

Benefits of Design-Build

Design-build is a project delivery approach that integrates design and construction to create a single point of accountability, reducing schedule and cost and producing higher-quality results in less time than traditional methods. It also facilitates collaboration among the project's stakeholders to turn the owner's vision into reality.



Increasingly, the water and wastewater industry is turning to design-build to successfully deliver capital projects. A study conducted by the University of Nevada at Las Vegas (UNLV) showed the overwhelming reasons that owners choose design-build as a project delivery method is because it creates a **single point of responsibility and accountability** for design and construction. This delivery strategy shifts the risk for design, construction, schedule performance and cost performance from the owner to the design-build team.

In Harrisonville, Missouri, a fast-track solution was needed after one of its two aerobic digesters failed during the week of Thanksgiving in 2015. The city assessed all options based on its risk, schedule, environmental compliance and budgets and decided to repair the existing tank. By using design-build, the design and construction team worked as one with the city's operations team, reducing the schedule by four to six months. Compared to a typical design-bid-build process, this approach provided a 6.25 percent cost savings to the owner.

Integration of the builder and designer at the start of the planning and design phase effectively allows the owner to leverage the experience and know-how of the entire team.

When an owner can fully understand the cost and schedule impacts of each planning and design decision, necessary adjustments can be made for optimum value.

Another advantage of design-build is that it provides an owner with **cost certainty** much earlier in the process than design-bid-build. With design-build comes a transparent fixed price, or guaranteed maximum price (GMP), typically at the 30- to 60-percent design stage. This allows the team to tailor the project scope to meet the community's budget and schedule expectations, also providing upfront information for the owner to make confident and informed decisions regarding budgeting, project financing, and public education on potential cost and rate impacts. According to the Design-Build Institute of America (DBIA), change orders and disputes are rare as well.

While design-build significantly can reduce overall project cost, the UNLV study also revealed that lower cost was not the driving factor behind a decision to embrace this delivery method. Rather, the study showed schedule enhancement, early price certainty, enhanced quality, and fewer change orders and claims outweighed lower cost in the decision-making process.

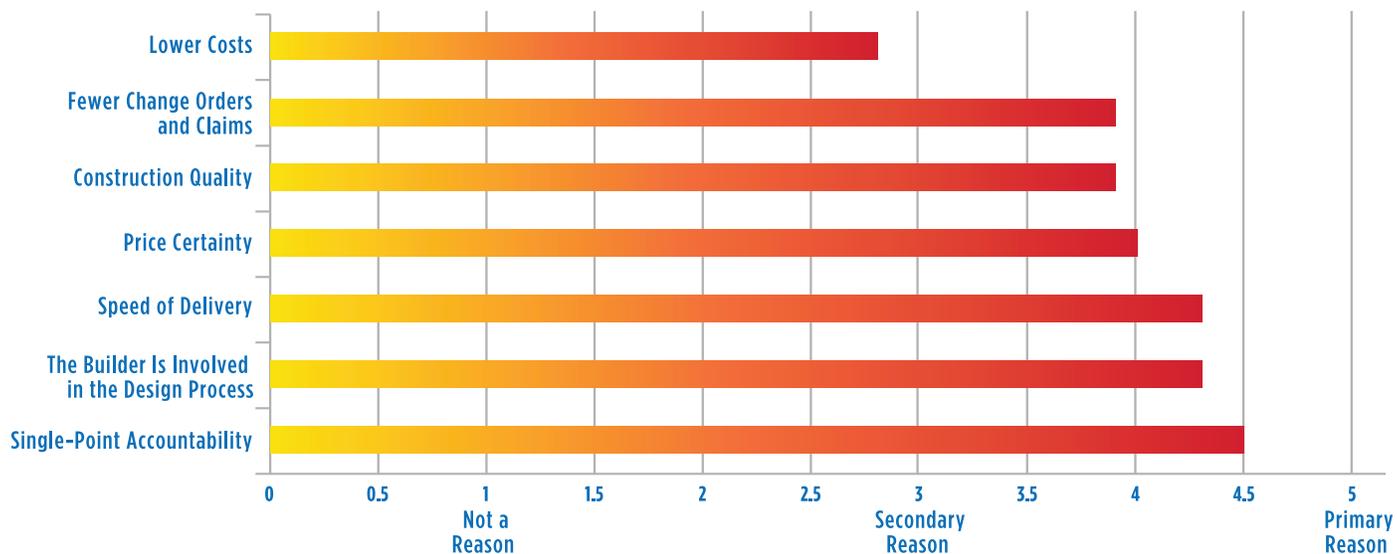


Figure 1: Reasons for choosing Design-Build. Source: Water Design-Build Council – The Municipal Water and Wastewater Design-Build Handbook.

Design-build spans the entire project delivery cycle, driving integration, collaboration and innovation from the beginning. This process allows a team to identify and remove potential roadblocks early to significantly reduce a project’s timeline and cost. This delivery approach has improved results in the construction industry. In a study conducted by Penn State University that evaluated the effectiveness of multiple delivery systems, it found that design-build outperformed design-bid-build in every category. The study also found design-build had:

- 12.5% shorter construction duration
- 33.5% shorter total delivery cycle
- 6.1% lower construction costs

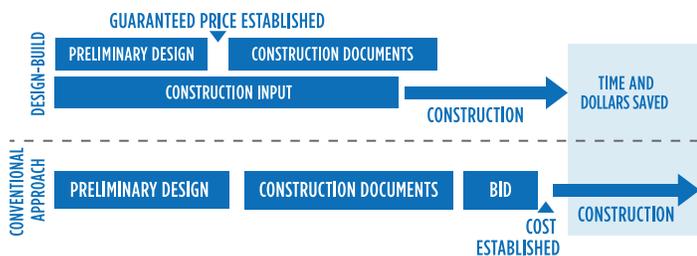


Figure 2: Time and cost savings of design-build compared to the conventional design-bid-build model..

Despite the advantages of design-build, some public owners hesitate to embrace the model, fearing loss of control, a need for transparency and procurement hurdles. But owners who have experience in design-build universally agree that the integration of owner, designer and builder at the beginning enhances an owner’s ability to select subcontractors, equipment suppliers and materials based on cost and non-cost factors. This opportunity creates a value-based decision-making process, balancing capital, risk and life cycle cost rather than a cost only-based process.

Trust and transparency is built through “open book” price development, where the entire team has access to competitive pricing from subcontractors and suppliers. The entire delivery team – in a collaborative effort – then selects and “buys out” the project after considering cost, quality, experience, past performance and other factors that the team deems important. This process places value front and center to achieve not only lower capital cost but also lower life cycle cost.

With all its listed benefits, design-build is a proven model for success. That’s why our firm has adopted this approach for the past 20 years on more than 60 design-build water and wastewater projects – totaling more than \$600 million – and followed this proven process to create our four-story, 310,000-square-foot expansion building that was unveiled in May 2016 at our world headquarters.

Conclusion

The design-build approach has been found to reduce construction time. It is well-suited for projects with schedule constraints or those that are complex in nature. Because of its unique pricing process, it's also a strategy many owners turn to if they need cost certainty early in the project delivery cycle.

For owners to fully reap the benefits of this delivery method, team collaboration must be present. When the owner, designer and contractor work together, the end result is likely to surpass all expectations.

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