

BY GEORGE WEISSGERBER

## Accurate Ballpark Budgeting

**Discussing budgeting** can be awkward for the contractor as well as for the client. Many of you probably put together a list of the prices of completed projects to share with clients to help establish a budget. However, I've been in this business for 40 years and have never built two totally identical projects. Many variations impact the eventual cost.

The square footage of a project seems to be the preferred basis for budgeting by contractors, architects, and clients alike. But quoting a single number—for example, \$50 per square foot for a pressure-treated deck—can get you in big trouble. If you bid on a smaller job based solely on the square-footage cost of a larger deck you've built, you won't be charging enough. Conversely, if you bid a larger job based on the square-footage cost of a much smaller deck, your price won't be competitive, and you'll have priced yourself out of a job.

That's because there is an inherent "economy of scale" that should allow you to charge less per square foot for a 300-square-foot deck than for a 150-square-foot deck. Some of the items that cause this price variation

include mobilization, material ordering and receiving, dust protection, trash hauling, inspections, project management, client management, daily cleanup, punch out, and final cleanup.

While you can surmise that your price per square foot needs to be adjusted up or down according to the project's size, you may not know how much to adjust it. By using the calculator I'll discuss here, you can instantly come up with a more accurate ballpark price to share with your clients.

### UNDERSTANDING THE ECONOMY OF SCALE

I began to realize that fixed square-foot pricing was flawed years ago when I started doing estimates using the assembly, or template, methodology discussed in a previous column ("Building a Unit Price," Oct/13).

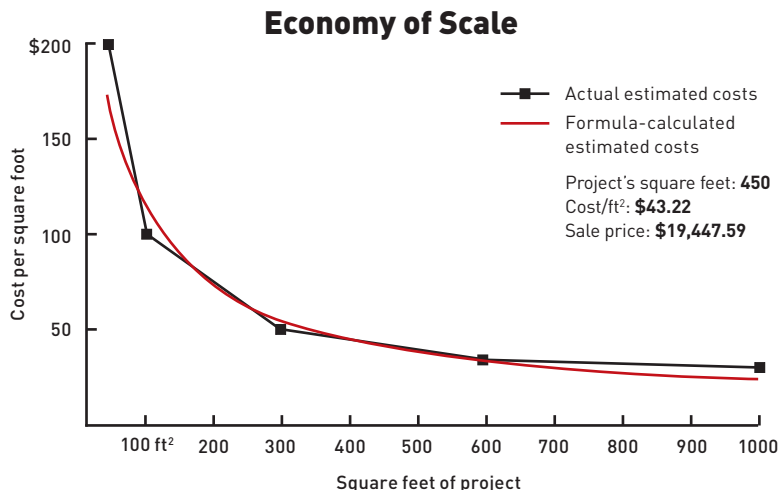
To gain a better understanding of why my assembly estimates did not have a similar cost per square foot, I used the same assembly to estimate prices for five decks where area (50, 100, 300, 600, and 1,000 square feet) and railing length were the main variables.

I divided each price by the square footage of the corresponding project to calculate a price per square foot, then plotted the results for all five on a simple size vs. price chart. I expected the line to descend, but the big surprise was that the plotted line was not a straight line; it was in fact a curve, as shown in the graph at left. (The two lines in the figure are slightly different; the formula creates a curve, whereas the straight lines connecting the plotted points are like steps that the curve smooths out.)

Research showed me that this curve effect, or so-called "efficiency curve," is common in many endeavors of a repetitive nature and is the driving force behind an economy of scale. This curve is the fundamental result of learning and repetition, where the time it takes to do a task falls off quickly at first but eventually levels off at the point where the task is being performed to its highest efficiency.

Not only are there efficiencies in labor, there can also be efficiencies in scope. For example, a three-sided, 100-square-foot, 10-by-10-foot addition requires 30 feet of exterior walls. However, quadrupling the size to a 400-square-foot, 20-by-20-foot addition only doubles the length of exterior wall to 60 feet.

I further reasoned that using this methodology would



If you plot the cost per square foot of similar projects (the graph above is based on a deck), you'll see that the cost per square foot decreases as the square footage of the project increases. The black lines and points in the graph above are actual estimated costs. The formula derived from those estimated costs creates a curved line. The points representing the actual estimates will almost always be lower than the formula-calculated cost per square foot in the curved line, but midpoints on the curve will usually be higher.

be an outstanding way to get a ballpark cost for a variety of remodeling projects.

I have since built a library of Microsoft Excel tools using actual estimates for projects like room additions, add-story additions, basements, and decks, where price depends heavily on size.

If you load a similar library into a laptop or tablet, you can use it with clients. Simply inputting the square footage of the project they are considering will give you a much more accurate ballpark estimate than a fixed square-foot quote. Of course, it is still important to make sure your clients understand that a ballpark estimate is just that and that the complexity of a particular design or custom features will affect costs.

**SETTING UP YOUR BALLPARK CALCULATOR**

To set up your own calculator, you need to know enough about Microsoft Excel to

input data and formulas in a few fields in the program, but first you need to do the following:

1. Do five estimates, using your own tried and proven system, of various square-foot sizes of the same project type. I used a pressure-treated deck as an example here, but you can use any type of project you wish, as long as it's an area-dependent one—such as an addition or deck—and not a material-dependent project, like a kitchen or bath.

Your estimates should include the smallest and largest sizes that you would build and three intermediate sizes spaced out somewhat incrementally, as in my deck example.

When doing your estimates, keep the specifications the same. Adjust only the quantities of piers, beams, ledgers, joists, decking, railings, stairs, and the like, and the miscellaneous job costs, such as mobili-

zation, protection, hauling debris, portable toilets, project management, and cleanup.

2. Divide your five estimated sale prices by the corresponding square footage to obtain a dollar-per-square-foot cost (\$/sf) for each project.

3. Open a new MS Excel spreadsheet and set it up exactly like the one shown below, using the same cells and the same formulas that are listed under “Formulas entered into column ‘B.’”

4. Once you have set up the spreadsheet, you can use it to accurately calculate your budgets for any size project by simply entering the square footage in yellow cell B11.

*George Weissgerber, a senior vice president at Case Design/Remodeling in Bethesda, Md., developed the company's estimating system and handyman division. A working sample of his ballpark estimating spreadsheet will soon be available at JLCOnline.com.*

**Ballpark Estimate Worksheet**

	A	B	C	D	E	F
1	<b>Project Type:</b>		<b>Pressure Treated Deck</b>			
2			Manually enter a simple description of the estimated project			
3						
4		<b>sf</b>	<b>\$/sf</b>			
5	<b>Minimum</b>	50	200			
6	<b>Small</b>	100	100			
7	<b>Average</b>	300	50			
8	<b>Large</b>	600	34			
9	<b>Maximum</b>	1000	30			
10						
11		275				
12					Formulas entered into column "B"	
13		275	<b>Softens \$/sf @ &lt;Min &amp; &gt;Max</b>	=IF(B11<B5,(B5*0.8),IF(B11>B9,(B9*1.2),B11))		
14		\$59.02	<b>Calculated cost/sf</b>	=EXP((INTERCEPT(LN(C5:C9),LN(B5:B9)))*B13^SLOPE(LN(C5:C9),LN(B5:B9)))		
15		\$16,232	<b>Calculated sale price</b>	=B11*B14		

If you have a working knowledge of Microsoft Excel, set up a spreadsheet as above. I've set up this sheet for a deck ballpark estimate. For your own ballpark calculator, enter the square footage of five projects in the green boxes and the cost per square foot in the blue boxes. Then, enter the formulas shown above into cells B13, B14, and B15. Essentially, the formula in B13 adjusts ("softens") the actual square footage if it is less than the minimum project size or greater than the maximum. When you enter a project size in the yellow box, the spreadsheet will calculate a square-foot price in B14 and a ballpark estimate in the orange box to share with your customer.

/APPS THAT WORK/

# Invoicing on the Fly

BY ROBERT POST

When I started my company 12 years ago, I wanted to have every edge possible over the competition. One area I focused on was producing estimates as quickly as possible. In my vehicle, I kept a laptop and printer on which I would produce and print an estimate for most jobs at the very first visit. This proved to be a valuable tactic, as it allowed me to close most jobs immediately.

Flash forward to post-recession 2015—I do the same thing, except with an app on my phone in a paperless fashion. I've been using Invoice2go, the third app I tried, for a few years now. It allows me to instantly email estimates, invoices, and work orders. And I no longer need to lug around a laptop.

For common projects like bathrooms or painting, I simply use templates that I tweak as needed. It takes only minutes to

produce and send an estimate. Estimates for less-common projects take a little longer, but generally no more than 15 minutes. My sales schedule allows for time to send an estimate on the same day as the initial visit, though occasionally I need another day to get feedback from vendors or subs.

When building an estimate with Invoice2go, you can seamlessly select contacts from your phone. After you're finished entering items and costs, hit send, and your automatically addressed email opens up with the attached estimate and a predetermined, customized message for your client. I usually personalize it a bit, which takes seconds, not minutes. I always request a quick reply from clients confirming they received the estimate. This helps identify if it's been filtered out as spam and starts the conversation.

Some of the features Invoice2go offers include:

- Customizable forms and logo integration
- Access from smartphone or computer
- Ability to produce estimates, invoices, purchase orders, and credit memos
- Reports including sales, payments, aging, expenses, profit and loss
- PayPal option for faster payments
- Cloud storage of company documents

Like most productivity apps, Invoice2go has a limited free plan for testing. Plans run from about \$50 to \$150 per year depending on the number of documents produced. Invoice2go has become another important tool in my app toolbox—that is, my smartphone.

Robert Post owns Post Remodeling & Handyman Services, in Oreland, Pa.



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