How Do Design–Bid–Build and Design–Build Differ?

BY HOLLY SHORNEY-DARBY

When a single source is responsible for design and construction of a project, the delivery method is termed design–build (DB). A design–builder has sole responsibility for a project’s cost, schedule, quality, coordination, and control. That definition, however, fails to clearly convey the principal advantage of DB over traditional design–bid–build (DBB).

**WHAT IS DB DELIVERY?**

DB is a project delivery method in which a designer (i.e., engineers) works on the same team as the builder. A DB team has one contract with the owner, providing a less-complex contract structure and making one party responsible for project delivery. Depending on the project, a DB team can consist of one or multiple companies working together. By comparison, in a traditional DBB project, the owner has two contracts—one with the designer and one with the contractor (i.e., builder), which can cause coordination challenges for owners, especially when the engineers and contractor disagree.

When designers and builders are added to a DB team, the project can be delivered faster, because some construction tasks can begin before design is finalized. The collaboration that occurs between designers and builders working as a team also produces more innovation and cost savings to an owner.

In the United States, DB for drinking water and wastewater projects isn’t used as often as DBB. However, these industries are starting to implement more DB projects as the method becomes more widely known.

**WHAT ARE THE BENEFITS OF DB?**

DB has several benefits, including

- improved accountability.
- reduced administrative tasks because there’s only one contract instead of two required for traditional DBB.
- owners don’t have to manage disagreements about project responsibilities between the designer and contractor.
- fewer change orders.
- more protection from liability for design defects or omissions.
- rapid responses to scope changes.
- a shorter project schedule because of overlap and coordination between designer and builder.

**DOES PROJECT SIZE MATTER?**

DB can be used on all sizes of projects. DB is also used for emergency projects in which a utility needs rapid refurbishment or repair after natural or other disasters.

In practice, DB is best suited for projects with

- clearly defined scope, including interfaces with existing infrastructure.
- defined performance requirements (e.g., production and water quality requirements).
- no barriers to obtaining permits.
- no known site or environmental conditions that could cause project delays.

**IS DB ALLOWED IN ALL STATES?**

Currently, 22 states fully authorize DB for all agencies; 15 states widely permit DB; and the remaining 13 states impose some restrictions. No state completely prohibits DB project delivery. Utility managers should first contact other utilities in their respective states to determine if others are using DB and, if so, with what restrictions. Utilities can also contact the Design–Build Institute of America (DBIA) (www.dbia.org), which tracks legal decisions about DB throughout the United States.

**CAN WE USE A STANDARD CONTRACT?**

Modifying a utility’s standard contract for a DB project usually creates an ineffective contract document. This is because having single-source responsibility for design and construction is different from traditional DBB and doesn’t fit within the context of a traditional construction contract. It’s best to use a standard DB contract and incorporate your utility’s standard requirements. DB contracts are available from DBIA and other sources.

**HOW DO I HIRE A DB TEAM?**

In the US water industry, there are five ways to select a DB team:

- Direct negotiation, which requires only direct communication and negotiation between the utility and the design–builder. This method is typical for emergency projects but may not be allowed for a specific utility.
- Qualification-based selection, which uses only a request for qualifications (RFQ) for choosing a DB team. In this approach, project price is developed later, at a specified level of design (e.g., 30 percent), as a lump-sum or a guaranteed-maximum price.
- Best-value selection, which offers two approaches for hiring a DB team—a one-step process using only a request for proposal (RFP) that includes price and qualitative attributes, and a two-step process that first uses an RFQ and later an RFP from the qualified proposers.
- Progressive DB, which uses a selection process based on qualification (i.e., RFQ) that includes proposed rates for design and an overall conceptual/target price. Construction and startup cost is determined with the guaranteed
maximum price, usually negotiated at
30–100 percent design completion.

■ Price-based DB, which uses an RFP,
and the design–builder is selected
based on the lowest responsive price.

**WHAT LEVEL OF DESIGN SHOULD BE
PROVIDED TO BIDDING TEAMS?**

Utilities typically provide technical crite-
ria to DB-proposing teams to guide their
bid preparation. Such information allows
the owner to control certain aspects of
the design and may include prescriptive
requirements (e.g., a certain pump type
or manufacturer or a specified basin size)
and performance requirements (e.g., 95
percent of the time, finished water quality
should have a pH of 8–8.7). Developing
prescriptive requirements requires some
level of predesign. Although this type of
requirement will yield equipment or infra-
structure specified by the utility, it limits
innovation design–builders can provide to
lower costs or shorten the schedule.

In addition, if the project involves
multiple interfaces, existing conditions,
or operational implications with existing
facilities, more preliminary design is war-
ranted to minimize problems and poten-
tial delays. By contrast, for a project on a
green-field site, predesign might involve
only commitments made to local commu-
nity or planning/zoning departments for
permits or other approvals.

A technical design criteria document
may also contain specific quality require-
ments, including mandated code and reg-
ulatory requirements.

**WHAT ABOUT PERMITS?**

As with traditional DBB projects, permit-
ting requirements must be fully under-
stood and included in the planning phase.
For DB projects, a careful analysis is typ-
ically performed, with the design–builder
and owner assigning permitting respon-
sibility to the entity that can best control
the risk. The division of responsibility for
permit submittals and approval should be
included in the contract.