BY DAVID GERSTEL

Nail Your Labor Productivity Numbers

Note: This article is the third of a four-article series adapted for JLC *by David Gerstel from his new book,* Nail Your Numbers: A Path to Skilled Estimating and Bidding.

Estimating labor costs for an in-house crew is the most severe challenge facing estimators. That's not surprising, because labor cost is the most difficult number to get right in cost forecasts for many types of production. In manufacturing, actual labor cost often varies from the projected "ideal" cost of labor by 100%. By the time bathroom breaks, overly long pauses for lunch, chattiness, absenteeism, turnover, equipment breakdown, and the impact of hazards on the factory floor have been figured in, labor hours actually spent to produce a given item may bear no resemblance to the hours projected in a manager's quiet office.

In construction, the factors eroding labor productivity are even more varied than on the floor of a manufacturing plant. Among the most impactful:

- **Weather.** Heat can sap workers' energy, cold requires cumbersome clothing, and rain or snow will turn worksites into muddy bogs or treacherous obstacle courses.
- **Distractions.** Sometimes, designers or clients hover around the worksite distracting tradespeople. I once had a client who stopped my lead carpenter several times hourly with suspicious questions. I told the client that if he wanted his job well done, he should knock it off. He did, switching to equally distracting lavish compliments several times an hour.
- **Injury.** It can knock a crew lead out of commission for an extended period, throwing a job schedule out of whack and lowering productivity.

Given all the pitfalls, how do we best take on the challenge of estimating labor costs for a new project? Before I give you my idea, let me mention two approaches about which I am dubious. The first is the use of cost catalogues—whether in digital form or as paper books with their hundreds of pages of tables of material and labor costs. The problems with the catalogues begin with their admonishment that you must not just pluck a number from a book, but have to run the number through a gauntlet of modifications to adjust it to your particular circumstance. The problems end with the announcement that after you have forked over your money for the catalogue and done all the work of retailoring the numbers, you alone are responsible for the validity of the costs you have come up with. The publishers disclaim responsibility—though they will eagerly take credit for your success if you happen to get your estimate right.

> He did not try to dignify his process with fancy language. Before I could characterize it, he described his estimator's use of job cost records with dismay. "We just shuffle around, going back and forth between half a dozen of them," he said. "You can really go down the rabbit hole."

The second dubious approach is reliance on "job cost records." Such records do have value for tracking costs on projects while they are under construction. And for estimating, they are more useful than the catalogues; they are at least records of your own cost experience rather than the fictional average of a multitude of other builders' costs like those offered in the catalogues.

Even so, for the purpose of estimating the labor costs—as opposed to monitoring a project—job-cost records are of marginal value for three primary reasons:

- **Don't record productivity.** Job-cost records may record only the dollar costs of phases of work, not productivity—the hours of labor spent on the work. And because wages and the related burdens (like unemployment insurance) fluctuate, the dollar cost of labor done in, say 2014, is likely to be useless a few years later, or even sooner, for estimating costs for a new project.
- **Units not practical.** Job-cost records typically report figures for assemblies that are too large to be useful for precise estimating. For example, costs will be monitored for the framing of a project in entirety—from setting the mudsill through sheathing the roof. But for estimating for future projects, you need cost figures for more finite units, such as wall frames; wall sheathing; floor joists; subfloor; rafters; installing new windows in existing walls; replacing an

existing wall with a beam and posts; and the like. Knowing the labor hours for framing a whole project will not get you much past guesstimating the cost of framing another project that is not identical in all respects.

- **Mismatched to the project.** Job-cost records are not easily accessible. How do you use them for estimating? You shuffle through old records hoping to find one for a project that at least vaguely resembles the one you are now estimating. "Hmm," you say to yourself. "The framing for this addition we did for the Westbrook family in 2016 looks like it's about the same scope of work as this new one for the Durants. Wait! No, the Durant's is maybe 20% smaller. Okay. We'll figure Durant will use 80% as much labor as Westbrook did. Or maybe we should go with 75%. No, that feels too tight. Let's go with 85% of the labor we needed at Westbrook. That feels safer."

When I was interviewing builders as part of the research for my new book, one builder took offense when I asked, "So you are saying that you sort of shuffle through your job cost records to project costs for your crew's work on a new project?" He preferred to think of his process as a "primitive yet effective iterative procedure" in which he went back and forth between records for old jobs and the estimate for his new one until he had a figure he hoped was about right. Later, I interviewed one of his prime competitors who, as it turned out, uses a similar "iterative" process. But he did not try to dignify it with fancy language. Before I could characterize the process, he described it with dismay. "We just shuffle around in the job-cost records, going back and forth between half a dozen of them," he said. "You can really go down the rabbit hole."

There is a much better alternative for estimating labor productivity: It is described in a five-word phrase, which we will break down word-by-word. Here's the phrase: *Narrative Historical Labor Productivity Records*. In my new book, there are eighteen samples of such records. One is shown here, at right.

The records are *narratives* because they tell the whole story of the installation—in the case of the illustrated sample, that is the story of installing a new foundation in place of an old one. Every story involves characters, place, and time. As you can see in the record, the story of the foundation involved four primary characters—the crew members Frank, Daniel, Smitty, and Kevin—and also a capable engineer and good clients. It took place on a sunny, dry, flat site during the spring. And it used 534 hours of labor—or 3 hours per linear foot.

The records are *historical* because they report actual events. In other words, the hours per unit productivity figure is nonfiction. It's the real deal. It is not the sort of fictional average you encounter in cost catalogues.

The records are about *labor productivity* because you get a labor productivity number, a cost per unit of work—in this case, the 3 hours of work per foot of new foundation—on the bottom line. That unit cost is useful! It's what you are after. Here it is figured for 175 feet of foundation. But if a future project includes 142 feet of foundation replacement to be built by a similarly capable crew under similar conditions, you can apply the unit cost and estimate that the new work will take 426 hours (142 x 3 = 426).

And the records are *records*, because they are not mere memories but are written down.

In summary, what we have here are *narrative historical labor productivity records*. For short, you can think of them as "labor productivity records" or just "labor records." When I first began keeping my labor records, I wrote them out by hand on a pre-printed form. Now I word process them, print them out, and organize them in a three-ring binder. I find it very efficient to just flip through the pages in the binder, coming to records for items in the same order—the natural order of construction from foundation through finish—as they occur in my estimating spreadsheet. But you might prefer to keep

DAVID GERSTEL / BUILDER
Labor Productivity Record #7

ITEM OR ASSEMBLY: Foundation Replacement
Included: Layout, trim trench, set rebar & ABs, install concrete, strip & clean, backfill, remove extra soil.
NIC: Shoring, Remove (E) foundation & excavate.

QUANTITY & DEGREE OF DIFFICULTY of ITEM: 175 l.f. 18" x 18" footing. 12" x 16" stem. Tough work. Low crawl space. Crew on knees much of time.

PROJECT: Replacement foundation for two-story 1908 house. College Ave.
TIME OF CONSTRUCTION: Spring
CLIENT: Schneider – Delightful. Kids named dolls after crew!
DESIGNER: Pe (engineer). Really good drawings. Responsive.

ACCESS: Low crawl space. Flat lot right on quiet street with parking.
WEATHER: Sunny. Dry.
OTHER FACTORS: Crew morale high due to weather and clients.

CREW CAPABILITY:
Lead: Frank P. – Highly experienced and efficient.
Journeyman: Daniel M -- Good -- 3 yrs. w/Frank.
Apprentice: Smitty – A bull. Worked for Frank on several earlier jobs.
Laborer: Kevin, steady worker from labor pool.

HOURS PER CREW PERSON:
Lead: 162 hrs.
Journeymen: 146 hrs.
Apprentice: 146 hrs
Laborer: 80
TOTAL HOURS: 534

HOURS PER UNIT: 3 hrs/l.f.

Sample labor productivity record. Think of a productivity record as a narrative telling the story of an installation, in this case of a foundation replacement. Like any good story, it includes characters, time, and place—the crew that did the work, the time it took them to complete the work, and the site where they performed the work. Crucially, the record boils time down to a unit cost, which in this case is hours per linear foot, that can be used in future estimates.

the records in a computer folder, in turn divided into subfolders, one for each division of work in your estimates. You can then open subfolders for the relevant divisions and click open the needed records for items and assemblies as you work your way through your estimate. Whether they are in a binder or in computer folders, after building many estimates with use of your productivity records, you will hardly need to refer to them. You will have them memorized. You will move fast, yet produce accurate estimates.

There is one hurdle every builder has to clear in order to create reliable labor productivity records: That is getting crew leads to produce the reliable time cards from which those reliable records can be created. Doing so is a challenge in and of itself. It is one I address in *Nail Your Numbers* and that, perhaps, I can discuss in a future article.

Once you have mastered time-card production, accumulating a basic set of records is a task that can be accomplished with a couple of hours of work a week over a year or so. From six or eight remodel projects, you can gather a varied collection of records by compiling half a dozen from each project. From construction of a single house, you can build basic records useful for all future house estimates. You should, however, go beyond building basic records for three reasons. First, as new materials come into use, you will want records of your crew's productivity for installation of those materials. Second, you will want to create records for unusual items and assemblies, like framing an eyebrow dormer. And third, because your crew will probably evolve—even if you run the kind of company where employees are treated with respect and fairly paid so that turnover is very low—you will want to add records for your newer crew formations.

You will find it valuable to accumulate records for differently sized units of work—from small items to complicated assemblies, from installation of a header in an existing wall to standing a wall frame with all work from layout through plumbing and lining and sheathing included. You might even want records for yet more extensive assemblies, say a wall assembly with not only framing but also windows, insulation, WRBs and flashing, rainscreens, and cladding all included.

Whatever your choice, you will want to bear down especially on developing records for what I call the "slipperies," the greased pigs of estimating, those items that frequently elude estimators and escape inclusion in bids altogether. Blocking is one such slippery. It's easy to dismiss it as minor miscellaneous stuff and skip over it entirely in an estimate. But one veteran estimator I interviewed for *Nail Your Numbers* bore down on the cost of blocking. She discovered that it consumed as much as 4% of total framing costs on complex new homes! That amounts to a substantial portion of the potential profit associated with the framing.

Of course, creation of thorough and accurate estimates involves much more than nailing your labor costs via reliable labor productivity records. You need, among other things, a comprehensive spreadsheet and checklist. You need a process for producing accurate takeoffs. You need another for gathering reliable supplier quotes. And you must have a system for obtaining comprehensive sub quotes so that you do not end up holding the bag for overlooked items. That system is the very subject I will take up in my next article.

Here I would like to conclude by requesting that if you have not already done so, please start building your file of narrative historical labor productivity records as soon as possible. They are the essential stepping stones out of the quagmire of estimating via cost catalogues and job-cost records. No one should spend their career in that swamp or have the experience of the builder whose project manager told me, with dismay, "he still misses framing costs by 50%."

That builder is a friend of mine. I respect him because he relates to his crew with great respect for their abilities and looks after their needs as well as his own; and because, as a result, his crews produce excellent work and his clients adore him. But it's taken my friend decades to realize that he needs to develop a file of labor productivity records, that it won't do to flounder around in job-cost records and mis-estimate his costs by such wide margins any longer. There is really no need to delay for so long. Any builder who has not already done so can start building labor records today, or tomorrow at the latest.

David Gerstel has been a builder for over four decades and is the author of Running a Successful Construction Company, *long regarded as an industry "bible." David's new book,* Nail Your Numbers: A Path to Skilled Construction Estimating and Bidding, *is available from Amazon or at the bookseller of your choice. You can contact David via his website, DavidGerstel.com.*

Estimating with your labor productivity records organized in computer files enables you to more easily include photos of the project with each record. Using two computer screens, one for your productivity records and the other for your spreadsheet, allows you to move more efficiently from spreadsheet to records and back.