Primer on

PROJECT DELIVERY

Second Edition

Developed by the Joint Committee of

The American Institute of Architects

The Associated General Contractors of America
Primer on Project Delivery
Second Edition

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Introduction

To help architects and contractors achieve quality projects that fulfill owner expectations and are delivered on time and on budget, The American Institute of Architects (AIA) and The Associated General Contractors of America (AGC) formed a task force to produce this second edition of the Primer on Project Delivery. Intended to improve understanding for the mutual benefit of owners and the design and construction community, it is primarily addressed to owners who are unfamiliar with the various ways of procuring design and construction services. The AIA and AGC recognize that many viable project delivery methods are available, so the primer is not meant to endorse any one delivery method over another.

At present, there are no industry-wide accepted definitions of project delivery methods and many groups, organizations, and individuals have developed their own. In so doing, they have often used different characteristics to define the delivery methods. The result has been a multiplicity of definitions, none of which is entirely right or entirely wrong. This primer offers basic definitions to help owners better understand their options.

The main criteria for measuring the success of any project delivery method are cost, quality, time, safety and how the project ultimately meets its intended purpose. However, responsibilities for meeting these criteria vary by method. Each delivery method offers a different level of risk to the owner.

The goals of this publication are:

1. To develop a set of definitions for the four primary delivery methods—Design-Bid-Build, Design-Build, Construction Management at-Risk, and Integrated Project Delivery.

2. To create definitions broad enough that all hybrids fall within the four primary delivery methods mentioned above.

3. To encourage consensus on a set of defining characteristics for each delivery method. Defining characteristics define a delivery method. Typical characteristics may be common to a delivery method, but are not required to define it.

4. To provide the industry with a set of definitions that others can use as a baseline. The design and construction industry has lacked standard definitions for so long that industry-wide consensus will not be reached quickly. Therefore, the goal of this primer is to provide a baseline against which people can reconcile their own set of definitions.

Note: Some states have laws that establish delivery methods and associated responsibilities. Check with your architect or contractor for assistance in reconciling differences within your state. AGC's Construction State Law Matrix™ (www.agc.org/slm) and AIA’s Project Delivery Statute Matrix (http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aias078880.pdf) are also useful resources for locating information on state laws affecting public or private construction projects.
Risk Tolerance and the Project Delivery Decision

Risk Tolerance regarding the choice of project delivery methods can be defined as the extent to which an organization chooses to risk experiencing a less favorable outcome in the pursuit of a more favorable outcome (adapted from the International Standards Organization (ISO)).

All things being equal, most organizations prefer paths where risk is consistent with their tolerance. This idea of risk is completely applicable to the decision regarding project delivery methods and can be seen as one of the factors why there is reluctance to implement certain project delivery models.

New project delivery methods have a structure focused on collaboration, while at the same time eliminating the adversarial nature of traditional models. This is appealing to some owners. There are several ways these collaborative models can be structured from mergers, to hires, to partnerships on a project by project basis.

Whether the various disciplines of design and construction management are provided in-house or whether there is some sort of partnering relationship established; collaborative project teams must provide the necessary leadership to deliver on an owner’s expectations of cost and quality, while taking on the risk inherent in all design and construction projects.

This task force worked to reach consensus on how projects are delivered and to ensure that the language used is method-neutral. There was considerable discussion of the terms used to describe the four primary delivery methods discussed in this primer. The task force recognized that delivery and management terms such as “CM-adviser,” “CM-agent,” “program management” and “turnkey” are appropriate in some situations, as are terms that describe variations of some delivery methods, such as “bridging” as a variation of Design-Build. However, use of these terms is not in keeping with the goal of creating definitions broad enough to include all hybrids of the four primary project delivery methods.

The task force participants learned from this experience, and hope that others will also benefit from the information contained in this document.

Key Considerations

Delivery vs. Management

Before defining the project delivery methods, it is important to distinguish between the delivery and management aspects of project delivery. “Delivery” refers to the method for assigning responsibility to an organization or an individual for providing design and construction services. “Management” refers to the means for coordinating the process of design and construction (planning, staffing, organizing, budgeting, scheduling, and monitoring).

For example, CM at-Risk is a project delivery method and CM-adviser is a form of project management. While this difference in leadership may appear subtle, it is nonetheless important to the understanding of the different delivery methods. Assignment of contractual responsibility is a key concept for differentiating project delivery methods. Considering outsourcing of such responsibility and administration is an option that owners may want to address in any project.
Technology
Building Information Modeling (BIM) is a software tool that can be used with any of the project delivery methods discussed in this document. Because it is relatively new in the marketplace, there has been confusion that BIM is reserved exclusively for use with IPD projects. This is not the case. BIM is a technological choice that allows the IPD process to work most effectively, but is not a defining characteristic of that delivery method. BIM is a technology tool that is well suited for IPD projects because a collaborative delivery process paired with a technological catalyst creates a shared database of information available to all members of the team at the same time. This early access to information is the fuel that drives the successful outcome of a project. All team members utilize their specific area of expertise to inform the project design, make value-added decisions, and thereby advance the outcome. Still, BIM can be used with any of the delivery methods described in this primer.

Selection Procedures
How the owner selects the primary service providers has a significant effect on the project delivery method and resulting contractual relationships.

The selection is usually based on price, qualifications, or a combination of the two. When qualifications or qualifications and price serve as the basis for selection, it is common to use a Request for Qualifications (RFQ), a Request for Proposals (RFP), and interviews to review bidders. Each of these methods of gathering information reveals important aspects of the bidders’ qualifications. Typically, more than one provider is contacted to supply information to encourage the opportunity for comparison and optimum selection.

The following are commonly used approaches for selecting a design and construction team:

**Contractor Procurement Options:**

**Direct Negotiation** – The contractor is selected based on reputation, experience and/or past performance. The fee and/or total cost is negotiated between the contractor and the owner.

**Qualifications Based Selection (QBS)** – The contractor is selected on the basis of demonstrated competence and qualifications only. The owner shall not request or consider fees, price, man-hours or any other cost information as part of the selection process.

**Best Value: Fees** – The contractor’s final selection is based on some weighting of a combination of qualifications and fees (possibly including general conditions).

**Best Value: Total Cost** – The contractor’s final selection is based on some weighting of the total cost and other criteria such as qualifications.

**Low Bid** – The contractor’s final selection is based solely on lowest total cost.

**Architect Procurement Options:**

**Direct Negotiation** – The architect is selected based on reputation, experience, and/or past performance. The fee is negotiated between the architect and the owner.
Qualifications Based Selection (QBS) – The architect is selected on the basis of demonstrated competence and qualifications only. The owner shall not request or consider fees, price, man-hours or any other cost information as part of the selection process.

Best Value: Fees – The architect final selection is based on some weighting of a combination of qualifications and fees.

Low Fee – The architect final selection is based solely on lowest fee.

Accelerated Delivery
In some projects, owners may have an additional requirement to occupy the building or space as soon as possible. In these instances, architects and contractors will agree to terms which require an accelerated project delivery process or “fast-track”. Fast-track projects can appear in any of the delivery methods discussed in this document but are most likely to be seen in CM at-Risk, Design-Build, and IPD. The schedule will require the architect to issue portions of the drawing set (e.g., foundation plans, structural steel, etc.) to the contractor for bid/pricing and construction before the project’s design is fully complete. The benefit to the owner is a shorter schedule; however, the downside is that some design elements are locked in early making changes in scope later in the design phases difficult and costly.

Delivery Method Definitions

Introduction
In recent years, various delivery methods have been created or gained renewed popularity to address owners’ concerns with finger pointing, cost overruns, and increasing project complexity. These delivery methods include Design-Build, Construction Management at-Risk, and Integrated Project Delivery. The sections below provide an overview of each of these project delivery methods with defining and typical characteristics for each. Owners should be aware that each project delivery method should include the development of carefully crafted contracts defining the roles of the players appropriate to that methodology.

Design-Bid-Build (DBB)
This method involves three roles in the project delivery process—owner, architect, and contractor—in traditionally separate contracts. “Traditional” is frequently used to describe the Design-Bid-Build method, which typically involves competitively bid, lump sum construction contracts that are based on complete and prescriptive contract documents prepared by architects. These documents generally include drawings, specifications, and supporting information. The phases of work are usually conducted in linear sequence. The owner contracts with an architect for design, uses the design documents produced by the architect to secure competitive bids from contractors; and, based on an accepted bid, contracts with a contractor for construction of the building.

For most of the 20th century, public work was routinely built using the Design-Bid-Build delivery method. This has included competitive bidding among general contractors, performance bonds, and employment of various other statutory requirements to protect taxpayer investments. Much private work has also been performed for a lump sum figure, in the belief that the marketplace ensures economic discipline and yields the lowest cost. It should be noted that this may not be the lowest cost for the project, but it represents the lowest cost associated with the design documents prepared for the project before actual construction begins.
In many instances private organizations with large constituencies, such as churches and schools, use project delivery methods with sealed bids and formal procedures similar to procedures for public projects.

The following defining characteristics identify Design-Bid-Build:

- Three prime players—owner, designer, contractor
- Two separate contracts—owner-designer, owner-contractor
- Final contractor selection is based on Low Bid or Best Value: Total Cost

Typical characteristics of the Design-Bid-Build approach include the following:

- Three phases—design, bid, build. These phases may be linear or overlapping if a project is fast-tracked or bid-out to multiple prime contractors.
- Well-established and broadly documented roles
- Contract documents that are typically completed in a single package before construction begins, requiring construction-related decisions in advance of actual execution
- Construction planning based on completed documents
- Complete specifications that produce clear quality standards
- Configuration and details of finished product agreed to by all parties before construction begins

Construction Management at-Risk (CM at-Risk)

Construction Management at-Risk (CM at-Risk) approaches involve a construction manager who takes on the risk of building a project. The architect is hired under a separate contract. The construction manager oversees project management and building technology issues, in which they typically have particular background and expertise. Such management services may include preparation of cost models, advice on the time and cost consequences of design and construction decisions, scheduling, cost control, coordination of construction contract negotiations and awards, timely purchasing of critical materials and long-lead-time items, and coordination of construction activities.

In CM at-Risk, the construction entity, after providing preconstruction services during the design phase, takes on the financial obligation for construction under a specified cost agreement. The construction manager frequently provides a Guaranteed Maximum Price (GMP). CM at-Risk is sometimes referred to as CM/GC because the construction entity becomes a general contractor (GC) through the at-risk agreement.

The term “at-risk” is often a source of confusion. Sometimes it refers to the fact that the contractor holds the trade contracts and takes the performance risk for construction. In other contexts, the term is tied to the existence of a cost guarantee or GMP. Because the term “at-risk” has two distinct meanings, it is important to understand how it is being used in a particular situation. The definition used for CM at-Risk in this document is based primarily on the fact that the construction manager holds the trade contracts and takes the performance risk. The eventual establishment of a guaranteed maximum price is typical of CM at-Risk project delivery, but it is not a defining characteristic of the delivery method in this case.

When a GMP is used, the CM at-Risk approach is flexible as to when the construction price becomes fixed. As a result, the timing for agreeing to a GMP varies by project. Considerations of risk should include an evaluation of the amount of design information available, the amount of contingency included, and the owner’s willingness to share in the risk of cost overruns.
The CM at-Risk contracts with trade contractors who perform their portion of the construction. These entities are contractually bound only to the CM at-Risk. It should be noted that there is no contractual relationship between the designer and the CM at-Risk.

The following defining characteristics identify CM at-Risk:
- Three prime players—owner, architect, CM at-Risk
- Two separate contracts—owner to architect, owner to CM at-Risk
- Final provider selection based on Qualifications Based Selection or Best Value: Fees

Typical characteristics of the CM at-Risk approach include the following:
- Hiring of the CM at-Risk during the design phase
- Clear quality standards produced by the contract’s prescriptive specifications
- Establishment of a guaranteed maximum price

Other characteristics that may be seen in the CM at-Risk approach include the following:
- Overlapping phases—design and build
- Preconstruction services offered by the architect, CM or contractor (such as constructability review, bid climate, and bid management)

Construction Management at-Risk is also known by the designations CM at-Risk, CMAR, CM@R, CMc, CM/GC and GC/CM.

Design-Build (DB)
Design-Build has gained popularity in recent years in both the private and public sectors. The primary reason for this interest in Design-Build as a viable project delivery option is the owner’s desire for a single source of responsibility for design and construction. In the Design-Build approach to project delivery, the owner contracts with a single entity, the design-build entity, for both design and construction. The design-build entity can be led by an architect or a contractor and can consist of any number of people. As with CM at-Risk, the timing of agreement on a GMP varies with each project.

The following defining characteristics identify Design-Build:
- Two prime players—owner, design-build entity
- One contract—owner to design-build entity

Typical characteristics of the Design-Build approach include the following:
- Final design-builder selection may be based on any of the following: Direct Negotiation, Qualifications Based Selection, Best Value: Fees or Total Project Cost, or Low Bid.
- Project-by-project basis for establishing and documenting roles
- Continuous execution of design and construction
- Overlapping phases—design and build
- Some construction-related decisions after the start of the project
- Overall project planning and scheduling by the design-build entity prior to mobilization (made possible by the single point of responsibility)

Other characteristics that may be seen in the Design-Build approach include the following:
Preconstruction services offered by the architect, CM or contractor (such as constructability review, bid climate, and bid management)

Integrated Project Delivery (IPD)
In today’s project atmosphere one could argue the delivery of traditional design and construction services has devolved into an adversarial process resulting in inefficiency, mistrust, and commoditization of services among owners, architects, contractors, subcontractors, and suppliers, each with their agendas, silos, and preferred outcomes built into the project delivery process. However, today’s buildings are complex machines requiring the expertise of many professionals to complete. As a response to this unintentional paradox, the industry has begun to look to more collaborative, non-traditional delivery systems to facilitate better communication, reduce/share risk, increase profits, and provide a positive experience for project owners. Integrated Project Delivery (IPD) is one of these collaborative systems.

IPD is conceptually based on a collaborative arrangement of the major project stakeholders early in the process, implemented in an environment of “best-for-project thinking” and shared risk and reward. This collaboration of stakeholders works to define project issues at the outset, helping to identify conflicts, establish performance criteria, minimize waste, increase efficiency, and maximize the scope achieved for limited project budgets. The ultimate goal is to create a project environment that produces a positive outcome for all stakeholders. Although not exclusive to the IPD delivery method, multi-party agreements can include incentive clauses based on the idea of shared savings among the project team.

Both the AIA and AGC define Integrated Project Delivery as a delivery method based on the idea of collaboration.

Integrated Project Delivery (IPD):
IPD is a method of project delivery distinguished by a contractual arrangement among a minimum of the owner, constructor and design professional that aligns business interests of all parties. IPD motivates collaboration throughout the design and construction process, tying stakeholder success to project success, and embodies the following contractual and behavioral principles:

Contractual Principles
Key Participants Bound Together as Equals
Shared Financial Risk and Reward Based on Project Outcome
Liability Waivers between Key Participants
Fiscal Transparency between Key Participants
Early Involvement of Key Participants
Jointly Developed Project Target Criteria
Collaborative Decision Making

Behavioral Principles
Mutual Respect and Trust
Willingness to Collaborate
Open Communication
It is important to note that some projects are being delivered in a hybrid approach when integrated practices or philosophies are applied to more traditional delivery approaches such as CM at-Risk, Design-Build or Design-Bid-Build (where the owner is not party to a multi-party contract). In addition to not having a multi-party contract, this IPD hybrid is characterized by "traditional" transactional CM at-Risk or Design-Build contracts, some limited risk-sharing, and some application of IPD principles.

The following defining characteristic identifies IPD:
• A contractual arrangement among multiple parties including, at a minimum, the owner, the architect and the contractor

Typical characteristics of the IPD approach include the following:
• Shared risk and reward
• Continuous execution of design and construction
• A minimum of three prime players—owner, architect, contractor
• Some construction-related decisions after the start of the project
• Overall project planning and scheduling collaboratively by the entire team
• Selection of the architect and contractor team is typically accomplished through Direct Negotiation, Qualifications Based Selection or Best Value: Fees.

Other characteristics that may be seen in the IPD approach include the following:
• Overlapping phases—design and build
• Preconstruction services offered by the architect, CM or contractor (such as constructability review, bid climate, and bid management)

Conclusion

There are a myriad of choices for both project delivery methods and professional services selection types. The downside of this myriad of choices is that confusion is inevitable. The good news is these alternatives offer the parties involved more flexibility to select the best process for a particular project. The decision about which delivery method to choose has become increasingly complex as different methods of project delivery have been developed.

This primer attempts to address the lack of standard industry definitions for project delivery by sharing a baseline set of definitions. For example, the rise of IPD in the industry, including the many different ways it is defined, adds to the list of project delivery options without a standard definition. As the industry moves forward, it will be increasingly more important to have common definitions of project delivery options.

The definitions proposed in this primer do not represent any one individual opinion but rather are definitions that appear to be most consistent with those currently being used in the industry and reflect the evolution of the terminology and the slight shifts in industry consensus. Perhaps one day, if everyone is able to reconcile to the same templates, we will be one step closer to having standard industry terminology. For now, being more realistic, we are not expecting to have a common vocabulary in which everyone uses the same words but instead to reach the point at which we all understand one another’s vocabulary.
Resources

General
AGC Project Delivery Website. The Associated General Contractors of America.


Qualifications Based Selection of Contractors. The Associated General Contractors of America. 2009.


Construction Management at-Risk (CM at-Risk)


Design-Build (DB)


Integrated Project Delivery (IPD)


IPD Case Studies. The American Institute of Architects, AIA Minnesota and the University of Minnesota, School of Architecture. 2011
List of Industry Contracts

The following chart lists the key contracts and forms for the delivery models discussed in this document. Please refer to the following websites for a complete list of contracts and related documents as well as current updates: www.consensusdocs.org and www.aia.org/contractdocs. Note that AIA-developed contracts begin with either A, B or C, and AGC-endorsed contracts begin with ConsensusDOCS®.

Design-Bid-Build (DBB)
A101™–2007, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

A102™–2007, Standard Form of Agreement Between Owner and Contractor where the basis of payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price

A103™–2007, Standard Form of Agreement Between Owner and Contractor where the basis of payment is the Cost of the Work Plus a Fee without a Guaranteed Maximum Price

A105™–2007, Standard Form of Agreement Between Owner and Contractor for a Residential or Small Commercial Project (including general conditions)

A107™–2007, Standard Form of Agreement Between Owner and Contractor for a Project of Limited Scope (including general conditions)

A201™–2007, General Conditions of the Contract for Construction

B101™–2007, Standard Form of Agreement Between Owner and Architect

B103™–2007, Standard Form of Agreement Between Owner and Architect for a Large or Complex Project

B104™–2007, Standard Form of Agreement Between Owner and Architect for a Project of Limited Scope

B105™–2007, Standard Form of Agreement Between Owner and Architect for a Residential or Small Commercial Project

ConsensusDOCS 200 Owner-Contractor Agreement & General Conditions—Lump Sum

ConsensusDOCS 205 Short Form Owner-Contractor Agreement & General Conditions—Lump Sum

ConsensusDOCS 235 Short Form Owner-Contractor Agreement & General Conditions—Cost of Work

ConsensusDOCS 240 Owner-Architect/Engineer Agreement

ConsensusDOCS 245 Short Form Owner-Architect/Engineer Agreement
**Construction Management at-Risk (CM at-Risk)**  
A133™–2009, Standard Form of Agreement Between Owner and Construction Manager as Constructor where the basis of payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price  
A134™–2009, Standard Form of Agreement Between Owner and Construction Manager as Constructor where the basis of payment is the Cost of the Work Plus a Fee without a Guarantee Maximum Price  
B103™–2007, Standard Form of Agreement Between Owner and Architect for a Large or Complex Project  
A201™–2007, General Conditions of the Contract for Construction  
ConsensusDOCS 500 Owner-Construction Manager Agreement & General Conditions—GMP with option for Preconstruction Services  
ConsensusDOCS 510 Owner-Construction Manager Agreement & General Conditions—Cost of Work with option for Preconstruction Services  

**Design-Build (DB)**  
A141™–2004, Agreement Between Owner and Design-Builders  
A142™–2004, Agreement Between Design-Builders and Contractor  
B142™–2004, Agreement Between Owner and Consultant where the Owner contemplates using the design-build method of project delivery  
B143™–2004, Standard Form of Agreement Between Design-Builders and Architect  
ConsensusDOCS 400 Preliminary Owner-Design-Build Agreement  
ConsensusDOCS 410 Owner-Design-Build Agreement & General Conditions—Cost Plus with GMP  
ConsensusDOCS 415 Owner-Design-Build Agreement & General Conditions—Lump Sum  

**Integrated Project Delivery (IPD)**  
C191™–2009, Standard Form Multi-Party Agreement for Integrated Project Delivery  
A195™–2008, Standard Form of Agreement Between Owner and Contractor for Integrated Project Delivery  
C195™–2008, Standard Form Single Purpose Entity Agreement for Integrated Project Delivery
C196™-2008, Standard Form of Agreement Between Single Purpose Entity and Owner for Integrated Project Delivery

C197™-2008, Standard Form of Agreement Between Single Purpose Entity and Non-Owner Member for Integrated Project Delivery

C198™2010, Standard Form of Agreement Between Single Purpose Entity and Consultant for Integrated Project Delivery

C199™2010, Standard Form of Agreement Between Single Purpose Entity and Contractor for Integrated Project Delivery

ConsensusDOCS 300 Collaborative Agreement (Multi-Party Agreement)

**Qualification Forms**
A305™−1986, Contractor’s Qualification Statement

B305™−1993, Architect’s Qualification Statement

ConsensusDOCS 221 Contractor’s Statement of Qualifications for a Specific Project

ConsensusDOCS 222 Architect/Engineer’s Statement of Qualifications for a Specific Project

ConsensusDOCS 721 Subcontractor’s Statement of Qualifications for a Specific Project