Construction method

How to choose which construction approach best suits your purposes

Interviewed by Adam Burroughs

There are several methods of design and construction that can be used on a project. Each determines who produces the designs, who performs the construction and who is liable in the event of litigation.

The type of project, whether public or private, its level of technical sophistication and the time frame in which it needs to be finished determine the preferred method.

Smart Business spoke with T.G. Davallou, partner and head of Alfa Tech's San Francisco office, about the different methods, what they entail and which is better for a given situation.

What are the differences among the methods of design and construction?

Traditional design-bid-build features a consultant who will design the mechanical, electrical and plumbing (MEP) systems for the building, the construction of which is put out to bid. The contractor with the winning bid then performs the construction.

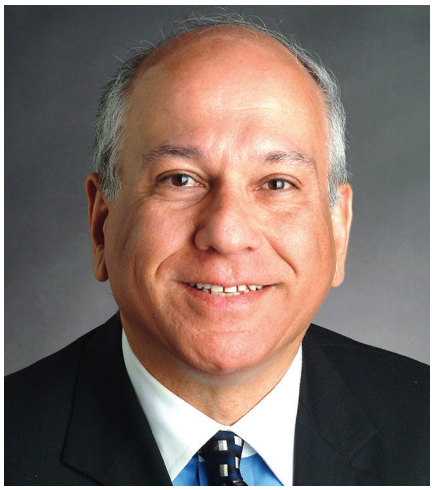
Design-build means the MEP consultant writes the performance specifications, which provide the design criteria for the project, then hires a design-build contractor who finishes the design based on the specifications and performs the construction.

Design-assist entails a MEP consultant who realizes the design and draws it up to 50 percent completion before bringing the contractor on board. The contractor becomes the owner of the documents and completes the designs. The MEP consultant in this arrangement remains the engineer of record.

Are each of these practical in different situations, or should one always be chosen over the other?

The most sophisticated or innovative projects are either full design-bid-build or design-assist through integrated project delivery. Even though design-build contractors are getting smarter and have greater resources than before, they can't compete on the engineering side with traditional consulting. If you look at simple tenant improvements that don't have any design elements, design-build makes sense. But if it's an innovative design or a complex project, like one with renewable energy or façade natural ventilation, these resources need a true consultant and not just a contractor, so design-assist makes better sense.

Business owners are getting smarter and are looking at overall life cycle costs of buildings instead of just the initial costs of the building's design. They consider initial construction, utility, maintenance and replacement costs over the life of the building, which means design-bid-build or design-assist is more appropriate.



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The schedule also has a big impact. There's no way traditional design-bid-build would do a proper job with no issues on a high-rise building that needs tenant improvements in two months. Design-build would be better in this case. Scheduling has a large impact on which method should be used.

Who should a company appoint to serve as a liaison between the contractor and itself to stay on top of the process?

Typically an owner will recruit a project manager or construction manager first if he or she is not sophisticated enough to oversee the project. That person is the conduit between the business owner, the architects/engineers and the contractors. The construction manager is a third party who manages the whole process for the owner and has input on who is hired, such as the architect and engineers. Scheduling and costs also come into their recommendations to the owner.

Which method is used more often today?

Design-bid-build was the traditional method from the 1970s until the mid-1980s. Contractors weren't very sophisticated or knowledgeable enough to handle entire projects from designing the specifications to completing the construction, so they relied on architects and consultants for design and to be liable for any issues. Beginning in the mid-1980s, the method shifted because numerous legal claims came out against contractors constructing public properties, such as state/county hospitals, institutional facilities, educational facilities and libraries, after the projects ended.

The problem is that public jobs are awarded to low bidders, as state law dictates. This often resulted in changes to the design or materials used during construction so the contractor could keep the project on budget. The owner of the building didn't want to spend money on litigation, which is why the design-build concept arose because it reduced or eliminated change orders. The contractor in this method is the owner, designer and builder so legal discrepancies are reduced because there are fewer change orders.

Design-build contractors, it was later discovered, were not really giving top quality because the interest from public entities is low initial costs, so contractors were cutting corners, which led to systems not performing as they should. Thus, design-build declined as the preferred method of construction.

Now 'big campus' designers have found other ways to get a better design. With so much interest in Leadership in Energy and Environmental Design, projects are getting more sophisticated, so property owners are looking at how to get the most efficient systems without claims or lawsuits against the contractor at the end. This led to the establishment of the design-assist method, where a consultant can introduce the most innovative design and then become a partner with the contractor. The consultant brings the design up to 50 percent, meaning all the design elements are there, and it's just a matter of coordination to make sure ductwork fits, etc. The contractor can't change the specifications by, say, undersizing the ductwork, because he's the engineer of record and the designer stays involved though the project's completion.

When does litigation become a greater concern?

During a construction project, all parties are legally liable. Litigation issues happen mostly with public contracts. For commercial jobs the construction manager has pre-qualified and negotiated with a selected contractor. However, with public projects, the low bidder gets the job, which usually results in a lot of change orders that can lead to litigation. <<

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