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# BUILDING UNDERSTANDING

**MANAGING THE CONSTRUCTION PROCESS REQUIRES THAT CLIENTS BE FULLY ENGAGED AND INFORMED FROM THE INITIAL SITE EXCAVATION TO THE RIBBON-CUTTING CEREMONY.**

**BY ERIK KOCHER**

**M**uch as architects would prefer it, a successful recreation center project does not end with the design. At that point in the process, there is still the matter of opening the project to bid and hiring a contractor who can make what is still just a theoretical construct into an actual bricks-and-mortar building.

Unfortunately for the building owner, the construction process requires that to a certain extent he or she let the forces of

nature (that is, economic nature) take over. After all the effort expended on facility planning, budgeting, fund-raising, hiring an architect and design development, the client now watches, helpless, as economic changes force alterations in the carefully conceived plan. Meanwhile, time feels like it is standing still while the project slowly grows out of the ground.

That said, a fully engaged and informed client can help ensure that mistakes during construction do not undo the work of the previous months and years.



**T**here is no best time to send a project out to bid, but several factors should be considered in order to improve the project's chances of receiving favorable bids. Bidding during the holidays (Thanksgiving and Christmas) places additional pressure on contractors and their subcontractors by condensing the actual available time to prepare bids. In the Midwest, bidding during the opening of deer season eliminates some potential bidders. Bidding soon after the New Year produces the most competitive bidding environment, because contractors are planning their workload for the coming year and want to book projects in advance. Also, most material cost increases occur after the New Year, so contractors at that time have a better idea of the material costs associated with their particular trade. In regions of the country where contractors can build year-round, seasonal bidding has little or no effect.

Knowing what other major projects are out for bid at the same time as the project at hand can be a helpful strategy. One university recently staggered the bidding of three major projects (\$150 million worth of construction) to allow more contractors to bid. The hope was that as the projects were bid, the unsuccessful contractors would become more competitive as the pool of remaining projects evaporated. The client should work with the architect and area contractors to better understand the project's bidding environment.

Along with timing, the time allotted for bidding is also important. Not allowing

enough time for contractors to carefully bid a project will either eliminate potential bidders or artificially drive up the overall bid. Common sense must prevail. An average-size project of \$10 million or more requires about four to five weeks to bid. Larger

why bid bond exists, although contractors do not like to use it since it sets a precedent and is costly to the contractor. Recently, a contractor, after submitting a bid, claimed he made a clerical mistake. Review of all of the bids proved the

is not a way to start a good client-contractor relationship.

**A**rchitects should reinforce to their clients the need to maintain contingency monies as part of their total project cost. A five percent to 10 percent bid-



or more complicated projects will require additional time. Holidays should be considered when picking a project's bid date, and Monday or Friday bid dates should be avoided for obvious reasons.

Contractor bids are qualified by what is called a "bid bond," which is protection against a contractor backing out of the bid. The bid bond is a percentage of the total value of the bid, and it is designed to cover the additional cost should an owner be forced to accept the next-higher qualified bid.

A negative situation can occur when an owner accepts a low bid when he or she knows there's an error in that bid. This is

contractor had erred, because the others were all grouped together and his bid was \$300,000 lower. Unfortunately, the client refused to let the contractor out of his bid, and the contractor refused to release his bond. During the next 18 months of construction, an adversarial relationship developed between owner and builder, as the contractor was now in a position in which he had to look for opportunities to squeeze every dollar out of the project. Every attempt should be made to avoid this situation. There is nothing wrong with people being honest in admitting they have made a mistake, but accepting an inaccurate bid

ding contingency, which protects projects from unexpected market conditions and cost creep, is generally recommended.

Bidding contingency should not be confused with construction contingency. Construction contingency is dollars held in reserve for use after the project has been bid. Many large universities use a simple formula to ensure their projects have the necessary bidding contingency. For example, if a project has a \$10 million construction budget, the architect is required to design the project to 90 percent of that budget, or \$9 million. The architect is then allowed to develop construction alternatives totaling 105 percent of



the budget (in this situation \$1.5 million) that can be added in the event that the project bid falls right at or below the budget. The only restriction at state schools with respect to alternates is that bids must be accepted in the order in which they are

maximized. Too many low-value alternates may cause contractors to lose interest in evaluating each alternate carefully, causing them to overprice or not even submit bids on many of the alternates.

Liquidated damages are a contractual device to ensure a contractor finishes a project in a specified time frame. If a project has a flexible opening date, liquidated damages are not necessary. If a project needs to be opened by a particular date because of

bidding principles. Negotiating with one or more bidders after accepting their bid is unethical and, in some states, illegal. Expecting competing firms to continue to reduce their bids by playing one firm off the other is questionable. Accepting a contractor's lowest bona fide bid should not include applying additional pressure to further reduce that bid. If none of the bids are acceptable, the client should throw out all of them and begin the process again.

mean in terms of long-term maintenance, the quality of light and energy consumption.

**C**onstruction contingency, as previously noted, is typically used to cover the additional costs of unforeseen conditions, errors, coordination issues and owner additions to the project, and thus protects the client from unanticipated changes that might occur during construction. A five percent construction contingency will serve



published. (That is also typically true of municipal recreation buildings, but not in every state.) This approach is consistent with the practice of accepting the lowest qualified bid and prevents the reordering of alternates to favor a particular contractor.

The concept of additive construction alternates is a positive means of preventing unknown market conditions from affecting a project. However, selecting too few or too many alternates can limit their effectiveness. Too few high-value alternates (specifying only, say, an additional gym that costs \$1.2 million to build) may allow the acceptance of only one or two alternates before the available budget is

financial requirements or political reasons, and assuming that the schedule is reasonable, then liquidated damages should be considered. If the daily penalty for missing the substantial completion date is too small (say, \$250 per day), contractors will dismiss the importance of meeting the deadline. If the damages are too large (\$2,500 per day), many contractors will pad their initial bid to account for missing the deadline by several days. Weather delays and the definition of what constitutes "substantial completion" can become significant issues relevant to liquidated damages and must be carefully defined before a contract is signed with the contractor. If the client has selected a good architect and pre-qualified an equally good contractor, the likelihood of significant delays, as well as the need for liquidated damages, is reduced.

On the owner's side, there are some generally accepted

Post-bid negotiation should not be confused with value engineering, which can take place with the successful bidder after they have a signed contract.

What is allowed during a typical bidding process is the acceptance of contractor-generated voluntary alternates (substitutions that can potentially reduce the overall project cost). Who better to judge how they might save money in building a project than the contractors themselves? Most project specifications are very specific about the acceptance of substitutions that can potentially reduce the overall project cost. At the same time, the client and design team need to evaluate the quality. For example, the contractor might suggest changing the quality of a particular type of lighting. Initially, everyone might agree this choice would save a significant amount of money, but the client needs to look carefully at what such a change might

most projects, but if the scope of the project involves significant renovation, the contingency should be higher. Owners often will spend contingency dollars to add scope to the project (known as "gambling") before the majority of unforeseen conditions are known, thus taking the risk of running out of contingency dollars before the project is complete. As issues arise that require funding, the client must remove scope from the project or find additional funding.

A good architectural firm will have a clause in its AIA agreement that requires clients to maintain a five percent construction contingency. In a sense, the architect is protecting the client from himself. Experience indicates that approximately one-half to one percent of construction costs are change orders involving unforeseen conditions, errors, omissions and coordination issues. The rest

Good architects should reinforce to their clients the need to **maintain contingency monies** as part of their total project cost.



of the change orders are owner-initiated changes. To state the obvious, when clients do want to make changes in the field, the cost of those changes is subject to contractor price gouging. Pricing at this point sometimes can be twice the value of the work provided than if it had been competitively bid.

The construction industry has a time-tested approval process for assessing and implementing changes in the field during construction. Contractors submit requests for information (RFIs) to the

architect to clarify issues or identify problems on the construction site. Owner-initiated changes must go through the same submittal and review process to request changes, alterations or additions to work being performed in the field.

On some occasions, owner-representatives make changes in the field without notifying the architect or general contractor. An owner-representative might speak directly to a subcontractor about a particular item without checking with the rest

of the team. In one instance, an owner-representative made a water cooler substitution directly with the plumbing subcontractor and failed to notify the general contractor or architect of the change. Once the water coolers were installed, they were found to not be ADA-compliant. To complicate matters, the owner-representative chose to leave the water coolers in place until there was a specific complaint about them. For this reason, it is best that owner-representatives' and visitors' access to the construction site

be limited to times when the general contractor and architect are present.

Adding scope to the project after it has been bid is not in itself a bad thing. If additional funding suddenly becomes available, making changes to the contractor's scope of work becomes necessary. However, as noted above, unless the client has already priced the additions or changes as alternates, there will not be a dollar-for-dollar value for the new work.

Ill-timed decisions during the construction phase can also create problems. Many times there are owner-clarification or product-selection decisions that have to be made, and contractors needed the answers to these questions yesterday. Two weeks is a reasonable time to make a decision, but waiting too long can jeopardize the completion date. Contractors sometimes "forget" to inform owners of the impact their decisions have on the schedule's critical timing; contractors then use the owner's delayed decision-making as an excuse when the project falls behind schedule for other reasons. For example, some finish materials, such as tile, can take several months to be manufactured and delivered to a project. Not making a timely final selection of those tiles can create a problem later when it is time to open the building and some areas lack tile.

Subcontractors and general contractors often have standing relationships with product and material suppliers. These relationships can be a powerful tool for receiving products and materials at a reduced cost. When substitutions are made during the bidding phase and are approved as







equals by the architect or engineer, significant advantage can be taken of these cost savings. However, after a general contractor has signed on to build a project, accepting substitutions at that point only serves to save the contractor money and widen his profit margin. This situation is a constant battle with contrac-

ience. Sometimes the substitutions are absolutely acceptable; in this case, insist that the savings be returned to the owner.

**E**xcluding attorneys, most people are not itching to have their building project end up in court, but sometimes contractors or subcon-

tractors fail to perform as they are required by their contract. The cost of litigation is excessive and is often used as an excuse to not pursue legal settlement. Politics and negative public relations also serve as powerful deterrents to litigation. Most contractor contracts have mediation or arbitration clauses to resolve conflicts, and these clauses remain the most cost-effective

means to settle a dispute. Keep in mind that contractors and their attorneys are savvy in these matters and will leverage an out-of-court settlement to limit the exposure of the institution to bad publicity.

A good working relationship will help keep the attorneys at bay, and building

to increased cost and project delays. Working with the contractor to understand the subtleties of the contractor's schedule can help prevent conflicts and in some cases speed up construction. This is particularly the case in renovation projects in which a contractor can work faster without having to work around users. It might mean entirely vacating a portion of a building, but the contractor can then finish the work and return usable renovated space sooner.

Having unrealistic schedule expectations during construction can have as great an effect on the completion of the project as can the limitation of the design schedule and liquidated damages. The contractor will be signing an agreement that will spell out the anticipated schedule for completion of the project. In some situations, the construction schedule (rather than the cost) may be the determining factor when selecting a contractor. The client should certainly avoid changing the schedule halfway through construction or making unrealistic demands without first understanding the ramifications for the project.

As your project moves closer to completion, remain calm, show patience and remind yourself just how successful your project will be because of your careful planning before and during construction. Good luck, and see you at the dedication. @

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tors. The architects, engineers and owner must band together to hold contractors to the specified products and not allow substitutions.

In some situations, contractors will install an unapproved product without the owner's or architect's knowledge. The owner must stand firm and demand the material be replaced, even if it delays the project or is an inconven-

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owners can help most by being flexible and realistic. Flexibility is often the cornerstone of a successful project. Placing unrealistic demands on the contractor, such as limiting worker parking, enforcing sound limitations, not allowing utility interruptions and, in the case of renovation projects, limiting the contractor's access to certain areas of the facility can lead