

Bidding and Building Large Projects

Anticipating what can go wrong
keeps profit margins intact

by Bobby Parks



When I pulled up to the site where I was to build a boat-house pavilion and saw eight telephone poles — the foundation for the structure — sticking 40 feet out of the water, I wondered, What in the hell have I gotten into now?

Projects of that scale can be intimidating to residential deck builders. A lot of experience is needed to estimate, design, and engineer them, and it can be hard to find labor qualified to build them. But the payoff is worth it.

I've worked on many large decking projects, both residential and commercial, including jobs for UPS, Nortel Networks, Atlanta Botanical Gardens, the Centers for Disease Control, and Omni Hotels. I've also done numerous midrange swim- and tennis-club pavilions and decks. The residential jobs I've done have ranged up to \$347,000 and included a deck for Bernie Marcus, one of the founders of Home Depot. Others that I've bid but not built have priced out at over \$2 million.

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Large vs. Small

As far as the bottom line is concerned, it doesn't matter whether you complete many small jobs or a few large ones, as long as you hit your annual sales and profit-margin goals. But the two business models do have different approaches.

Specializing in small jobs requires effective systems for mobilization, processing, and production. If you're doing \$500,000 worth of decks a year at an average of \$10,000 each, you have to move on and off 50 projects, not to mention pull permits, generate HOA letters and material takeoffs, and order Dumpsters and portable toilets for all of them. This approach works for a lot of deck builders — which also means dealing with a lot of competition.

Large projects, with higher average revenues, work in the opposite way. It takes fewer large projects to hit that \$500,000 mark, so you deal with fewer permits and HOA letters, and you don't have as many mobilization chores, as the crews move from job to job less frequently.

There's a difference in risk between the two models too. Small, simple projects are unlikely to have unexpected cost overruns, or slippage, that erode profits, and you usually know within a few dollars what labor and materials will cost, as well as what your profit will be. With a larger, more complicated project, there are more details to miss when you're bidding, and more that can go wrong on site. Plus, if you gross \$500,000 in a year, a \$100,000 project that ends up being unprofitable will have a huge effect on your annual margin. You'll have used up 20 percent of your production capacity for the year and unless you hit abnormally high margins on your remaining jobs, it won't average out.

On the other hand, bidding such a job correctly could make your year. A big job that ends up more profitable than expected by only a few margin points can protect you from margin slippage on other projects or provide an overall surplus for your company.

Be Afraid

The best advice I can give someone bidding large projects is that a little fear is healthy. It's usually better to bid too high and miss the job than bid too low. Underbidding a really large project could put you out of business.

My company commonly builds residential deck projects in the \$25,000 to \$80,000 range, and others go well beyond these amounts. In some ways, the larger decks are just bigger versions of the smaller ones, and my pricing models make 90 percent of the estimating quick and easy (see "Creating Models," page 3).

However, the complexity of large jobs skews my pricing



Although OSHA rarely visits residential deck sites, its inspectors are regulars on commercial projects. The NAHB's *Jobsite Safety Handbook* (a new edition is due out in January 2012) can help you stay in compliance.

models. Anything outside them I estimate based on my costs for time and materials, then add in the margin that I'd like to make. For a large but simple project, this approach will likely result in a smooth process from beginning to end, but if it's a more complex mission, I make allowances, and I carefully monitor and manage the construction process. For example, for a site with steep slopes that might slow framing or require extra time for footings, I'll add time and dollar allowances to my estimate, or if material has to be carried farther than normal, I'll build in money to cover it.

With large projects, I take the position that nothing will go my way unless I push it in that direction. It's harder to turn a large boat than a small one, and mistakes or wrong turns on big jobs can have larger, costlier consequences than mistakes on a typical smaller project. A lot comes down to good planning and coordination. I build a schedule listing the subs and the window of time for each, and I meet with my lead guys to review what's going to be expected of them and when.

Commercial Projects

Commercial projects are a different animal altogether from residential jobs of any size. Bidding and executing the job can be a very formal process. You bid according to commercial specifications, with formal triggers for payments. You may need to post a performance bond to guarantee your performance to the customer. The logistics of getting your crews and materials onto a corporate site, providing electrical power, developing working relationships with superintendents, and even protecting trees come into play. And while I'm sure all of us comply with OSHA regulations, a residential deck builder can work an entire career without seeing an

Creating Models

The time invested up front in developing pricing models saves hours when you're working on specific project estimates. To create a pricing model, you follow the same procedures as you would for material takeoffs and figuring labor. The difference is that it's done up front and doesn't necessarily use a real project. You'll need multiple models to cover a high percentage of the projects you do.

For example, I begin with a typical 12-foot-by-16-foot deck and do a material takeoff for the framing — joists, deck ledger, columns, outer band material, bridging, and a waste factor. I include hardware as well. I price this material, add in labor, and divide the overall cost by 192 square feet ($12 \times 16 = 192$) to derive a price per square foot.

I create separate models for landings, stairs, stoops, and walkways to more accurately estimate these areas, which are less efficient to build. Size affects efficiency. For example, since a 4-foot-by-4-foot landing averages more footings per square foot than does a 12-foot-by-16-foot deck, landings cost more to build per square foot than do decks.

Footings are a line item in my models, and I figure their cost based on average soil conditions.

I also create separate models for different types of decking — pressure-treated, hardwoods, synthetics — and the associated fasteners. For railings, I calculate the material and the labor cost for 15 feet of each of the various railing systems I offer. Dividing this number by 15 gives a linear-foot price.

Once the delivery costs are established and listed, I create the sales price by including my targeted margin. This can be done using the mark-up method or the divided margin.

OSHA inspector. They do show up on commercial jobs, and it's important to be current on safe work regulations.

A big difference between residential and commercial work is the code that is referenced. Commercial decks are governed by the International Building Code, not the more familiar International Residential Code (see "Commercial Decks Play by Different Rules," January/February 2009, deckmagazine.com); live loads, rail heights, and stair rise and run are all different. The requirements should be specified in the plans, but if something isn't specified, be aware that your default approach may not meet code.

Unlike residential decks, which I design as well as build, commercial decks come with a set of plans and often a phone-book-size stack of specifications that cover everything from material grades to ASTM specs for fasteners. Pay attention to the bid package details to make sure you know what you're responsible for. Midway through the project, you don't want some quality-control fanatic picking up on a spec you missed. Even something relatively minor like using different screws than were specified can cost you big.

I will review the plans and estimate the job no less than three times, each on a different day. I may create special pricing models to be accurate and efficient, or I may have to take the more tedious route of doing material takeoffs and estimating time. An example of a pricing model I created is for a job I did for Nortel Networks. That project had a quarter mile of walkways and a half mile of handrail that wound through a green space, with an occasional observation deck. It also had a couple of bridges that required pressure-treated glulams, and a 30-foot-radius circular trellis. There were two other half-circle trellises that I could have missed had I not looked carefully at the plans.

These structures were outside my day-to-day work, and creating custom pricing models made sense given the scale of the project. To do this, I did a material takeoff and time estimate for a segment of each of the structures, and extrapolated from it to determine an average square-foot or linear-foot price. I began by counting footings and tagging a price to each one. This was easy enough because the footings weren't much different from residential deck footings. I then created models for the walkways and observation decks based on size and commercial live loads (which require joists to be larger or spaced closer together than in a residential deck), and figured labor based on what a residential deck costs — or a little more if justified by differences in construction. I came up with an initial cost by carefully figuring my cost for every 10-foot-by-5-foot section.

The rail was the same as my standard rail on a residential

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Small mistakes in pricing can add up quickly on big jobs. The half mile of railing on this job is the same as the author's standard rail — except it's 6 inches taller. Missing that detail in the estimate would have cost him big.

deck, except 42 inches high rather than 36 inches, so that part was easy. But here's a good example of what can happen if a mistake is made on a big job. There were over 2,000 lineal feet of railing on this job. Imagine what that extra 6 inches of rail height would have cost me if I'd estimated the rail at 36 inches high.

Once I had established square-foot pricing for the walkways, linear-foot pricing for the rail, and a line-item cost for footings, I estimated time for the logistics. Putting a cost on moving material as far as one quarter mile in was tricky. Material had to be moved from a delivery area without using equipment or damaging any area outside of the project footprint. Damage meant fines. Even when I thought I had accounted for everything that could affect the estimate, I went over it again before I submitted the bid.

Although you will need to bid "as shown," don't be afraid to suggest changes. When contemplating large bids, I make detailed notes and a list of suggestions for more cost-effective options. Architects are often generalists. Because I do niche work day in and day out, I may know a better way. The changes I suggest are approved in most cases, although an engineer's review and stamp is required.

Money

On commercial projects you may not get a down payment and you may have to wait 30 to 60 days to see any money at all. Specific paperwork — such as certification by the project manager or engineer that a portion of the work has been completed — may be required to trigger a payment, which can make cash flow an issue. There are ways to work around this. Your bank may open a line of credit for you based on your having a contract for a particular job. Your vendors may allow delayed payments if they understand that a particular project is an opportunity for all involved.

With large commercial projects, bonding may be required.



Commercial stair code differs substantially from residential code. The rise is lower, the run is longer, and the railing requirements are more complicated.

Many general contractors will require a "Performance" or "Bid" bond. This is provided by a third party, usually an insurance company. The bond gives the GC financial recourse if you fail to complete the project as agreed. Bonding is usually available on a per-job basis; you would have to consult with your insurance company. Be sure you understand — before you submit your bid — whether this is a requirement to get the job. Bond cost is based on your track record and a percentage of the cost of the project. A bond for a \$300,000 commercial contract could cost \$8,000, which you would add into the bid for the job.

Balancing Production

A large residential or commercial project can stretch a small business's production capacity. Don't let the occasional large project cause problems with your bread-and-butter residential jobs. When I planned the Nortel Networks project, I already had two months of residential projects on the board for five crews that I had to maintain my commitment to.

I started the Nortel project by having one crew come in for the first few days to lay out the walkways and observation

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A curved trellis would normally be priced out as a one-time project, but since there were several in this job, the author built a pricing model to estimate their cost.

decks. A second crew came in later that week, and a third the second week. In the third week, a fourth crew was brought in, and in the fourth week all five of my regular crews were on site. Then I started bleeding off crews back onto my residential projects. This kept me out of trouble with other customers, and we were able to wrap up the Nortel project in the time allowed. Because I had most of my workforce on this project, I stayed on the job to keep things organized and to maintain efficiency and a good production level.

When we built the Boathouse Pavilion at Harmony on the Lakes, one crew came in for a few days to set the footings and poles. Another crew came for a day to shoot the high-water level from the spillway and transfer it onto the poles to give us a base elevation. Next, two crews teamed up and began framing the skeleton and mounting the Paralams to the poles, before starting the decking. When these two crews moved up to the second level, a third crew moved in to build the stairs and rail systems. Once the top floor was finished, one crew stayed to frame and deck the roof. Precise scheduling again allowed my business to take on a large project without interrupting normal building schedules.

Another option is to hire additional help — subs or hourly labor — for one project. Many aspects of the work are simple enough for outside people to do without much training, but it's still important to keep your regular people involved to assure your reputation is maintained. Hiring outsiders is not necessarily an approach I'd recommend for residential work, though.

Third-Party Supervision

Commercial work entails a level of supervision far greater than is typical with residential jobs. On residential jobs, many homeowners aren't even around during the build. Commercial jobs will have their own construction manager and superintendent that you as the contractor will have to work with regularly. Construction meetings should occur often, but if none are scheduled, make it a point to at least

meet the project manager once you've had a chance to review the plans.

Establishing relationships with the general contractor's superintendents and understanding what they expect is important. In many cases you initially meet with a project manager, but once you start the job you deal with a site superintendent. Getting to know both is crucial. It's kind of like discussing strategy with the general (the project manager) in the board room and then going out onto the actual battlefield with the sergeants (the superintendents). My experience with site supers has been good. As long as you're performing, most will respect you and assist you to get the project done. That's their job. It is different from working for homeowners, who have an emotional stake in the deck and usually little knowledge of construction.

These relationships will travel beyond a single job. I've found that once I've worked successfully with a particular general contractor, he's more inclined to help me get the next project. It's like a referral versus a cold call.

Working Large

If you want to get into bigger projects, start with one that's a larger version of what you usually do, or edge up incrementally into higher niche or commercial work. Large projects, especially commercial ones, have been good for my business, and go a long way toward filling up my building calendar and hitting my numbers for the year. I became licensed in the state of Georgia as a Residential and Light Commercial Contractor for that reason. Building even a moderately sized neighborhood swim deck or tennis pavilion provides not only good work but a perfect marketing piece to display your company's offerings. Just understand that these projects require caution and precision — and the willingness to walk away from bidding the job if you are not sure you have priced it correctly. ♦

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