Progressive Design-Build

Progressive Design-Build combines the benefits of design-build (DB), including single-point of accountability, with the benefits of construction-management-at-risk (CMAR), including preconstruction services and owner input throughout the project execution. This collaborative delivery method provides owners more innovative designs and more control over the process, while still providing schedule, price and performance guarantees.

Design-Build (DB) Variations

Owners can choose among variations of DB to best accomplish their water, wastewater, and environmental project goals. In a DB arrangement, the owner issues one contract for the design and construction. This single point of accountability provides an owner with an enhanced risk allocation for the project, and often results in a quicker and more cost effective project in the end. This is the basis of DB. While maintaining these advantages, there are some variations that owners can choose—depending on the parameters of state laws, etc. (as noted above) and the owner's project and business goals. As recognized by Water Design-Build Council in the Municipal Water and Wastewater DB Handbook there are three basic variations of DB—prescriptive, performance, and progressive.

Prescriptive DB // This variation of DB includes some degree of design completion, usually around 10–30 percent, as part of the procure-ment. In this typically price-based procurement, much of the owner's preferences are clearly defined in the procurement documents. The owner will select the design-builder on some combination of qualifications, schedule and cost (firm fixed price). This is the best method to use when there is no need to consider design alternatives or other project options. Typically, much of what is presented by the selected firm during procurement becomes the preliminary design. During procurement, the owner has little input into this preliminary design, which often becomes the basis for negotiations. Changes to any element of the project at a later date, after contract negotiation, can often lead to change orders.

Performance DB // The emphasis of a performance DB is measurable performance criteria or objectives for operation, rather than on specific design approaches. This method is utilized when an owner has specific performance goals. It includes standard construction specifications, while allowing proposers great flexibility in the design and approach. The procurement, similar to the nature of the prescriptive DB procurement, often requires some percentage of design completion in the proposal stage—this can be as much as 30 percent. The design is completed with no input from the owner, with the exception of performance objectives detailed in procurement documents. This scenario, as well, can often lead to future change orders.

Special Note: With Progressive Design-Build, a qualifications based procurement is issued. State statutes, regulations and local ordinances may impact an owner's ability to use Progressive Design-Build, especially when qualifications-based procurement is not allowed.

Progressive DB

Progressive DB is growing in popularity amongst owners. The distinction of Progressive DB begins in the procurement, where an owner will often select based on the qualifications of the design-builder. The qualifications-based process allows owners to invest in the project, versus a lengthy and costly procurement that can often involve multiple steps. Owners are choosing this "one-step" approach, especially when their project is not completely defined or they are seeking creativity, more input into the design and/or a fresh look at alternatives. This approach leverages the benefits of DB and construction management at risk (CMAR). The DB element being the single point accountability/one contract for the design and construction. The CMAR feature being the preconstruction services with maximum owner control. Preconstruction services allows construction input into the design effort (constructability reviews of the design, optimization of means and methods, cost and schedule estimating, and application of VE techniques to further reduce time and cost or increase efficiencies) while allowing the owner to control decisions of scope, quality, cost and schedule. This approach fosters the maximum collaborative relationship between owner, engineer and builder. The resulting design is the most time and cost efficient from the construction point of view. Many recognize Progressive DB as the best of both DB and CMAR.

Progressive DB Benefits

1. Allows for enhanced owner control of scope, quality, price and schedule decisions
2. Allows for enhanced owner input throughout the project
3. Decisions are based on more than construction cost
4. Practically eliminates change orders and surprises
5. Simple and less costly procurement

Collaboration in a Progressive DB

CHARTER TEAM >
1. OWNER
2. O&M TEAM
3. DESIGNER
4. CONTRACTOR

There is true coordination between the owner and the design-builder in a Progressive DB. Upon selection, the owner and the design-builder begin a collaborative process that engages the team made up of: owner, O&M team, designer, and contractor—the Charter Team. This team works together throughout the entire project to review the progress and direction of the project from their respective viewpoints. The decisions are based on overall project critical success factors versus a single factor, such as cost.

The Charter Team will discuss milestone dates, set by the owner, at the initial chartering meeting. These milestone dates, for instance 30, 60, 90, are critical points where the team will come together for project review.

The Charter Team has a high degree of involvement at critical points in the DB process and must make the design-build project a priority in order to achieve success. All members of the Charter Team are important, but a critical member is the owner's operation and maintenance (O&M) representative(s), which provide O&M input into the design, much like the contractor/pre-construction services input. The O&M representative focuses on design considerations that make the O&M easier and/or more time and cost efficient, while considering life-cycle costs related to equipment selection, for instance, and overall reliability and performance of equipment based on their experience.

Change Management Made Easy

At the core of Progressive DB, is the recognition that one decision and/or change—be it on design or scope—will impact other elements of the project—for instance, function or performance. The impact of any change is dealt with by the Charter Team and this team determines what that change means to each of their areas of responsibility. Once the impact of any change is reviewed, the owner can make the final decision as to the change and the design can continue. Exhibit A demonstrates one such scenario in which change management is concentrated at 30, 60, and 90 percent milestone/workshop dates. Construction, in many cases, can occur either through appropriate bidding packages or self-performance, while design is taking place. Cost and schedule estimates can be developed and refined at regular design milestones, allowing the owner to modify priorities and requirements based on the overall project budget and schedule objectives.
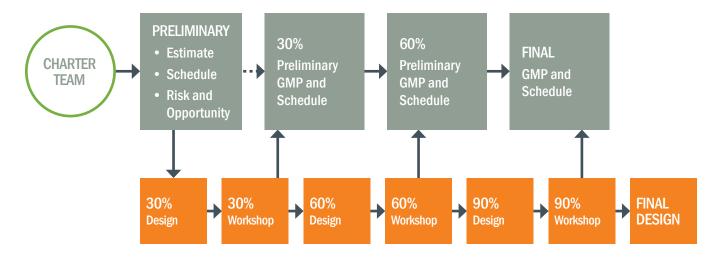
Example Progressive Design-Build Process
In the Progressive Design-Build approach there is built in flexibility for changes, a significant difference from prescriptive DB.

Pricing in a Progressive DB

GUARANTEED MAXIMUM PRICE

In a Progressive DB, preliminary guaranteed maximum price (GMP) is provided at design completion milestones throughout the project. The final GMP for construction of the project is developed when the design has been completed to the level agreed upon (usually between 60 and 100 percent design complete). In the example described on Exhibit A the milestone is 90 percent design complete.

With the GMP approach, if the costs exceed the GMP, the owner only pays the GMP. If the final costs are less than the GMP, then the owner pays the final lower costs amount. Often times, incentives are used in this approach to reward the design-build firm for taking the risk of the project costs exceeding the GMP, by sharing a portion of any cost savings, usually with an upper limit as to the maximum amount of savings to the design-builder.

Competitive Bids // With a GMP approach, the construction cost is usually developed on an open-book basis using competitive bids solicited from subcontrac-tors and material and equipment vendors. The total cost combines this cost of work with the design-builder's negotiated general conditions, fees, any self-perform construction work and contingencies. This open-book approach provides the owner transparent access to project costs and the ability to factor quality considerations into the selection of subcontractors and vendors. In the GMP approach, an owner could require that there be no self-perform work, thus maximizing the work that is competitively procured. The design-builder would provide the General Conditions and manage the construction of the project.

In some instances an owner may opt to use a Lump Sum (LS) approach. In the LS approach, the open book feature is not used as the owner is obligated to pay the LS for the DB services. The construction services of the design-builder would include separating the design (plans and specifica-tions) into appropriate packages that would be competitively procured from qualified subcontractors. The design-builder would self perform any work contractually agreed to.

In the event the owner finds the design-builder's cost (LS or GMP) unacceptable, the owner can opt to proceed in a traditional manner and have the design-builder compete the design. The owner can solicit construction bids from contractors, and complete the project in the traditional design-bid- build manner. The design-builder would remain in place and provide the owner traditional construction management services.

Progressive Design-Build...

A refreshing alternative.

- Timely and cost effective project delivery.
- Greater control of the design and the decisions that impact scope, quality, cost and schedule.
- Ability to have operation and maintenance input and considerations incorporated into the design.
- Ability to achieve competitive market pricing for all or a portion of the construction.
- Enhanced profile risk allocation.
- Ability to select preferred equipment, subcontractors and vendors.

- A guaranteed price either through a GMP or Lump Sum.
- A guaranteed schedule.
- Guaranteed performance.
- Quicker and more cost effective procurement.