



Design-Build — The Single Entity Option

January/February 1997

This article originally appeared in *Independent Energy*.

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Traditionally, an owner hires an engineer to design a power facility or other project and then circulates the completed plans to several contractors for competitive bidding. Although there are many variations on this theme, there is an alternative method which is growing in popularity—the design-build concept. In this construction method, the same entity designs and constructs the facility.

The design builder may be a single firm with both design and construction capacity in-house, or it may be a combination of two or more firms with complementary abilities. If there are multiple firms, they may be structured as a joint venture or with one of the firms prime and the others in a subcontracting role. The critical aspect is that the owner contracts with one entity which has the responsibility for both designing and constructing the facility.

According to statistics compiled by the Design-Build Institute of America and F.W. Dodge DATALINE2, a national reporter of construction statistics and information, from April 1995 to April 1996 the number of design-build contracts increased 103 percent over the previous year. Of a total \$212 billion construction market, about \$37.2 billion—18 percent—was design build. The strongest growth was in the category of industrial—plants, refineries, factories and warehouses—in which the concept use was up more than 300 percent from the previous year.

Growing Option

The growth of design build has been fueled by owners who perceive significant advantages in it compared to more traditional project delivery methods. In fact, there are a number of advantages to consider with this construction option.

Shortened Project Delivery Time

Owners perceive the shorter duration of design-build projects as being the most important advantage offered. When the same entity is both designing and constructing the facility, procurement and initial construction can commence well before design completion. The last months of the design phase overlap the first months of the procurement/construction phase, resulting in time savings compared to the traditional end-to-end sequence. This reduces construction cost and hastens the flow of revenue.

In a traditional project structure, with both a designer and a contractor, it is also possible to begin procurement and construction prior to completion of the design. This is called fast tracking. However, fast tracking has largely fallen into disrepute because of the potential for claims and change-

order abuses. Contractors often claimed that aspects of the design were completed in an unanticipated manner, resulting in sizable extras.

Single-point Responsibility

Nearly as important to owners is the broad scope of the design builder's responsibility for the project. In traditional construction, problems with the project could result in blame being passed between the various parties. In some cases, warranties would not be honored and protracted litigation was necessary to obtain remedies because the designer and the contractor might have blamed each other for the problems.

In design-build projects, one entity has full responsibility for the outcome of the project, except in matters for which the owner is responsible. If a plant fails to develop the guaranteed number of kilowatt hours, the design builder is generally responsible, even if the parties do not know the reason for the failure. In a traditional project, engineers ordinarily do not guarantee their outcome of his work. In a design-build project the engineer's work is subject to and subsumed within a warranty.

Minimized Claims and Changes

One laudable consequence of single-point responsibility is the minimization of claims for extras. In traditional construction projects, a contractor is ordinarily entitled to additional compensation arising out of errors, omissions or ambiguities in the plans and specifications. However, in design-build projects, the designer and contractor are the same entity and cannot request extra compensation on account of design mistakes or assumptions.

There may still be change orders. If the owner changes its scope or program requirements or if the design builder encounters unanticipated, concealed conditions, a change order is ordinarily appropriate. However, the single largest, traditional source of claims and change orders—problems with the design—is not a concern in these projects.

Performance Warranties

Another consequence of single-point responsibility is that it is possible to construct detailed overall performance warranties and to render them meaningful with coordinated liquidated damages clauses. For example, it is common to require the design builder to warrant that the facility will yield an output of a certain number of kilowatt hours and to link that requirement with a liquidated damages clause in the event that the output falls short of the warranty. The liquidated damages could be quantified as the market value of each lost kilowatt hour, enabling the owner essentially to guarantee a minimum revenue stream. The

ability to structure the contract with such meaningful remedies may be critical to project financing.

Overall performance warranties are generally not available in traditional construction projects because of possible disagreements between the designer and contractor. With design build a single entity is sufficiently responsible for the project making such a warranty possible. However, even in design-build projects, the performance warranty will generally have exclusions for defective feedstock or other issues for which the owner is contractually responsible.

Packaging Other Services

Some design builders have taken the concept of single-point responsibility a step further, assuming additional duties in their contracts. It is common to provide turnkey services, which often include performance testing and personnel training, so the facility is ready to operate. Other firms offer financing packages, either debt, equity or leaseback agreements. In some industries, design builders establish operating divisions offering this service as well.

Continuity Between Designer and Constructor

For some facilities, particularly those involving new technologies, it is critical for the designer and constructor to fully understand the technology and related processes. Plans and specifications can communicate the design concepts, but they do not transfer expertise from designer to contractor. In design-build projects, the same entity that had the expertise to design the project also constructs it.

Drawbacks And Obstacles

Experience with design-build construction has shown it suffers from some drawbacks, too. Also, in some locations, there are obstacles to this project delivery method.

Loss of Checks and Balances

In traditional construction, the owner retains the designer during the construction phase to act as a watchdog to help ensure that the facility is built as designed. The designer contracts directly with, and is obligated to, the owner. Under design build, the designer and contractor are on the same team and can be, on a contractual level, adverse to the owner. The degree of this adverse relationship may vary with the nature of the contract—lump-sum contracts are more adversarial than reimbursed cost contracts—and may be reduced if the design builder is hoping to do other projects for the owner. Owners in design-build projects would be well advised either to have experienced engineers in-house or else to retain an outside consultant for this purpose.

Less Owner Control

Because the designer and contractor are one, the owner may be without access to the kind of information available on a traditional project. Although the design builder may issue regular status reports, the information in them is usually less useful to an owner than what would ordinarily be provided by a traditional engineer. Similarly, the relationship between the designer and contractor may cause plans to be prepared with less than the traditional degree of detail, which may adversely affect the owner's ability to understand and control design intent.

This drawback can be overcome by advance planning. The contract should specify the kinds of information and detail that the design builder must supply to the owner. The project owner must have sufficiently knowledgeable and experienced personnel or consultants available to understand and analyze the information provided by the design builder.

Difficulty Obtaining Competitive Bidding

Design-build projects do not lend themselves as well to competitive bidding. The design builder is chosen at the commencement of the project, and there is ordinarily little competitive pressure. However, competitive pressures can be generated by requiring that each trade contract be competitively bid. And the compensating advantage to the inability to competitively bid the project as a whole is that a firm price and schedule can be guaranteed far earlier than in traditional construction.

Institutional Obstacles

In some areas, state and municipal laws and regulations severely limit or restrict the use of design build. In some locations there are competitive bidding requirements for public projects or projects funded with public money. Licensing restrictions for design professionals and contractors may restrict the types of design-build business structures. Insurance and bonding may be more complicated to arrange on this type of project. However, public laws and regulations have been changing as the popularity of design build continues to grow, and the insurance and bonding industries are in the process of developing new products tailored to design build.

The Contract

In design-build projects, the owner's most important protection is the terms of the contract. This is particularly true in light of the loss of checks and balances. There are numerous important contract provisions, and owners will

want to carefully consider the various possible provisions in light of the nature of the project.

Each design builder's standard proposal or contract form always favors the design builder. The structure of the interactions between the parties is typically designed to favor the design builder. For example, even seemingly innocuous provisions pertaining to owner approval of the design at various stages can be used to transfer liability from the design builder to the owner when construction in accordance with the plans fails to achieve the desired results.

The standard form contract documents prepared by trade organizations, such as the AIA, AGC or EJCDC, rarely serve owners' purposes without substantial modifications. By their nature, they must be uniformly applicable and are therefore too generic for many types of projects.

An owner embarking on a design-build project would be well advised to work closely with experienced advisors to prepare a customized, design-build contract. However, it should avoid incorporating the proposal in its entirety and should carefully craft the parties' rights and remedies so it reflects their actual assumptions and understandings about the project. Contrary to the practice of some organizations, the contract should be treated as the essence and embodiment of the parties' agreement, not as a collection of boilerplate provisions to be negotiated after the deal has been made.

It is relatively certain that design build will continue to grow in popularity in the future. This concept offers project owners broader alternatives and significant advantages in the design and construction phases. And while this method does not eliminate the need for careful planning or sound contracts, it does provide a more streamlined alternative to the rigors of traditional engineering and construction.

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