

A DESIGN-BUILD INSTITUTE OF AMERICA PUBLICATION



PROJECT DELIVERY

A Design-Build Done Right® Primer



PROJECT DELIVERY

Project Success Rises and Falls with the Owner

How an Owner proactively acts when undertaking a capital project drives how all of the other parties will react. Owners should begin each project by conducting an objective assessment of its organization and project. Achieving a clear understanding of the project's goals, objectives, opportunities

and constraints is a critical first step. Conducting a brutally honest analysis of the Owner's organizational culture, policies and procedures, including how critical decisions are made, will inform the task of planning for project success.

Each Project Is Unique

Savvy Owners strategically and carefully plan to organize each project in a manner that appropriately addresses its distinctive challenges while capitalizing on its special

opportunities to ensure the best probability of overall project success. A project's Strategic Acquisition Plan focuses on determining the best combination of these key factors:

Project Delivery System

Identifies contractual relationships between parties in a construction project. It defines when and how each party will fulfill its responsibilities.

Most Common Project Delivery Systems:

- Design-Build
- Construction Management at Risk
- Design/Bid/Build

Less Common Project Delivery Systems:

- Integrated Project Delivery (IPD)
- Public-Private Partnerships (P3)
- Multiple Prime Contracts

Procurement Method

Establishes how the Owner will select the providers of design and construction services needed to complete the project.

Common Procurement Methods:

- Best Value
- Progressive – Qualifications-Based Selection
- Low Bid
- Negotiated
- Sole Source (Direct Select)

Contract Format

Designates the basis on which the parties will be paid for performing the work of the project.

Common Contract Formats:

- Lump Sum (or Fixed Price)
- Guaranteed Maximum Price (GMP)
- Cost Plus Fee
- Target Price
- Unit Price

Project Delivery Systems Determine How Key Parties Are Involved

In all project delivery systems, there is always a minimum of three key parties involved:



The various project delivery systems drive a variety of ways each party relates to the others. The most distinctive characteristics of the different systems hinge on these primary considerations:

- **Owner Engagement and Control:**
How “hands-on” does the Owner want to be with their project? The delivery system chosen can dictate a wide spectrum of engagement and control. An Owner can choose to have great control over every detail of the project or can elect to delegate this responsibility to an entity that oversees everything...or any options between the two extremes.
- **Relationships:**
Each project delivery system will establish different relationships between the parties involved. This includes interpersonal relationships, how communications occur and contractual relationships. Some project delivery systems are designed to encourage trust, collaboration and teamwork among all parties. Other project delivery systems create a system of “checks and balances” between parties.

- **Timing of Engagement of the Parties:**

The timing of when each party becomes involved in the project is also determined by the project delivery system. Some project delivery systems will first advance the project to final design, then seek competitive bids from contractors. This ensures that contractors have a complete scope definition when preparing their pricing. It also means that contractors, including specialty trade contractors, have no input into the design of the project. They do not see the design until it is finished. Contractor input occurs after the award of the contract and is frequently reconciled by change orders. Other project delivery systems engage key prime contractors and trade subcontractors before the design has advanced beyond conceptual stages. This allows the design to be developed and informed by constructability and marketplace insight of the experts who will be building the project. These construction professionals have the opportunity to provide input regarding the most cost and schedule efficient construction methods or materials before the design has been completed.

- **Project Budget:**

Among the most important aspects of a construction project is the project budget and the value received for it. Owners using project delivery systems that rely on competitive bidding will not have an initial fixed price for the project until all the design and bidding processes are completed. The bidding marketplace determines whether or not the completed design is within the Owner's budget. The concept for award of the contract is the lowest bid price. Other project delivery systems are devoted to a design-to-target budget process that relies on mutual trust, collaboration and refinement of the design to fit within a target budget. A firm, fixed price is often established before the design is complete, as soon as the scope and quality of the design is optimized and confirmed to be within the target budget. The concept for the award of the contract is qualifications or best value.

- **Project Schedule:**

Some project delivery systems are linear and sequential. First the project is designed, then it is bid, and once the contractor is selected, it is built. Each step in the process must be completed before the next one



While selection of the procurement method and contracting forms are also important components of a Strategic Acquisition Plan, this primer focuses on selecting a project delivery system.

can be built. Other project delivery systems offer the opportunity to “fast-track” the project schedule. Project elements that must be constructed first are designed and released for construction. Construction begins while components of the project that will occur later in the construction process are still being designed. This overlap of the design and construction phases shortens the overall duration of the project. Some project delivery systems are helpful in identifying long-lead items that are affected by supply chain delivery issues. These project delivery systems allow the early procurement of long-lead items ahead of normal sequences to help mitigate the negative impact of supply chain issues.

- **Risk Management:**

All projects have risk for each party involved. Each project delivery system assigns risk differently to each party. Understanding how risk is identified, allocated and managed is a key to understanding the nuances between project delivery systems.

- **Dispute Avoidance and Resolution:**

While the choice of a project delivery system will define roles and responsibilities of each party, most construction projects are so involved and complex that it is virtually impossible to get through one without having to work through some differing points of view. Disputes can delay a project, add to its cost and take an emotional toll on everyone involved. This is particularly true of formal disputes that involve protests, mediation, arbitration or even litigation. The project delivery systems that create a system of “checks and balances” between design professionals and construction professionals also tend

to create more adversarial relationships between those parties. These project delivery systems are historically and statistically more prone to formal disputes than other delivery systems. One common way to resolve such issues is by a Change Order to the contract. The extent to which an Owner is familiar and comfortable with the Change Order process may influence the selection of a project delivery system. While there are well-established alternative dispute resolution (ADR) techniques that can be applied to any delivery system, their objectives are better aligned with some delivery systems than they are with others. Delivery systems with defined Best Practices that are focused on teamwork proactively address project issues with the intent of resolving them quickly and fairly. This is more likely to avoid formal disputes.

- **Project Goals, Constraints and Opportunities:**

The Owner’s goals for each individual project may drive an emphasis on one or more of the considerations described above. An Owner’s choice of project delivery system may be further constrained by the legal authority or organizational policies under which the Owner operates.

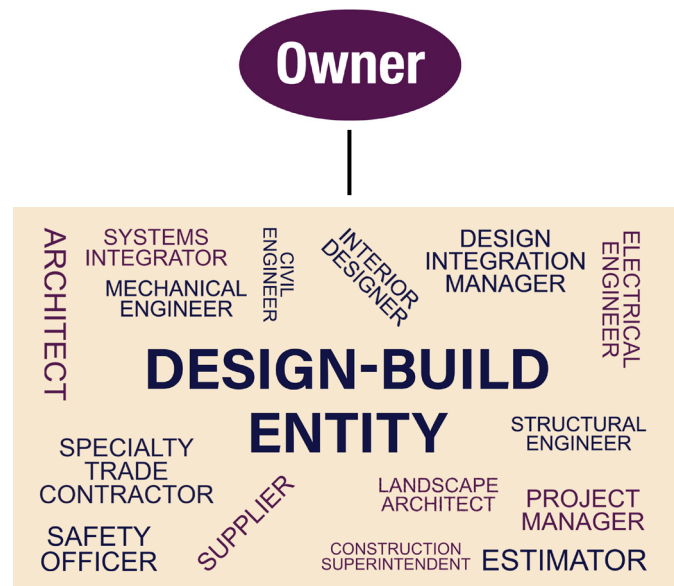
One key decision in an Owner’s Strategic Acquisition Plan is the selection of project delivery system best suited for the unique qualities of the project. While selection of the procurement method and contracting forms are also important components of a Strategic Acquisition Plan, this primer focuses on selecting a project delivery system.

The following pages describe the most common project delivery systems being used today.

DESIGN-BUILD

Once considered “an alternative form of project delivery,” Design-Build is now the fastest growing and most commonly used project delivery system. Nearly half of all design and construction projects in the United States are being delivered using some form of Design-Build. It is widely used for both private and public sector (federal, state and municipal) projects. It is used across all project types, including vertical (building) construction, transportation and water/wastewater markets.

In all other project delivery systems, there are separate contracts for design and construction. The single contract for both design and construction is the Design-Build distinction.



Design-Build is where one entity, the Design-Builder, enters into a single contract with the Owner to provide both design and construction services.

Design-Build is single source responsibility.

A Single Contract Changes Everything

The Owner executes one contract with a single point of responsibility. Everybody on the team works together from the beginning of the project. They provide unified project recommendations to best fit the Owner’s program needs, schedule and budget. Any changes are addressed by the entire team, including the Owner, driven by collaborative problem-solving and innovation — not excuses or blame-shifting.

Streamlining project delivery through a single contract between the Owner and Design-Builder transforms the relationship between designers and builders into an alliance that fosters collaboration and teamwork. United from the outset of the project, an integrated team works to successfully complete a project faster, more cost effectively and with

optimized project quality while meeting the Owner’s project criteria.

Single source contracting is the fundamental difference between Design-Build and other project delivery systems. It drives the culture of integration and collaboration that is inherent in Design-Build Done Right®.

Design-Build delivery is as much a mindset as it is a process. A successful Design-Build project is defined by the attitude and actions of everyone involved. Design-Build is intended to be a highly collaborative, fully integrated undertaking that is built on trust, mutual respect, teamwork, innovation and creative problem solving. Design-Build works best when everybody makes the mental shift to think and act as a single entity focused on achieving shared project goals.

Flexibility of Design-Build

One reason for the popularity of Design-Build is the flexibility it offers as to how Design-Build services are procured and provided. While this flexibility is primarily a consideration of procurement methods and contract format,

Design-Build project delivery remains the constant common denominator among the most prominent variations of its implementation. The two most prominent options for competitive procurement of Design-Build services are:

	Best Value Design-Build	Progressive Design-Build
	<i>A two-step procurement process first identifies the most highly qualified Design-Builders, then seeks design and cost proposals. The Owner selects the Design-Builder offering the best value proposal (a combination of design, project approach and contract price).</i>	<i>Design-Builder is selected primarily on the basis of qualifications. After selection, Owner and Design-Builder collaborate to progressively advance the design and cost model toward a mutually agreeable design concept and contract price.</i>
Design-Builder Selection	Step One: RFQ • Shortlist to three most highly qualified Design-Builders. • Focus on past performance as key indicator of future performance. Step Two: RFP • Three teams each submit a design, schedule, approach and contract price in response to Owner's RFP. • Owner first evaluates technical proposal, then considers price proposal.	Qualifications-Based Selection • Design-Builder is selected primarily, if not exclusively, on the basis of its qualifications and management approach to the project.
Design	Owner defines project criteria in procurement documents and provides feedback in confidential meetings prior to selection. Competing Design-Build teams prepare preliminary design proposals. Selected Design-Builder and Owner complete design collaboratively post-award.	Owner and Design-Builder collaboratively begin and advance design after selection of Design-Builder. <i>[See the DBIA "Flexibility of Design-Build" position statement and the "Progressive Design-Build Deeper Dive."]</i>
Price	Design-Builder submits a price (Lump Sum or GMP) as part of a competitive procurement process. Price is established at time of contract award.	The Design-Builder does not commit to a price at contract award. Price commitment comes after the design has progressed and the parties have agreed on scope, schedule and other commercial terms. Off-ramp provisions exist if parties cannot reach an agreement.

While Best-Value Design-Build and Progressive Design-Build are two procurement methods with distinguishing characteristics, they share numerous attributes common to all forms of Design-Build project delivery, as set forth in the DBIA Universal Best Practices, including:

- The ability of Owners to focus on non-price related factors, such as qualifications, past performance and project approach, to select teams.
- Early integration of the entire project

team, including key trade partners so that constructability, market conditions and other such factors can inform and positively influence the design.

- Unleashing the power of team creativity, innovation and collaborative problem solving.

Both procurement methodologies and contracting formats can provide excellent results and should be carefully considered in an Owner's Strategic Acquisition Plan.

CONSTRUCTION MANAGEMENT AT RISK (CMC, CMAR, GC/CM)

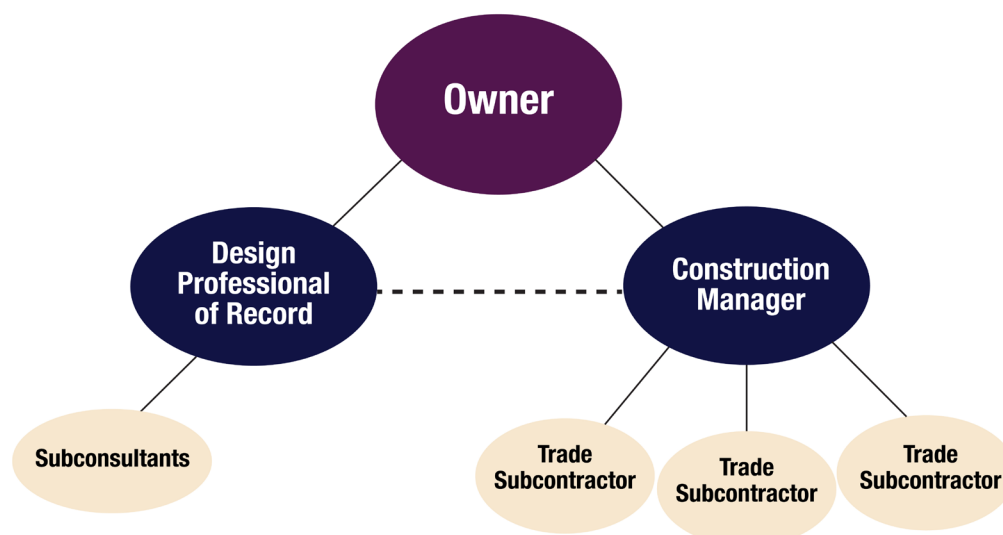
In this project delivery system, the Owner holds contracts with separate entities:

- Owner to Design Professional of Record
- Owner to Construction Manager (CM)

Both the Design Professional of Record and the CM are selected primarily on qualifications at the beginning of the project. The CM provides constructability reviews, cost estimating and other preconstruction services to the Owner for the benefit of the Design Professional of Record prior to commencement of construction.

All specialty trade contractors are subcontracted to the CM. Basis of selection of specialty trade contractors varies widely by type of project (public or private) and the statutes under which CM services are being provided. Ideally, specialty trade contractors are selected on both qualifications and price early in the project and assist the CM in providing preconstruction services.

Project scheduling is basically sequential and linear, similar to Design/Bid/Build delivery, although fast tracking and early ordering of long lead items is possible.



Once construction begins, the CM performs primarily as the General Contractor for the project. The CM is responsible to perform the work on schedule in accordance with the Contract Documents and ensure the trade subcontractors do the same. The Owner

warrants the sufficiency of the Contract Documents (Spearin Doctrine¹) to the CM. The Owner is responsible for the cost of “gaps” between the Construction Documents and the Owner’s requirements for project performance.

DESIGN/BID/BUILD

In this project delivery system, the Owner holds contracts with separate entities:

- Owner to Design Professional of Record
- Owner to General Contractor

Traditionally, this is a well understood project delivery system with wide statutory authority in all public domains. Most public works procurement laws are based in this delivery system. Roles are well defined for all parties involved.

The Design Professional of Record is selected primarily on qualifications at the beginning of the project. The Designer of Record works directly for the Owner to advance the design to 100% complete Construction Documents. The General Contractor and specialty trade contractors have no input into the design process.

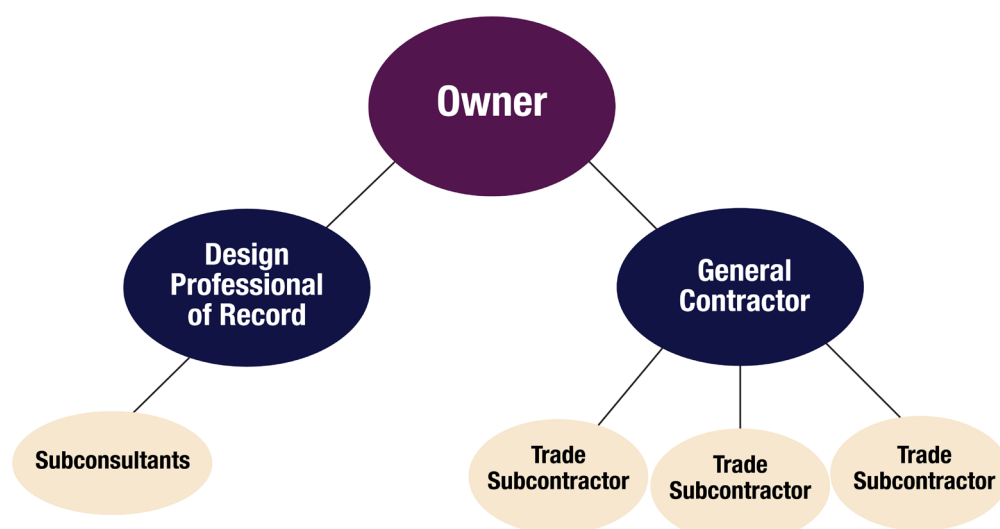
The project is then released for bidding.

The General Contractor is selected on the basis of being responsive to the bidding requirements and having the lowest bid.

All specialty trade contractors are subcontracted to the General Contractor after the award of Contract.

Project scheduling is sequential and linear (Design/Bid/Build). Fast Tracking is not possible.

Once construction begins, the General Contractor is responsible to perform the work on schedule in accordance with the Contract Documents. The Owner warrants the sufficiency of the Contract Documents (Spearin Doctrine) to the General Contractor. The Owner is responsible for the cost of “gaps” between the Construction Documents and the Owner’s requirements for project performance.



¹ Spearin Doctrine: The obligation that the owner impliedly warrants that the plans and specifications that it provides to the contractor, if followed, are adequate and suitable for their intended use. The Spearin Doctrine originates from the landmark construction case, *United States v. Spearin*, 248 U.S. 132 (1918).

DELIVERY SYSTEMS

Green = Most Favorable; Red = Least Favorable

Factor	Design-Build	CM at Risk	Design/Bid/Build
Number of Contracts	One • Owner to Design-Builder	Two • Owner to Designer • Owner to CM	Two • Owner to Designer • Owner to General Contractor
Basis of Selection	Design-Builder • Qualifications and other non-price factors • Best Value	Design Professional of Record • Qualifications (Brooks Act) CM • Qualifications & Fee	Design Professional of Record • Qualifications (Brooks Act) General Contractor • Low Bid
Designer Relationships	Design Professional of Record is part of Design-Build Team.	Design Professional of Record works directly for Owner.	Design Professional of Record works directly for Owner.
Owner Engagement in Project Process	Varies. Owner can dictate its desired level of engagement with the Design-Build team through its Strategic Acquisition Plan.	Owner engages with Design Professional of Record throughout the project. Owner engages with CM throughout the project.	Owner engages with Design Professional of Record throughout the project. Owner engages with General Contractor through the Design Professional of Record during construction.
Timing of Engagement of the Parties	Design Professional of Record • Engaged when Design-Build team forms Design-Builder • Engaged when Design-Build team forms Specialty Trade Contractors • Engaged when Design-Build team forms or early in design	Design Professional of Record • Engaged by Owner early in the project CM • Engaged by Owner Specialty Trade Contractors • Engaged by CM. Either during design or by bidding	Design Professional of Record • Engaged by Owner at outset of the project General Contractor • Engaged by bidding after design is completed Specialty Trade Contractors • Engaged by GC after GC is awarded prime contract
Owner Control and Responsibility for Design Details	Owner establishes expected performance criteria for the project. Design-Builder is responsible to complete design to meet Owner's project criteria.	Owner controls design details through Design Professional of Record and is responsible for the success or failure of the design.	Owner controls design details through Design Professional of Record and is responsible for the success or failure of the design.
Spearin Doctrine Liability	Design-Builder warrants to Owner that design meets Owner's Performance Criteria. Owner has increased liability if it elects to use prescriptive requirements and / or bridging documents.	Owner warrants to CM that design is sufficient to bid and build project. Owner has full Spearin Liability, that may be modified by CM Constructability reviews.	Owner warrants to GC that design is sufficient to bid and build project. Owner has full Spearin Liability.
Trade Contractor Engagement	Earliest engagement. Frequently engaged during the procurement and design process. Selected on basis of Qualifications and Price. Can have significant input in design optimization process.	Early engagement. Depends on local market and CM policy. Typically, pre-qualified then selected on basis of price. In practice, has limited input in design process.	Late engagement. Not subcontracted until after award to GC. Typically selected on low price. No input in design process.

DELIVERY SYSTEMS

Green = Most Favorable; Red = Least Favorable

Factor	Design-Build		CM at Risk		Design/Bid/Build	
Schedule and Sequence		The design and construction processes are integrated. Design and construction should overlap.		Mostly linear and sequential: 1. Design 2. Bid 3. Build		Linear and sequential: 1. Design 2. Bid 3. Build
Ability to Fast Track Schedule		Very high due to integrated Design and Construction Process.		Virtually nonexistent — similar to D/B/B, but may allow early ordering of long lead items.		Nonexistent — Linear process precludes fast tracking.
Project Budget and Contract Price		Best Value Design-Build - Determined at time of proposal / contract Progressive Design-Build - Determined during preliminary design		GMP typically determined at Design-Development, unless statutes require bidding of trades.		Determined after bidding phase. Basis of Award: Low Bid.
Design to Target Budget		Interactive, interdisciplinary team focused on design optimization.		Highly dependent on CM's process for trade contractor engagement.		No contractor engagement in the design process.
Quality Management		Design-Builder responsible for QA/QC process. Owner provides oversight.		Owner and DOR provide QA. CM provides QC. "Checks and Balances"		Owner and DOR provide QA. GC provides QC. "Checks and Balances"
Risk Management		Collaborative. Joint Risk Assessment, with allocation of each risk to the party best able to manage it.		Each party assesses and manages its own risk.		Each party assesses and manages its own risk.
Owner's Dispute Probability		Owner's Spearin Liability exposure minimized. High reliance on constructability reviews.		CM Preconstruction review possible. Owner's Spearin Liability in full effect during Construction.		No preconstruction contractor engagement. Owner's Spearin Liability in full effect during construction.
Diversity Equity, and Inclusion (Data from FMI Research)		Both early engagement of trade partners and the greater flexibility in partner selection supports and fosters DEI success. Design-Build was found to be the overall best delivery system for encouraging greater participation from MWDBE organizations.		CM at Risk was found to be the least likely of major delivery systems to encourage greater participation from MWDBE organizations.		Design/Bid/Build delivery was found to be moderately successful at encouraging greater participation from MWDBE Organizations.

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DBIA extends a special thanks to the following individuals who helped shape this document:

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