

meeting common goals with design-build

by: Steve Kimball



With over 40 years in the AEC industry, I have developed a professional appreciation for the merits of Design-Build delivery. While Design-Build is not the solution for every client and project, it continues its growth cycle in many segments of the marketplace.

A successful Design-Build (D-B) process requires collaborative effort between the design team, construction team, and client (the Project Team) throughout the entire design and construction process. Commitment to a collaborative, open approach that leverages the skill sets of all involved to maximize quality, efficiency, and cost considerations is necessary to achieve the best result for all parties.

This white paper is written from the perspective of personal experience regarding Design-Build supported by data readily available to assist with an overall understanding of its benefits when the client, project, location, and team are well suited for the effort. In addition, a wealth of supporting data is available from FMI Consulting and the Design-Build Institute of America (DBIA).

The process should begin with a well thought out Request for Qualifications (RFQ) / Request for Proposal (RFP) that clearly communicates goals, priorities, objectives, and tasks. Review and discussion should include site planning, program and space requirements, utilities, building materials, and mechanical and electrical systems. Topics, discussion, and consideration should include schedule, cost, and the means and methods best suited to complete the project.

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benefits of design-build

The Design-Build construction process offers several advantages that make it attractive for many projects:

Single Point of Responsibility

The client has the benefit of a single contract entity, the Design-Builder, for design and construction. This streamlines contractual responsibility, communication, decision-making, and accountability, allowing for early and continued value-based delivery throughout the design and construction process. Elimination of conflict management is a key benefit.

Collaboration and Innovation

Design-Build incorporates “cradle-to-grave” client/contractor/designer collaboration throughout the project duration. Early engagement from concept through schematic design is critical to leveraging time, value, and quality results. Accessing the broad collective knowledge of the client, contractor, and designer early in the process can lead to innovative solutions, efficient construction processes, and an expedited quality result.

Project “Buy-In”

Collaboration should include early engagement with the major subcontractors. Initial and ongoing topics during the life of the project include pricing, vendors, value options, schedule considerations, staffing management, and execution strategy.

Expedited Project Delivery

The nature of Design-Build collaboration facilitates expedited delivery and schedule control. The “Just-in-Time” design process incorporates design “packaging” for early construction release with coordinated / overlapping design and construction activities.

Additional benefits of D-B include identification of “long lead” materials, products, and labor activities. Early assessment of “long lead” considerations provides an opportunity for cost and schedule mitigation through pre-purchase strategies, pre-fabrication opportunities combining design and shop drawings, and /or alternative labor considerations.

Cost Savings

Cost savings derive from Client / Contractor / Designer collaboration resulting in the ability to reduce the need for extensive design documentation, development of an expedited schedule, and reduced administration and management costs.



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Quality Control

The integrated Client / Contractor / Designer team provides a mechanism for open communication, brainstorming, and access to collective team knowledge and experience resulting in informed value-based decision making throughout the design and construction process. The value-based decision making process ensures quality and cost objectives are aligned with established project goals.

Reduced Risk

Design-Build aligns Client / Contractor / Designer goals and objectives through a single point of responsibility. Early development of project scope, goals, and objectives through the Design-Build team approach establishes the basic groundwork for planned project success.

The nature of Design-Build goal setting with early, continuous project team coordination and communication will reduce the opportunity for conflict which mitigates the single largest cause of litigation: the failure to communicate and resolve issues early.

selection methodology

As with all systems, the Design-Build selection methodology is critical to positioning the project for success. A two-step qualitative and quantitative selection process offers the best path to overall project success.

Step 1 – Request for Qualifications (RFQ) Solicitation

The solicitation should focus on “shortlisting” qualified contractors to move on to Step 2: Request for Proposal (RFP).

Elements of the RFQ should include:

- Project description and location.
- Scope of services.
- Design and construction project schedule.
- Delivery method: Design-Build.
- Outline the “shortlisting” process qualifying a select number of contractors (3 to 5) eligible for the Step 2 Request for Proposal (RFP) .
- Site visit.
- Process and deadline for written questions and responses.
- RFQ response submittal deadline date.
- Date to “shortlist” contractors.
- Submission requirements
- Evaluation and best value selection criteria.

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Step 2 – Request for Proposal (RFP)

Elements of the RFP should include:

- Notification of “shortlisted” contractors.
- Process for selection and award.
- Cost / cost structure.
- Additional site visits (as needed).
- Submission of additional information (as needed).
- Process and timeline for written questions & responses.
- Shortlist interview timeline, location, and requirements.
- Selection date of successful contractor.

well-executed design-build projects

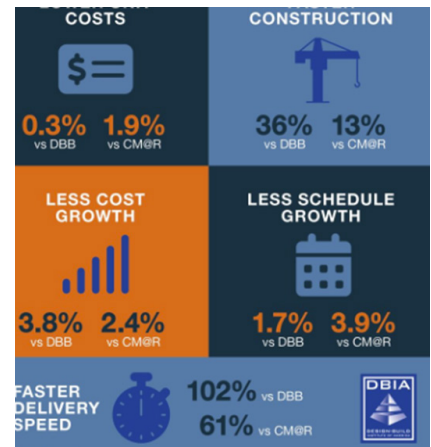
Design-Build, when structured and executed well, replaces the traditional potential adversarial relationship between owner, designer, and contractor with a collaborative, open-book, integral team approach focused on project and team success.

My experience suggests the following key elements are necessary to establish a platform for Design-Build success:

- A “two-step” RFQ / RFP solicitation and award process.
- A clear, thorough, and comprehensive RFP / RFQ process.
- Establish a limited RFQ / RFP invitation list.
- Restrict the “shortlist” number invited to participate in Step 2 (RFP) to 3 teams.
- Establish clear project goals focused on all team members’ success.
- Establish clear communication protocols.
- Open communication throughout the entire process (RFQ / RFP through project closeout).
- “Open Book” materials / subcontractor / vendor selection and pricing.
- Budget a reasonable project design & construction contingency.
- Collaborative best-value problem solving.

Misnomers about Design-Build include:

- Design-Build is only for small and/or simple projects.
- Design-Build is only appropriate for new construction.
- The Design-Build compromises the owner’s relationship with the designer.
- Design-Build delivers substandard craftsmanship, products, and materials.



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Design-Build is not for every project. What to avoid:

- Forced teaming relationships.
- “Top down” mentality.
- Bringing a Design-Bid-Build attitude to the D-B process.
- Inability to commit personnel and time necessary to be actively engaged throughout the D-B process.
- Procurement and/or process requirements that are not conducive to D-B.
- Regulatory restrictions.

data

The Design-Build Institute of America (DBIA) offers the following data comparing other design and construction delivery methodologies with D-B for these key metrics:

- Initial Cost
- Schedule
- Cost Growth
- Schedule Growth
- Delivery Speed

The variables in the design and construction process delivery methodologies make it difficult to provide an “apples to apples” comparison outlining the benefits of Design-Build. When those variables can be minimized, the benefits of the Design-Build process become apparent. The following example project comparison summary demonstrates the value of the Design-Build process when applied to similar project types.

Comparison Summary	Project #1 CM	Project #2 D-B-B	Project #3 D-B
Project Type	Life Science	Life Science	Life Science
Construction Type	New Construction	New Construction	New Construction
Construction Method	Construction Manager	Design-Bid-Build	Design-Build
Project Size	120,000	60,000	150,000
Project Team (Owner/Designer/Contractor)	Same	Same	Same
Productivity	No Data	54%	81%
RFIs	1/120 sf	1/85 sf	1/225 sf
Change Orders	2.7%	7.0%	1.0%
Punch List Items	1,270	5,151	1,027
Owner Contingency Spent	\$778,000	\$1,000,000	so (all risk)

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Personal experience data from representative new construction and renovation projects outlined below reflects the opportunity through Design-Build to deliver a value based successful project.

Details & Metrics	Initial	Final
Client Type	Municipal	
Project Type	Police Headquarters	
Construction Type	New Construction	
Construction Method	Design-Build	
Project Size	38,500 sf	38,500 sf
Cost (design + construction)	\$14,349,000	\$14,818,796
Cost / sf	\$372.70	\$384.90
Schedule Duration (design + construction)	630 days	630 days
RFIs		32
Owner Change Orders		1.65%
Differing Conditions Change Orders		1.74%
E&O Change Orders		0.0%
Total Change Orders		3.39%
Total Change Orders		\$12.2 / sf
Punch List Items		32
Owner Contingency Spent	\$717,450 / 5.0%	\$469,796 / 3.27%
Awards		DBIA National Award of Excellence ASHRAE Award
Certifications	LEED Silver	LEED Platinum
Details & Metrics	Initial	Final
Client Type	Defense Contractor	
Project Type	Secure Production Facility	
Construction Type	Renovation	
Construction Method	Design-Build	
Project Size	19,000 sf	19,000 sf
Cost (design + construction)	\$7,310,560	\$7,475,859
Cost / sf	\$385	\$393
Schedule Duration (design + construction)	346 days	346 days
RFIs		32
Owner Change Orders		1.65%
Differing Conditions Change Orders		<1.0%
E&O Change Orders		0.0%
Total Change Orders		2.0%
Total Change Orders		\$7.70 / sf
Punch List Items		54
Owner Contingency Spent	\$394,129 / 6.0%	\$150,048 / 2.00%

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Photography: Josh Depp, CMTA

In addition to the quantitative benefits of Design-Build the nature of early “buy-in” of all major project stakeholders (owner, designer, contractor, and major subcontractors) is reflected in project collaboration with stakeholders’ interest and willingness to remove the typical stovepipe project approach and work together towards a common goal.

summary

Inherent Design-Build delivery attributes of Single Point of Responsibility, Collaboration & Innovation, and Project “Buy-In” provide a platform for quality, cost savings and reduced project risk. Overall, the Design-Build process is favored for its efficiency, collaboration, and potential for cost savings, making it a compelling choice for many construction projects.

about the author



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Steve has over 40 years’ experience with business leadership and project management. Prior to co-founding emersion, he was the President and CEO for a 100-person A/E firm with offices in Ohio and Florida.