
 <p>The cornerstone of confidence™</p>		<p>May 2005</p>
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<p>SEMINARS PinnacleOne Institute</p>	<p style="text-align: center;">What Project Delivery Approach Should I Use?</p>	
<p>SERVICES Program & Project Management Dispute Avoidance & Resolution</p>		
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risk and getting the project built on schedule, or most often heard, on budget. Other owners may judge success by the project's quality and achieving the desired scope. For the other project participants, it is usually, "Did we make money?"

Unlike the other project participants, owners have the ability to decide how the success of their project will be measured and can choose a project delivery approach that matches their priorities - scope, quality, cost, or time? On most projects, success can be defined by the achievement of a number of these parameters, but usually never all four. For example, it is nearly impossible to have high quality or shorten the schedule without adding cost. To choose the best project delivery approach, owners have to decide which project success factors are most important to them and understand the risk in relinquishing control of at least one, if not two, of them to others.

This article will expand discussions on those delivery methods that do not provide an independent representation of the Owner and more risk for all parties.

Design/Bid/Build

With this traditional project method, the owner selects an architect or engineer to design the project to a proposed budget. Only when the plans and specifications are complete, are they released for bidding to general contractors. Once the general contractor is selected, in most cases the lowest responsible bidder, the owner contracts with the general contractor to build the project. The designer often continues to administer the construction phase of the project for the owner; reviewing shop drawings, construction progress, and payment requests; answering contractor questions about the construction documents and resolving change order requests.

The design/bid/build approach is generally best suited for projects when:

- | The owner desires the protection of a well-understood design and construction process;
- | The owner desires the lowest price on a competitive bid basis for known

quantity and quality of the project;

- | The owner has the time to invest in a linear, sequential, design/bid/build process;
- | The owner needs total design control.

This approach also gives the owner the most control. The owner is generally involved throughout the design phase, making decisions on the trade-offs between scope and quality, and traditionally delegating the monitoring of construction quality to the architect or engineer. By allowing all responsible and qualified contractors to compete on an equal low-bid basis, this approach eliminates allegations of owner favoritism, real or perceived, in the contractor selection process.

So what project success factors are owners sacrificing when they use the design/bid/build approach? First, because there is no input from the contractor during the design phase, their input is lost on what may provide the best value in the trade-off between scope and quality. The construction contract is usually performed on a lump sum basis, any savings are not returned to the owner. Design/bid/build projects normally do not allow for fast track design and construction, and as a result, can take more time than those delivered by other approaches.

What about risk? On one hand, there can be less risk because it is the traditional project delivery approach and the project participants understand each other's roles and responsibilities. On the other hand, design/bid/build relationships are generally forced marriages that change with each project. Because all team members are not involved throughout the entire project delivery process, contractor bids may come in higher than budget and long-lead items may not have been properly considered in the design and determination of contract duration. And because the owner has controlled the design through completion and transferred virtually all risk to the contractor during construction, when mistakes or unexpected circumstances arise during construction, adversarial relationships frequently develop between the architect, contractor, and owner as they argue about blame.

Construction Manager @ Risk

This delivery approach is similar in many ways to the traditional design/bid/build in that the construction manager ("CM") acts as a general contractor at risk during construction. That is, the CM holds the risk of subletting the construction work to trade subcontractors and guaranteeing completion of the project for a fixed price negotiated at some point either during or upon the completion of the design (guaranteed maximum price or "GMP"). However, unlike design/bid/build, the CM also usually provides advice to the owner during the design on budget, schedule, and constructibility and construction usually starts before the design is complete.

CM @ Risk has several advantages over design/bid/build:

- | Because construction can often begin before the design is complete, the overall project duration can be shorter;
- | The owner generally gets better estimates of the ultimate cost of the project during all phases of the project;
- | The owner benefits from a contractor perspective in making decisions on the trade-offs during the design phase between cost, quality, and construction duration;
- | Constructibility and design reviews by the contractor prior to bidding often result in better designs and lower trade contractor contingencies and bids;
- | The expertise of the construction manager in pre-qualifying trade contractors helps achieve better performance and workmanship by the trades;
- | The architect and contractor working together during the design portion can result in a better team effort after the GMP is established.

A major disadvantage of the CM @ Risk approach relative to design/bid/build is that it may not be allowable by statute to a public owner. In addition, because it

is not the traditional method, some owners do not fully understand how to successfully implement it and, as a result, rely on the advice of the CM when they should be questioning it. For example, owners sometimes forget that because the CM is serving as an at-risk contractor once a GMP is established, the CM's interests may differ from the owner's during construction.

There also can be more risk for the owner. Like design-bid-build projects, projects built using the CM @ Risk approach are prone to controversy between the CM and the architect over change orders, disputes, and claims when the unexpected occurs after the GMP is in place. This tends to happen more frequently on fast-tracked CM @ Risk projects because when construction proceeds before the design is complete, there is a greater chance of design coordination issues on projects.

Design/Build

With design/build approach, the owner contracts with one entity (the design/builder) to take responsibility for the delivery of their project from the design phase to occupancy. The selection is usually made by soliciting qualifications and price proposals from design/builders, usually teams of contractors and designers, before or during the conceptual design phase of the project. In my experience, the design/builder team is generally led by a contractor resulting in the owner issuing one contract to the contractor, who in turn contracts with a designer for the design.

Where allowed, design/build is generally suited for those projects where:

- | The owner is willing to forego control of design and does not seek a highly complex design program/solution;

- | The owner can provide a complete definitive set of performance specifications and program for design for the design/builder to serve as the basis for the design/builder's proposal and the owner's contract with the design/builder;

- | The owner has realistic expectations for the end-product and a thorough

understanding of risk giving u the control of the design;

- | The owner desires a fast delivery method and is willing to compensate the design/builder team for its assumption of risk for design and construction.

Like CM @ Risk, design/build is often not allowed by statute for many public owners. Because the selection process is not low bid, design/builder selection is largely qualification based and, if not done properly, can be prone to allegations of favoritism.

Design/build can have several advantages for the owner. First, the design/builder is a single source of responsibility for the owner and generally results in the project being designed and constructed in a shorter period of time. Because they are together by choice and one team, the builder, designer, and subcontractors will work together better, at least in theory. Errors and omissions in the construction documents are the design/builder team's responsibility and not passed on to the owner.

Two major trade-offs to be considered by owners considering design/build is the owner's loss of control during design and lack of architect representation of the owner's interest. As a result, the outcome can be disappointing or result in a facility not consistent with the owner's needs or expectations. When this happens due to a lack of clarity by the owner during the design/build proposal and contracting process, the owner may have to pay more to get what it wants by issuing change orders to the design/builder.

The final result of a design/build product is often a mixture of owner/design/builder objectives and interpretations that may fail to meet the original project criteria. The owner is often left to select design option (s) proposals, of which the risk is that it will not be 100% satisfactory. In order to correct these problems indigenous to the design/build process, the use of an owner's consultant is proposed to "bridge" the gap between the owner and the design process, without losing all the advantages of the design/build delivery system.

The bridging consultant allows the owner to maintain control over important

design issues of the design documents usually to the 30% construction document phase, or Schematic Design Phase. Through his own consultant, the owner maintains direct communication with the design process. The existence of a conceptual design which is more compatible with the owner's objectives will usually result in proposals from design/builders that are easier to compare and select, taking price, schedule, quality, and scope into consideration.

So what project delivery approach is right for a given project? To answer this question, the owner needs to define and prioritize at the outset how to measure the project's success and choose a project delivery approach that will take the project in that direction. Equally important, understand the trade-offs between control and risk that come with that choice. Do not expect perfection because no project delivery approach is perfect and none can produce a perfect project. Instead focus your aim on how you choose to measure your project's success.

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