The Basics Of Design-Build

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In the construction industry, Design/Build continues to grow as the project delivery system of choice. Currently, in California, there are many new laws, as well as significant pending legislation, on the issue of Design/Build. Given the rising interest in this type of project deliver system, the purpose of this Construction Newsletter is to offer a primer on Design/Build issues for those not fully familiar with the process.

I. What is Design-Build?

Universally, construction project owners, whether in the public, or private sectors seek timely and cost-effective construction. While there are a variety of views on how best to achieve schedule, budget, and quality, recently there has been a focus upon the method of construction project delivery. There are various construction project delivery systems, the most traditional of which is Design/Bid/Build ("DBB"). For generations, this was the predominately accepted means by which construction projects were developed and delivered. Today there is also a focus on the owner having one primary contractual relationship with an entity that is responsible both for the design and building of the construction project. This project delivery method is called Design/Build ("D/B").1

There are two significant features of D/B contracting that distinguish it from other project delivery methods: 1) the first is the relative simplicity of the Owner having a single point of contact for both the design and construction of the project; and 2) the second significant feature is that the risk for design errors shifts from the Owner to the Contractor.

II. Design-Build Advantages and Disadvantages
There are many potential advantages for all parties in a D/B contract, especially if all the parties understand the mechanics of the process as it applies to their project. No two projects are identical - each will have some unique aspect or combination of aspects that make the advantages of D/B more or less attractive.

A. Advantages

1. Time Savings
By combining the selection of a designer and a contractor into one step, the D/B method eliminates time lost in the DBB process. Further, the D/B Contractor is able to start construction before the entire design is completed. For instance, the D/B Contractor can start excavation as soon as the foundation and utility relocation design has been prepared. Meanwhile, the Design professional can continue design work for the rest of the project during excavation.

2. Cost Savings
Potential costs savings can be realized with the D/B system because it has high value engineering capabilities due to the close coordination between the A/E and construction contractor. Construction contractors have direct and real experience with the cost of purchasing

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and installing materials and, in the D/B system, can share that experience directly with the Design professional during the Design Phase of the project. This process has the potential to translate into lower costs which savings can then be passed on to the Owner.

3. One Point of Contact - "One Stop Shopping"
The one point of contact feature for both design and construction is integral to the D/B system. The advantages of this feature are relative - having only one entity to deal with in many instances will outweigh the oversight benefits an Owner would otherwise get from contracting separately with an Design professional for the project design.

4. Fewer Change Orders
A definite advantage of the D/B system is that an Owner can expect far fewer change orders on a D/B project. However, if an Owner decides it wants a design change during the D/B project, and, that change is not covered by the defined scope of the project, that would be considered an extra. Still, in the D/B system, the Owner is not liable for any errors the Design professional makes because the Design professional is part of the D/B team.

5. Reduced Risk to the Owner
The shifting of liability for design quality from the Owner to the D/B Contractor is one of the most significant features of the D/B project delivery system. The advantage to the Owner is that it now knows from the outset the cost of that risk. As the D/B Contractor is in a better position than the Owner to manage and minimize that risk, this is a significant advantage of D/B contracting.

B. Possible Disadvantages to using the D/B Method

1. Loss of Control of Project Design
In the D/B system, the shift in responsibility for the design from the Owner to the Contractor implicitly includes some shift in control. The Owner should evaluate the degree to which this loss of control will affect the success of the project. If the Owner has specific needs or requirements, it should satisfy itself that it can clearly articulate them in defining the scope of work, or accept the risk that it will have to pay extra to get what it wants via the change order process. Change orders issued to revise scope are not inherently less likely or less expensive in the D/B project delivery method.

2. Less Project Oversight/Control of Quality
As has been discussed, one of the advantages of the D/B concept is the cooperation between the Design professional and the construction contractor because they both are part of the same team: the D/B Contractor. However, this feature can also be a disadvantage, as the architect is no longer the Owner's independent consultant and is now working with and for the contractor. For Owners who do not have their own design-proficient staff, the loss of the architect's input and judgment may expose them to quality control problems. The Owner considering design-build project delivery ignores this issue at its peril. If the Owner is one that is used to having the Design professional act as its agent, it should make plans to have another entity take that responsibility.

3. Suitability of Design-Build Teams
In the DBB methodology, while public agencies are bound by state law to hire the lowest responsive, responsible bidder for construction work, they have more flexibility in selecting designers for their projects. In other words, DBB public owners are allowed to take into account in the selection of a designer more than simply which candidate offered the lowest price. In D/B, the public Owner loses the latitude it had in DBB in selecting a design firm. True, the risk for adequacy of the design has been shifted to the D/B contractor, but that is little solace to an Owner if the finished project is structurally sound but operationally deficient.

III. When Design-Build Should Be Considered
When evaluating whether the D/B methodology would be appropriate for a given project, the following factors should be considered:

A. Schedule
If a project needs to be completed quickly, D/B is an appropriate project delivery system. As discussed previously, in the D/B system, the designer and the contractor are better able to coordinate their efforts to ensure that the work is completed in an expeditious manner. Moreover, another potential time-savings can be found in the administration of the change order process for

correction of changes. Shifting the risk to the party best able to control it is one of the advantages of D/B. Controlling the risk of that change/correction process includes the ability to accomplish it more quickly.

B. Budget
Additionally, the D/B system offers several cost saving advantages for the budget conscious Owner. As discussed previously, cost savings can be realized by shifting more cost control responsibility to the Contractor. A construction contractor may have experience with materials and methods that meet the Owner's requirements but were not considered by the designer. If cost savings result from the contractor's input to the design, those savings should be passed on to the Owner. Additionally, value engineering proposals, for which the Owner may get only partial financial credit under DBB delivery, should be included in the D/B bid price and the entire savings passed on to the owner.
However, cost savings is not always cited as a major outcome of the D/B methodology. Public works projects usually do not have the "time is money" motivation to complete. For example, the sooner a school, library or transit system goes into service, the sooner it requires an operational subsidy.

C. Type of Project
The type of project may be the most significant factor in the choice between D/B and DBB. A good candidate for D/B is a project wherein the performance and form of the finished project is readily described in a scope document. On the other hand, a project in which the Owner has many specific and esoteric requirements would be a weaker candidate for this method. Extreme examples of each will help illustrate this point.

A good hypothetical candidate for the D/B system is a municipal sewage treatment plant which has been found to be in violation of EPA requirements for effluent and ordered by the court to treat its effluent to legal levels by a requisite date some months hence. Every day beyond that deadline that the effluent is out of compliance will cost the municipality in fines. What the Owner wants is to build a new facility in time to avoid those fines. It can probably write a single page performance specification that adequately describes what it wants, and just as importantly, when it wants it. A D/B Contractor with experience in the design and construction of similar plants is most likely to meet the needs of the Owner - a plant that removes the offending components from the plant's effluent stream in as short a time as possible.

An example of a project that is not suitable for the D/B system would be a research hospital. For a project like this, the end-user is going to have specific and esoteric needs that would be difficult to outline in a written scoping document. A facility such as this would be best designed by a Design professional, with direct and frequent communication with its client. Even then, one could expect change requests after construction had started.

1 These articles are derived from program materials developed jointly by Gordon & Rees and Hill International for a series of seminars. Gordon & Rees thanks Allann Ramirez (allannramirez@hillinternational.com) of Hill International for his significant contribution to these materials. Hill International offers extensive project management and construction claims consulting services worldwide. www.hillintl.com

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