

Of all the factors that go into an estimate for building a deck, labor costs are by far the most difficult to determine. Material pricing is easy: Count the sticks and bricks that make up the project and call your suppliers for the figures. Subcontracts are easy, too: Call your sub and add his price to your bid. Labor costs, on the other hand, take more effort because there are so many variables that affect the number of hours a project will take to complete: weather, site conditions, job size, design complexity, and crew composition (what I call “the human factor”).

Labor Costs

Five steps to accurate and dependable estimates

by Bob Kovacs

With an organized approach, however, and the help of estimating guides and your own experience, you can set up a system to take those issues into account and make the estimating process easier. First you'll need to determine what tasks make up a project and how you are going to quantify those tasks (for example, by linear feet of railing or by number of footings). Then, to arrive at your labor cost, you'll apply a productivity rate that you've calculated for each task. (You'll also need to establish an hourly labor rate, but that's beyond the scope of this article.)

1

Identify Specific Tasks and Quantities

To price a job, first break it down into distinct tasks. Let's start with a typical deck job, a simple 10-foot-by-20-foot deck, approximately 3 feet above grade. Right off, you know you're going to have at least footings, framing, decking, stairs, and railings on your list; you may want to get a little more specific, as I have in the

example shown here (Figure 1). You can see that I've also identified approximate quantities and units of measure for each task, such as "200 square feet" for installing decking and "3 each" for installing post bases.

Once you've broken your project down like this, the next step is to consult two reliable sources — published guides and your own records — to determine the man-hours and productivity rates for each task.

2

Consult Estimating Guides

A number of publishers, including the Craftsman Book Company (www.craftsman-book.com) and RSMeans (www.rsmeans.com), release yearly estimating cost books full of cost data for an assortment of items. In my career as a professional estimator, I've always recommended using these guides for productivity rates only. I would not use them for actual cost information, as material prices can change dramatically from the time the data is gathered until it's published. Also, hourly labor rates can vary regionally and should be specific to your business, so figures pulled from a book are pretty useless. But, for productivity rates, these guidebooks are an excellent source of reference material, if you keep a few things in mind.

For one, each book has its own baseline assumption. Some use the actual time required to perform each task, but others factor in non-productive time, such as setup and rollout, coffee breaks, and so forth. Most guides provide a page or two up front to explain how their rates are computed.

You also need to pay attention to the complete item description for each task. If the book lists a productivity rate for framing a 2x10-joist system, for example, does that time include installing the ledger, the rim board, and the joist hangers? If you can't tell from the description, you can look to see if related items have their own listings. If

Task Breakdown of a Simple Deck Project

Task	Quantity
Lay out deck/footings	1 lump sum
Dig/prep footings	3 each
Pour footings	3 each
Install post bases	3 each
Set/plumb posts	3 each
Build/set girder	20 linear feet
Install/flash ledger	20 linear feet
Frame joist structure	200 square feet
Install decking	200 square feet
Install stairs	4 risers
Install railings	40 linear feet

Figure 1. The first step in developing an estimating system is to make a list of the tasks involved in a project. Next, the author determines how he wants to measure each task and what the quantities are.

the "2x10-joist system" item doesn't specify whether joist hangers are included, for instance, but there's a separate line item nearby for "install 2x10 joist hanger," then it's probably safe to assume that the time for installing the hangers isn't included in the system rates.

Be aware, too, that general size and scope of projects vary from book to book. Productivity rates found in a repair and remodeling cost book are probably far more realistic and appropriate for a residential deck contractor than rates pulled from a commercial-construction guide

geared to projects that are typically much larger.

While estimating guides can provide data for tasks you've never done before or never tracked your time on, the figures in the guides need to be taken with a grain of salt. Even if you understand the issues listed above and believe you've found an appropriate book for the type of projects you're estimating, you should still keep in mind that the productivity rates are typically compiled from national averages. Several dozen (or even several hundred) companies may contribute data to the book's publishers, and that data is then statistically analyzed to arrive at the printed figures. Consider that your "mileage may vary," and that you could be estimating less time (a bad thing) or more time (a good thing, provided it doesn't price you out of a job) than you'll actually need to complete the project.

3

Track Actual Task Hours

Because of the potential pitfalls of estimating guides, the best possible labor productivity figures for you and your company will come from tracking time on your own projects. Whether you're already running your own company or still working for someone else, you should keep a pocket notebook to note the time spent on different tasks. At a minimum, you should also jot down the following information:

- Weather: Was it exceptionally hot or cold, making it difficult to keep working? Did rain turn the site into a slick mud pit?
- Site conditions: Was the site on a steep slope? Were you working in a huge backyard with plenty of room for material storage and a production area, or were you building a 10-foot-by-20-foot deck in the 12-foot-by-22-foot backyard of a townhouse?
- Material availability: Was all the material you needed on site or was it stored 300 feet away in the street? Did you have to cull through piles of bad material to get what you needed?
- Job size: Is this a 100-square-foot deck, or a 2,000-square-foot deck, and how does that affect your productivity?
- Design complexity: Was the project a 10-foot-by-20-foot box or a four-level, curved deck?

- The "human factor": Who performed each task? Did you work alone, or did you have help? Who was helping, your lead carpenter or the new guy?

By tracking the time spent on different tasks, you'll begin to see the effects that these factors have on productivity rates. If you find that framing a 10-foot-by-20-foot joist system took four hours on a mild, sunny day, for instance, and it took six hours to perform the same task on a cold, rainy day, you can quickly see that the bad weather caused a 50 percent decrease in productivity (assuming everything else was equal).

You should also track nonproductive time, which will help later when you're computing hourly rates. As in the sample notebook sheet (**Figure 2, page 4**), a record of activities includes a lot of information that can be used to determine productivity rates (among other things).

In my sample day, 18 man-hours were worked (assuming that the company does not pay for lunch). Of those 18 hours, one hour was spent on setup in the morning, one hour on cleanup at the end of the day, and a half-hour on coffee break. That leaves 15.5 production hours, which is approximately 86 percent of the total paid hours.

The 200-square-foot joist system in this example took 11.5 man-hours to frame, not including joist hangers. This is a productivity rate of 0.0575 hours per square foot (11.5 hours divided by 200 square feet).

However, the joist hangers took 0.75 hour to install. We didn't identify those as a separate task in our list in Figure 1, so 0.75 hour needs to be added to the 11.5 hours already allotted to joist-system time; and when the joist-hanger time is accounted for, the productivity rate becomes 0.0613 hour per square foot (12.25 hours divided by 200 square feet).

Laying out the decking and installing the first 50 square feet took 3.25 hours, which would yield a productivity rate of 0.0650 hours per square foot of decking (3.25 hours divided by 50 square feet).

If we tracked the next day's activities and found it took 7.5 hours to install the remaining 150 square feet of decking, the rate on that day would be 0.0500 hours per square foot (7.5 hours divided by 150 square feet). This number makes it look like we worked faster on the second day,

Sample Day on the Job

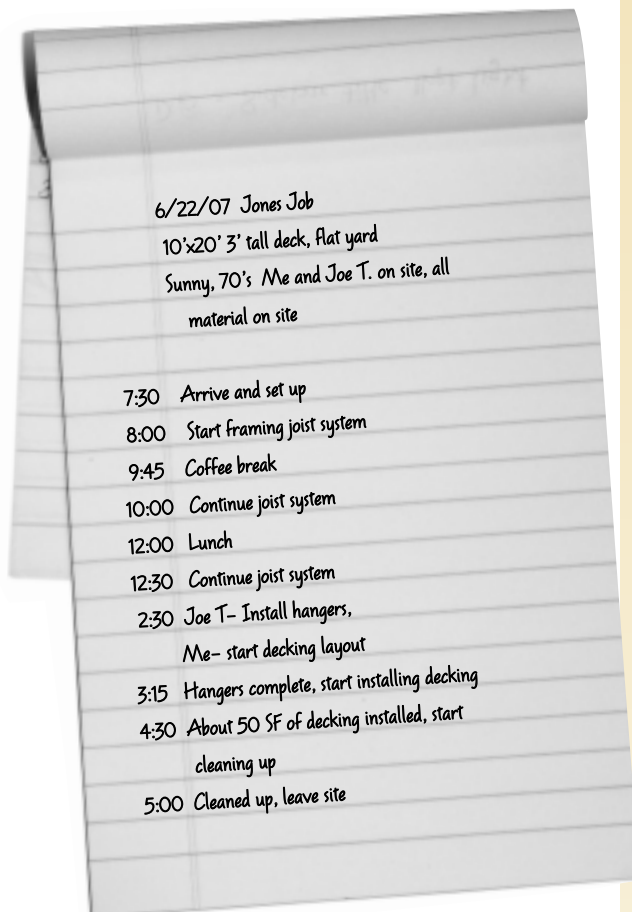


Figure 2. Records of actual production time provide the best data for creating future estimates. Conditions such as weather, project size, crew composition, and anything else that might affect productivity should be noted.

until we take into account that the first day's activity also included the time taken to lay out the decking pattern and get started.

Combining the two figures tells us that it took 10.75 man-hours to complete the entire task. Dividing this by the full 200 square feet of decking gives us a productivity rate of 0.0538 man-hours per square foot, which is probably a more accurate accounting. It is also likely what we would have seen if all the layout and installation had occurred on the same day.

4 Compare Your Data With the Estimating Guide

Once you've compiled some productivity figures from your own projects, you can compare them with the figures listed in the estimating guide for the same tasks and get a better feel for how well the guide applies to your company. Then you can use the book more comfortably when computing productivity rates for new tasks that you've never tracked yourself.

Let's say, for example, you need to prepare an estimate for installing composite decking with concealed fasteners, but you've never tracked your time for this task before. You know that your actual time for installing $5/4$ -inch-by-6-inch cedar decking with exposed fasteners is approximately 20 percent higher than the time shown in the estimating guide. Thus, you can likely assume that applying a similar variance in your current situation will give you a reasonable estimate. But if you used the book data without having that point of reference, your actual hours for installing the decking would likely have exceeded your estimate by 20 percent — which wouldn't be good for the bottom line.

5 Organize the Data

So, you've been scribbling notes and times in a pocket notebook for six months, and you've tattered the pages of a few estimating guides. Now, what do you do with all this information? The answer depends on how you currently prepare

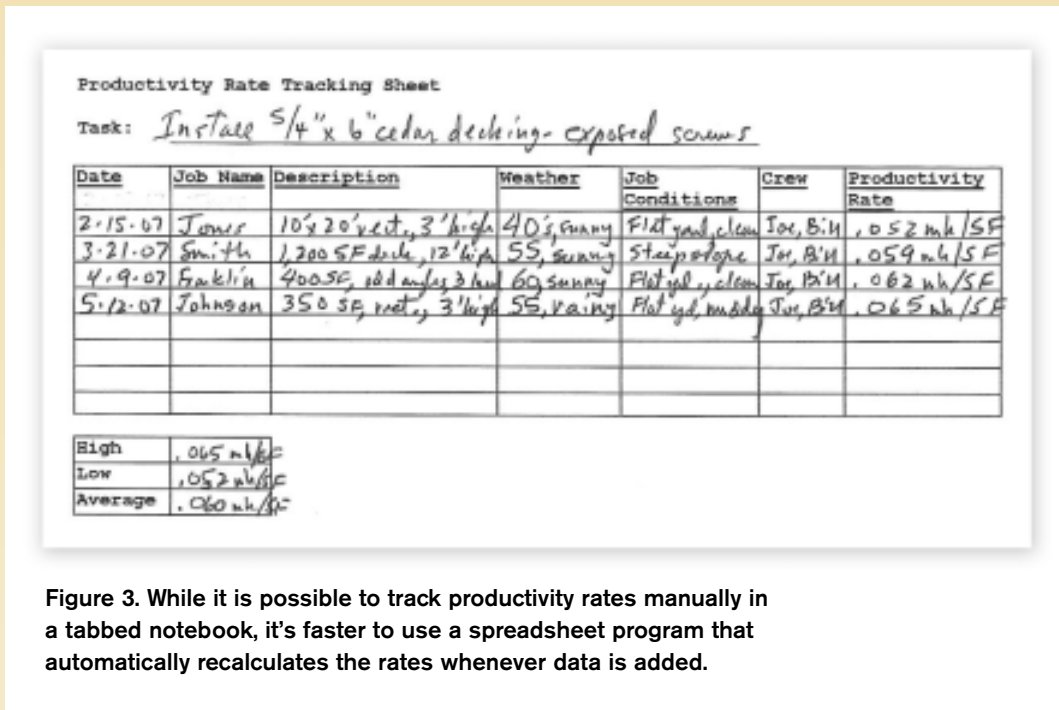


Figure 3. While it is possible to track productivity rates manually in a tabbed notebook, it's faster to use a spreadsheet program that automatically recalculates the rates whenever data is added.

your estimates and how you plan to prepare them in the future.

If you're still using a yellow pad and a pencil to prepare estimates, you can compile all the productivity data for your tasks in a three-ring binder, with tabs for different types of tasks. You might have a tab for footings and foundations, one for structure, another for decking, and still others for railings, stairs, accessories, and so forth. Each tab could then contain a sheet for each task within that category, on which you've recorded productivity data for that task from previous jobs. You should transfer all the pertinent data that you've collected from each job, so that you can get a good understanding of what caused the differences in productivity rates for the same task on different jobs (**Figure 3**).

While the manual-entry system obviously works, it has its drawbacks. You have to manually compute all the productivity rates — highs, lows, and averages — and every time you add another piece of data, you need to recalculate the rates. Also, the information is all contained in one book, which creates a major problem if the book is lost, stolen, or damaged.

By placing the information in a spreadsheet

program such as Microsoft Excel, you alleviate the problems noted above and gain the ability to build your estimates quickly and accurately. If you're new to spreadsheets, there are plenty of reference books available (in bookstores and libraries) to help you learn how to track data and prepare estimates.

You can also look into canned estimating software. Like estimating cost books, most estimating software packages come preloaded with productivity-rate data, and like the books, much of this data can vary dramatically from your actual figures. By inputting your own data into the program in place of the preloaded data, however, you can get all the benefits of the automation and other features of the software, as well as more accurate estimates.

While estimating labor costs can seem daunting, especially for those new to the business, with a few simple tracking tools it can become almost as easy as getting that material quote faxed over from the lumberyard. ♦

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