Primer on

Project Delivery

Provided by the Joint Committee of

The American Institute of Architects

The Associated General Contractors of America

Primer on Project Delivery

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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 primer. 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 as "best."

At present, there are no industrywide 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 either entirely right or entirely wrong.

This primer offers basic definitions to help clients and owners better understand their options. Members of the AIA and AGC around the country have been active in efforts to compile a basic list of methods. This effort is intended to complement those efforts whenever possible.

The four main criteria for the success of any project delivery method are cost, quality, time, and safety. However, responsibilities for meeting these criteria vary by method. Each delivery method offers a different level of risk to the owner or provider.

The goals of this publication are:

1. *To develop a set of definitions for the three primary delivery methods—design-bid-build, design-build, and construction management at risk (CM@R).* CM@R is also known by the designations CMc and CM/GC.

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

3. *To encourage consensus on a set of defining characteristics for each delivery method.* Other characteristics, termed "typical," can be used to clarify a definition but are not required to define the delivery method. *Defining characteristics* distinguish one delivery method from the others. *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 industrywide 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 general contractor for assistance in reconciling differences within your state.

The task force, through its many deliberations, 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 three primary delivery methods discussed in this work. 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 three primary project delivery methods.

The task force participants learned from this experience, and hope that owners and clients will also learn from considering this document.

Administrative 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, monitoring).

For example, CM@R 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. Leadership implies the authority to legally bind the owner. Assignment of contractual responsibility is a key concept for differentiating project delivery methods. Outsourcing of such responsibility and administration is an option that owners should address in any project.

Selection Procedures

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

The selection is usually based on price, on qualifications, or on 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 responsible bids.

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

Low bid: The builder's final selection is based solely on lowest total cost.

Best value bid: The builder's final selection is based on some weighting of the total cost and other criteria such as qualifications.

Qualifications-based selection: Total construction cost is not a factor in the builder's final selection. Instead, the final selection is based on either a "pure qualifications-based selection" (qualifications only, no element of price) or a combination of qualifications and fees (possibly including general conditions).

Delivery Method Definitions

Design-Bid-Build

This method involves three roles in the project delivery process—owner, architect, and builder—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 and engineers. 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 has been routinely built using the design-bid-build/lump sum (or stipulated sum) delivery method. This has included competitive bidding among general contractors, performance bonds, and employment of various other statutory requirements to protect taxpayers' 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. In particular, private organizations with large constituencies, such as churches and schools, are often required to use project delivery methods with sealed bids and formal procedures, similar to procedures for public projects.

Design-bid-build is identified by the following *defining characteristics*:

- Three prime players—owner, designer, builder
- Two separate contracts—owner-designer, owner-builder
- Final contractor selection based on lowest responsible bid or total contract price

Typical characteristics of the design-bid-build approach include the following:

- Three linear phases—design, bid, build
- Well-established and broadly documented roles
- Carefully crafted legal and procedural guidelines
- A lowest responsible bid that provides a reliable market price for the project
- Contract documents that are typically completed in a single package before construction begins, requiring construction-related decisions in advance of actual execution
- An opportunity for 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

Construction management at risk (CM@R) 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 a construction manager typically has particular background and expertise. Such management services may include 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@R 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@R 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@R 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@R project delivery, but it is not a defining characteristic of the delivery method in this case.

When a GMP is used, the CM@R 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@R contracts with trade contractors who perform the construction. These entities are contractually bound only to the CM@R. It should be noted that there is no contractual relationship between the designer and the CM@R.

The following *defining characteristics* identify CM@R:

- Three prime players—owner, designer, CM@R
- Two separate contracts—owner to designer, owner to CM@R
- Final provider selection based on aspects other than total cost

Typical characteristics of the CM@R approach include the following:

- Overlapping phases—design and build (fast track)
- Hiring of the construction manager during the design phase
- Preconstruction services offered by the constructor (such as constructability review, bid climate development and bid management)
- Specific contractual arrangement determines the roles of players
- Clear quality standards produced by the contract's prescriptive specifications

Design-Build

In the design-build approach to project delivery, the owner contracts with a single entity—the designer-builder—for both design and construction. The design-build entity can be led by either an architect or a general contractor and can consist of any number of people. As with CM@R, the timing of agreement on a GMP varies with each project.

Owners interested in single-point responsibility for both design and construction can use the design-build delivery system. In design-build, a consolidated entity provides both design and construction services to the

owner. A single contract is established between the owner and the architect-contractor or design-build entity. Design-build approaches require an explicit determination of the roles and responsibilities of the design-build team.

Single-source contracting 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.

The following *defining characteristic* identifies design-build delivery:

- One contract—owner to design-build entity

Typical characteristics of the design-build approach include these:

- Project-by-project basis for establishing and documenting roles
- Continuous execution of design and construction
- Overlapping phases—design and build (fast track)
- Two prime players—owner, design-build entity
- Carefully crafted legal and procedural guidelines for public owners
- 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)
- Either cost or solution as the basis for selection of the design-build entity

Resources

AIA/AGC Recommended Guidelines for Procurement of Design-Build Projects in the Public Sector. Washington, D.C.: The American Institute of Architects and Associated General Contractors of America, 1995.

The American Institute of Architects. *The Architect's Handbook of Professional Practice*, 13th ed. Edited by Joseph A. Demkin, AIA. New York: John Wiley & Sons Inc., 2001.

The American Institute of Architects. *The Architect's Guide to Design-Build Services*. Edited by G. William Quatman, FAIA, and Ranjit (Randy) Dhar, FRAIC. Hoboken N.J.: John Wiley & Sons Inc., 2003.

"Design/Build Teaming Checklist." Washington, D.C.: The American Institute of Architects and Associated General Contractors of America, 1999.

List of Industry Contracts

Please refer to the following Web sites for current updates: www.aia.org *and* www.agc.org. *Note that AIA-developed contracts begin with either A or B, and AGC contracts begin with AGC.*

Design-Bid-Build (DBB)

(AIA) A101 Owner-Contractor Agreement Form—Stipulated Sum

(AIA) A201 General Conditions of the Contract for Construction

(AIA) B141 Standard Form of Agreement Between Owner and Architect

(AIA) B151 Abbreviated Owner-Architect Agreement

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

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

AGC 240 Owner-Architect/Engineer Agreement

AGC 245 Short Form Owner-Architect/Engineer Agreement

Construction Management at Risk (CM@R)

(AIA) A121/CMc Standard Form of Agreement Between Owner and Construction Manager Where the Construction Manager Is Also the Constructor

(AIA) A131/CMc Standard Form of Agreement Between Owner and Construction Manager Where the Construction Manager Is Also the Constructor; and Where the Basis of Payment Is the Cost of the Work Plus a Fee and There Is No Guarantee of Cost

AGC 230 Owner-Contractor Agreement & General Conditions—Cost Plus with option for Preconstruction Services

AGC 250 Owner-Contractor Agreement & General Conditions—GMP with option for Preconstruction Services

AGC 565 (AIA A121/CMc)

AGC 566 (AIA A131/CMc)

Design-Build (DB)

(AIA) A191 Standard Form of Agreements Between Owner and Design/Builder

AGC 400 Preliminary Owner-Design-Builder Agreement

AGC 410 Owner-Design-Builder Agreement & General Conditions—GMP

AGC 415 Owner-Design-Builder Agreement & General Conditions—Lump Sum

Qualification Forms

(AIA) A305 Contractor's Qualification Statement

(AIA) B431 Architect's Qualification Statement

AGC 221 Contractor's Statement of Qualifications for a Specific Project

AGC 222 Architect/Engineer's Statement of Qualifications for a Specific Project