

Making the estimating template with the Excel spreadsheet, which is the program I use, is relatively straightforward. Templates, however, can also be made with Mac Calc, Full Impact Macintosh, and Wingz spreadsheet programs that will look and act in a similar way.

With Excel, I first type in the name and address of my company, which will go on the top of all the documents I will produce from this system.

Like most Macintosh programs, Excel uses pull-down menus that are listed on a bar that runs across the top of the screen. Pulling down the "Format" menu, I can select the size and font type for the text. I usually use bold, 24-point, Helvetica for my logo. For those of you unfamiliar with printing measures, 24-point letters are slightly taller than 1/2 inch.

Next, I type in customer information using a new row and a cell each for the name, address, and telephone number. Once again, I use the Format menu to designate the way this information will show up.

Setting the major and minor column headings is done in the same way. Each headings set gets a horizontal row of the spreadsheet. The text is also manipulated with choices from the Format menu.

My major column headings are "Task, Material, Labor, and Notes." The minor headings I use include Item#, Description, Unit, Amt., Unit Cost, and Mat. Ext., (which is the total materials cost). For labor costs, there is a similar set of headings. Total costs are tallied in the Total Material and Labor column (see Figure 1).

I set the column widths according to the heading widths. They can be easily adjusted later if a wider column becomes necessary to neatly contain the information.

Filling in the Boxes

Once the headings and columns are set, it is time to fill in the boxes. Some of the boxes will be filled with numbers that are specific to the job at hand and must be keyed in by you.

Other boxes will be filled with formulas that will use the keyed in information to calculate the desired amount, which is where this template can save time and ensure accuracy.

Cells for the Task, Description, Unit, Amount, and Unit Cost are typically blank on the template, and require entering numbers or text for a specific job. The other cells will have formulas.

To tell Excel that you are creating a formula, you must first type the equal sign (=). Next, by pointing and clicking with the mouse, identify a cell with information necessary to complete the formula. Then type in the desired arithmetic function, such as: multiplication, which is an asterisk (*); division, which is a slash (/); addition, which is a plus sign (+); and subtraction, which is a hyphen (-). To finish the formula, point and click to the other cell with the rest of the information.

In my spreadsheet estimator, the first cell with a formula is the Mat. Ext. cell, which we want to contain the total cost of a particular material. First type the equal sign. Then

Savage Company
P.O. Box 2933 Palm Desert Ca. 92261 619 341 3144

Estimate

Owner	MC CANE	Job Number	
Address	CRYSTAL LOOP	Job Location	SAME
	INDIAN WELLS CA.	Job Tele #	
Telephone		Description	DEN EXTENSION
		Date	

Task		Materials				Labor						Notes
Task No.	Description	Unit	Amt.	Unit Cost	Mat. Ext.	Unit	Amt.	Unit Cost	Sub bid	Labor Ext.	Total Mat.-Lbr.	
1	DEN EXTENSION											
2	DEMOLITION STUCCO & SLAB	EA	2	85	181.5	HR	25	25	0	625	$806.48	INC 2 DUMPSTERS
3	SLAB & FOOTINGS	OYD	1	125	133.4	HR	20	33	0	660	$793.44	INC. STEEL VISQUEEN,DOWELS
4	FRAMING	EA	1	125	133.4	HR	36	33	0	1188	$1,321.44	NEW FRAME & CLOSE IN BDR OPENING
5	STUCCO	JOB	1	265	0	HR	2	33	265	66	$331.00	TO MATCH EXIST.
6	ROOFING	JOB	1	450	0	HR		33	450	0	$450.00	HOT MOP 3 LAYER
7	SHEETROCK	SF	110	2	234.8	HR	4	33	0	132	$366.85	ORANGE PEEL WALLS & CEILING
8	FRENCH DOOR 6'-0" X 8'-0"	EA	1	879	938.3	HR	5	33	0	165	$1,103.33	PEACHTREE METAL INSULATED
9	DOOR HARDWARE		1	150	160.1	HR	2	33	0	66	$226.13	ALLOWANCE FOR MTLS.
10	FRENCH SIDE LITE 3'-0" X 8'-0"	EA	1	485	517.7	HR	2	33	0	66	$583.74	PEACHTREE METAL INSULATED
11	PAINT EXTERIOR	GAL	2	18	38.43	HR	5	33	0	165	$203.43	TO MATCH EXIST.
12	PAINT DOORS	EA	3	100	320.3	HR	1	33	0	33	$353.25	TO MATCH EXIST.
13					0	HR		33	0	0	$0.00	
14	Drawings	EA	1	22	22	HR	6	35	0	210	$232.00	FOR CITY APPROVAL
15	Association Fees	BY OWNER			0	HR		33	0	0	$0.00	BY OWNER
16	Permits & School Fees	BY OWNER			0	HR	4	40	0	160	$160.00	INC. PROCESSING OF PERMIT
17	Plastic Cover & Clean Up	EA	1	25	25	HR	10	15	0	150	$175.00	SITE LEFT "BROOM CLEAN"
18	Liability Insurance	INC			0			33	0	0	$0.00	
	Don't alter this shaded area											
	Sub Totals	#####					122			$3,686	$7,106	
	Contingency									5%	$355	
	Overhead & Supervision									25%	$1,865	
	Profit									5%	$466	
	Total Estimate										$9,793	

Figure 1. *The author used Microsoft's Excel spreadsheet program to produce this estimate. All totals on the estimate are automatically calculated for the quantities of materials and labor keyed in for a specific job.*

Task No.	Description	Unit	Amt.	Unit Cost	Mat. Ext.	Unit	Amt.	Unit Cost	Sub bid	Labor Ext.	Total Mat.-Lbr.
1	DEN EXTENSION										
=A13+1	DEMOLITION STUCCO & SLAB	EA	2	85	=(E14*D14)*1.0675	HR	25	25		=J14*I14	=L14+F14+K14
=A14+1	SLAB & FOOTINGS	OYD	1	125	=(E15*D15)*1.0675	HR	20	33		=J15*I15	=L15+F15+K15
=A15+1	FRAMING	EA	1	125	=(E16*D16)*1.0675	HR	36	33		=J16*I16	=L16+F16+K16
=A16+1	STUCCO	JOB	1	265	0	HR	2	33	265	=J17*I17	=L17+F17+K17
=A17+1	ROOFING	JOB	1	450	0	HR		33	450	=J18*I18	=L18+F18+K18
=A18+1	SHEETROCK	SF	110	2	=(E19*D19)*1.0675	HR	4	33		=J19*I19	=L19+F19+K19
=A19+1	FRENCH DOOR 6'-0" X 8'-0"	EA	1	879	=(E20*D20)*1.0675	HR	5	33		=J20*I20	=L20+F20+K20
=A20+1	DOOR HARDWARE		1	150	=(E21*D21)*1.0675	HR	2	33		=J21*I21	=L21+F21+K21
=A21+1	FRENCH SIDE LITE 3'-0" X 8'-0"	EA	1	485	=(E22*D22)*1.0675	HR	2	33		=J22*I22	=L22+F22+K22
=A22+1	PAINT EXTERIOR	GAL	2	18	=(E23*D23)*1.0675	HR	5	33		=J23*I23	=L23+F23+K23
=A23+1	PAINT DOORS	EA	3	100	=(E24*D24)*1.0675	HR	1	33		=J24*I24	=L24+F24+K24
=A24+1					=(E25*D25)*1.0675	HR		33		=J25*I25	=L25+F25+K25
=A25+1	Drawings	EA	1	22	=(E26*D26)	HR	6	35		=J26*I26	=L26+F26+K26
=A26+1	Association Fees	BY O			=(E27*D27)	HR		33		=J27*I27	=L27+F27+K27
=A27+1	Permits & School Fees	BY O			=(E28*D28)	HR	4	40		=J28*I28	=L28+F28+K28
=A28+1	Plastic Cover & Clean Up	EA	1	25	=(E29*D29)	HR	10	15		=J29*I29	=L29+F29+K29
=A29+1	Liability Insurance	INC			=(E30*D30)			33		=J30*I30	=L30+F30+K30
	Don't alter this shad										
	Sub T				=SUM(F13:F30)					=SUM	=SUM(L1	=SUM(M13:M30)
	Contin									0.05		=L34*M33
	Overh									0.25		=L35*(M34+M33)
	Profit									0.05		=L36*(M33+M34+M35)
	Total Esti											=M36+M35+M34+M33

Figure 2. *To build an estimating template with a spreadsheet, you need to enter the formulas that will calculate total costs from unit costs and quantities. In this template, the formulas appear in the columns Material Extensions, Labor Extensions, and Total Materials-Labor.*

point and click to the Unit Amount cell. Next type an asterisk for multiplication, and finally point

A spreadsheet is very simply an electronic version of the paper columnar pad that almost everyone in business uses daily

and click on the Unit Cost cell. The formula will look like this: =E14*D14. The alphanumeric (letters and numbers) designations are the cell coordinates. The cell formula is essentially saying multiply the number of units used (Unit Amount cell) by the cost of each unit (Unit Cost cell) and put that amount in this cell (Mat. Ext.). A similar formula can be inserted in the Total Labor cell.

Cells with formulas can also be designated as parts of the other formulas. For instance, the cell for Total Costs can contain a formula that adds the Total Labor cell and the Unit Total cell.

Once you are satisfied that a formula is working correctly on a horizontal row of the spreadsheet, it is simple to copy it to the other cells in the same column. This would be necessary, for example, with the materials Total Unit Cost formula. Each part of the job will have a materials expense that will require calculating. And each of those separate calculations will require multiplying the Unit Cost by the Unit Amount. If the columns are set up correctly, the formula can be copied to each cell in a column with the correct letter and number for that row inserted into the formula.

Once this is accomplished, all cells are filled and the body of the estimator is complete (see Figure 2).

Totaling the Totals

The totals section of the spreadsheet can be organized any way you choose. For instance, you may want to show the breakdown of profit or overhead cost, or add them directly to the total of labor and materials for a single total.

The way I do it, is to sub total actual material and labor costs, then break out 5% of total costs for contingencies, 25% for overhead and supervision, and 5% for profit.

Excel makes it easy to add columns of cells by including a function called "SUM" that can be found in the pull-down menu labeled "Formula." Clicking on SUM with the Sub Total box highlighted will leave the word "SUM" and a pair of brackets in that cell. Then, by highlighting the column and clicking on enter, the formula will be complete for that cell. It will look like this: =SUM(L13:L20).

For contingency, overhead, and profit cells, a formula is entered that multiplies the Sub Total cell by the desired percentage. In the Total

The real advantage over estimating by hand is the time savings gained when changes need to be made

cell, another formula is written to add the three additional items to the sub total for materials and labor.

That is the basic way a spreadsheet estimator is set up. The real advantage over estimating by hand is the time savings gained when changes need to be made. Type in the information once at the beginning of the job, and the rest of the estimate will reflect any subsequent change automatically. ■

Craig Savage, a longtime Macintosh user, owns Savage Co. in Palm Desert, Calif., and publishes the Macintosh Construction Forum, *P.O. Box 1272, Sandpoint, ID 83864. If you have a question or comment, write to Craig Savage,* JLC, *RR#2, Box 146, Richmond, VT 05477.*