

Progressive Design-Build:

What Is It? | How Is It Different From Design-Build? | When Should I Recommend It?

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Design-Build (DB) delivery continues to gain popularity with owners eager to enjoy the potential schedule and cost reductions DB promises. Several different DB “flavors” exist, such as bridging, turnkey, design-build-warranty, design-build-maintain, and the various incarnations of public-private partnerships (P3).

A popular approach often managed by Hill International, Inc. (Hill) is Progressive Design-Build (PDB), a term coined by the Water Design-Build Council. According to the Design-Build Institute of America (DBIA), PDB offers owners unique advantages in managing construction risk and often results in even greater cost and time savings compared to traditional or ‘best value’ DB delivery.

Procurement/Team Selection

Traditional DB solicitation includes an evaluation of the best value to the owner, where DB teams are selected based on factors such as price, schedule, and design concepts. In the first step of a two-phase DB procurement process, DB teams are shortlisted based on statements of qualification (SOQ). Finalists then respond to requests for proposals (RFP), which typically include:

- Design proposals developed to approximately 35% completeness
- Detailed project completion schedules
- Sealed price proposals that encompass all costs to complete the project

When the design-builder is selected, the owner has the option of proceeding with the winning team’s proposed design or directing them to start a new design. This new design may include ideas proposed by non-selected teams.

PDB differs slightly from the traditional DB procurement, in that it allows owners to streamline the solicitation process and select a team based almost entirely on qualifications. The trade-off for owners is that the PDB RFP phase entails significantly reduced deliverable and design expectations. Instead, candidates are asked to describe their processes, such as:

- Management and design development plans
- Estimating and cost management strategies
- Scheduling and sequencing approach
- Construction management methods

Prospective PDB teams often have opportunities to meet with owners prior to their submission. These meetings provide candidates with the chance to show how effectively they can collaborate with owners’ teams. This process allows owners to select a finalist team whose culture and style aligns most closely with their own and is a distinct advantage of PDB.

Schedule Benefits

An RFP developed for a traditional DB project requires a significant amount of an owner’s time and resources, as it must include all project specifications and design requirements. In most cases, owners

hire a design firm to develop the pre-design requirements for the RFP, a step that essentially negates any time savings realized by overlapping the design and construction phases of the project.

With PDB, the DB team is engaged at the beginning of the design process to confirm all project goals will be met. This process takes the place of a separate pre-design exercise, often shaving months from the project schedule. In Hill's experience, this streamlined approach can reduce the overall project schedule by up to 30%.

In many cases, PDB projects also experience demonstrably better schedule results than Design-Bid-Build (DBB) projects. For example, Hill provided project and construction management services for the Richland Fire Station #74 project in Richland, Wash., using PDB. Meanwhile, a neighboring fire station was delivered via a DBB contract and was completed three months later than the PDB project, despite both projects starting simultaneously with the same pre-design concept.



Figure 1: Richland Fire Station

Cost Reduction

One of the key drawbacks to traditional DB is the reliance on the lump-sum price proposed by the winning team, which includes significant contingencies to cover unknown project risks. With PDB, the contractor and key subcontractors are involved early in the design to recommend the most cost effective systems, materials, and methods. When the owner and design-builder are confident the design reflects the project goals and risks have been reduced, usually between 50% and 75% design completion, the parties then negotiate a guaranteed maximum price (GMP) that reflects the lowered risk. Since the contractor and key subs have been involved in the design process from the start, they will have had many opportunities to identify/mitigate risk and evaluate the constructability of the design. Thus, PDB reduces the likelihood of change orders, provided that the owner does not change the scope after the GMP is fixed.

As an example, for the recent Morrow County Government Center in Irrigon, Oregon, the owner engaged an independent cost estimator to evaluate the anticipated project costs based on early scope assumptions. The owner then brought Hill aboard to provide project and construction management services, and after guiding the owner and PDB team through the first phase of the project, several early scope assumptions were reevaluated and underwent significant change. Ultimately, the final GMP increased from the initial estimate, but was better aligned with the desired project scope.



Figure 2: Morrow County Government Center

Risk Mitigation

In traditional DB, the majority of project risk is transferred from the owner to the design-builder. This can be very costly to the project, as the design-builder must assume the worst-case scenario when submitting a lump-sum price during the proposal phase. Conversely, during the first phase of PDB projects, the team collectively identifies the risks, assesses them, and assigns them to the party best suited to manage them. For example, the owner on a PDB project may choose to enter into a contract with the design-builder before addressing environmental and/or right-of-way acquisition issues and assign that responsibility to the design-builder with the knowledge and experience to reduce the risk. Because the entire team is engaged in evaluating risk before the price is fixed, decisions can be deferred until more data is obtained.



Figure 3: U.S. Pavilion

One area that often carries the most significant risk is the complexity of the project. Recently, the City of Spokane Parks and Recreation Department partnered with Hill to oversee a project to modernize the U.S. Pavilion, which was originally constructed for the 1974 World's Fair in Spokane's Riverfont Park. In addition to the risk of contaminated soils, the project had an undefined scope that required the design team to reimagine the design for a 150-foot tall, one-of-a-kind cable net structure. Hill recommended the PDB process, which engaged the designers with specialty lighting subcontractors and a tension structure specialist to work through the design solution. The contractor offered creative construction techniques that helped streamline the design and reduce cost, so that when the GMP was established, the risk to both the owner and the DB team had been significantly minimized.

Advantages and Considerations for Owners

Owners who are considering other delivery options beyond traditional DBB may be understandably intrigued by the benefits of PDB, but owners should also be aware of the commitment needed to realize these benefits. Some of the most important factors to consider include:

Advantages

- Design input—better opportunity for best-value design decisions early in the process.
- Option to be involved in the selection of subcontractors (preferred firms, local expertise).
- Cost transparency—'open-book' accounting, team can evaluate how choices will affect budget/schedule.
- Reduction in overall project price and schedule.

Considerations

- Owner needs to have resources available for constant project involvement.
- Owner staff assigned to the project should have authority to make (or secure) timely decisions.
- Owner staff needs to be on board with the delivery approach or they can hinder the process.
- If owner staff are not trained in DB best practices, a third-party representative or DB advisor will be critical to project success.

When to Recommend PDB

Very few projects would not benefit from the increased collaboration and improved efficiency of the PDB process. However, PDB is not a cure-all approach for every project. When should an architect or owner's representative firm recommend the PDB delivery method to owners?

- When the owner wants to have extensive input on decisions made throughout the project.
- On highly complex projects or complicated remodels that can benefit from the early input and expertise of specialty subcontractors and vendors.
- When there is a need to expedite project completion and stakeholders can make decisions quickly.
- When the project budget is limited, but the program is flexible, allowing teams to 'design to the budget.'

Resources and Other Considerations

This article has only addressed some of the basic elements of PDB. The delivery method is unique in many other ways. It appeals to designers and contractors for various reasons, is more suitable for certain project types, and may have specific contractual and legal requirements in different states.

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About the Author:

Rebecca "Becky" Blankenship is a DBIA certified professional with more than 30 years of experience in civil engineering, architecture, and construction management. Working out of Hill's Spokane, Wash., office, she regularly provides project management services for clients with design-build projects.



About the Paper:

If you have questions or would like to learn more about PDB, reach out to one of Hill's professionals experienced in DB:

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Additional information about DB, PDB, and DB certification can be found at www.dbia.org