

Construction is plagued with problems, many of which wind up on civil engineers' doorstep. In truth, however, about 99 percent of the problems would be 100 percent avoidable were it not for owners' often-futile efforts to enhance profits or protect the interests of the ever-sacred taxpayer despite the well-known fact that there's no such thing as free lunch.

Imagine, if you would, a project whose enlightened owner assembles a team of design professionals through qualifications-based selection (QBS), meets with team members to discuss the project, and requires them to communicate, coordinate, and cooperate throughout the design, construction, and post-construction phases.

Knowing that bidding is an absurd process, given that the winner is selected based on a proposed price that virtually never is the price ultimately paid, the owner decides to select the general contractor on the basis of – gasp! – QBS. The owner starts the process by selecting three highly qualified contractors to independently review – *for a fee* – the design professionals' submissions, to assess their buildability, check for errors, omissions, and potential code compliance issues, and identify value engineering options. The owner informs the three that the quality of their reviews will be a major determinant in selecting which one gets the job.

The design professionals incorporate many of the contractors' suggested changes, and complete their plans and specifications without leaving *anything* (e.g., wire gauge sizing, structural connection design) to contractors. Then they issue their deliverables to peers who review them for errors, omissions, and code compliance.

The owner enters into negotiations and ultimately reaches an agreement with the contractor deemed most qualified. The contractor submits a price that is lower than it would otherwise be, knowing that far fewer contingencies are involved, and that the contract includes an equitable means to validate and pay for unanticipated conditions.

The contractor takes particular care to avoid problems that are known to cause about 80 percent of all the safety problems that occur on site; i.e., people falling, things falling on people, trench cave-ins, and contact with buried or overhead electrical lines. And to help ensure that plans, specifications, and recommendations are properly interpreted and implemented, all design professionals, all contractors and subcontractors, and the owner are well-represented at a preconstruction meeting that also establishes lines of communication that will exist throughout the construction process. In addition, the geotechnical, structural, and civil engineers have personnel on site full-time during construction of their designs. Other disciplines are on hand to check construction of their designs, too, on something far more than an "occasional site visit" basis.

Once construction is complete, the work is thoroughly commissioned. The design professionals and contractors cooperate in development of a maintenance manual and an

operating manual. Initial operation and maintenance crews are trained, and then monitored for the first year.

The likelihood of problems arising? Slim to none. And what's the likelihood of seeing such projects in our lifetimes? Also slim to none, because so many owners believe that there *is* such a thing as free lunch. And those are precisely the same owners, in many cases, who also believe that it is perfectly appropriate to develop contracts that use exculpatory wording to force design professionals to accept the risk created by their shortcuts. One of the reasons they adopt such attitudes is the bad advice they get from attorneys who say, in effect, "It's okay to ignore everything the construction industry has ever learned about risk management. We can put words in the contract that will make the civil engineer (or structural engineer, geotechnical engineer, etc.) responsible in case problems arise."

Some of the most common contracting techniques these lawyers suggest include contract provisions requiring the design professionals to abide by "the highest standards," or to indemnify the owner even for the owner's negligence, or to make the owner a named insured on the design professional's professional liability insurance policy. Owners need to know that attorneys who suggest such contract language evidently don't know much about the issues they're advising about, and serious problems can result. Future columns will provide details on the specifics. Here it should suffice to examine some of the more general problems.

First, design professionals' acceptance of certain risks does not mean the owner is protected. Real protection exists only when design professionals have the money required to compensate for damage or injury, and are willing to pay it. In reality, the deep pockets are almost always furnished by insurance, and insurers are almost never willing to pay it, meaning that compensation, if any, will be derived only after a lengthy, debilitating, and costly legal battle. Owners who claim they still have come out okay have probably overlooked the value of the time they've had to spend. Everything ASFE has learned in more than three decades of case history research shows the money saved by avoiding disputes is far greater than the amount saved by lowering costs and increasing risks that Party A then tries to shove down the throat of Party B.

Second, many astute design professionals that accept onerous contract provisions lower the resulting risk through design. While this does not necessarily mean that the foundation for an outhouse will be based on piers drilled to bedrock, it does mean that off-the-shelf, conservative approaches will be used, often costing the owner far more than other procedures might. Those who have designed projects in less litigious nations know well how much more innovative they are at liberty to be.

Third, onerous contract provisions encourage each project participant to proceed defensively, protecting itself at the expense of others. This approach seriously erodes the communication, coordination, and cooperation that are so essential to successful projects, and it encourages the win/lose gamesmanship that so often leads to delays, claims, and disputes.

Because of experience, we know exactly how to construct with low risk. The disputes that plague construction, and make it so unnecessarily costly, are created by those who believe they can force others to eat the risks they create. It doesn't work out that way.

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