Preface

Construction management evolved as a professional practice distinct from design and construction in the early 1960's in response to increasing complexities in the construction industry. Highly sophisticated construction systems led to the specialization of both design and construction professionals. Additionally, increasing regulatory mandates, litigation and other risks created a need for a new professional to be an advocate for the Owner and bridge the gap between the Owner, the Designer and the Contractor. Today, construction management is well established, and recognized around the world as an indispensable profession.

A Construction Manager (CM) provides the Owner with specialized knowledge, experience and resources to navigate through the complexities of a construction program or project. Construction management services may be tailored to satisfy the needs of the novice or sophisticated Owner. The CM adds value by providing the resources and expertise needed to manage quality, cost, schedule, scope and risks associated with design and construction to help the Owner achieve its objectives.

A major construction effort is a complex and risk-laden venture. It involves the expenditure of a large sum of capital as well as the application of technologies of which many are aware, some are conversant, but few are expert. It requires the Owner to do business with several groups of people whose interests are not its own and to venture into a field with its own set of rules, some of which are not written down anywhere. It is an intensive process demanding constant attention in order to achieve success.

The federal government has a construction budget that is measured in billions of dollars and a plan for accomplishment that is measured in decades. Many state governments have construction efforts of hundreds of millions of dollars and multiple years. Although the federal and state governments have standing staffs to manage their typical construction program, they often need specialized expertise or supplemental staff to help manage certain projects.

Smaller government organizations are like smaller businesses, having the same organizational needs for construction expertise matched against an equal need to reduce expenses. Moreover, many times the smaller private Owner cannot afford to build a staff and fully develop sufficient expertise to embark upon a construction program.

The use of professional construction management services to oversee all or parts of the planning, design and construction process is recognized in both the public and private sectors as an effective and efficient means of achieving successful delivery of constructed projects under any contract format.

The Construction Management Association of America (CMAA) presents this document as a guide to public and private Owners in selecting a critical component of the construction project: the CM.

This guide will benefit those Owners who will embark on a construction project and who will seek expertise in the planning, design and construction process. It introduces the construction management practice and describes how it can enhance the success of a project.

Executive Summary

Professional CMs can be instrumental in achieving successful construction projects and may be used in a variety of contracting and project delivery systems.

There are many issues an Owner must consider in undertaking a project, such as time and cost constraints, the need for flexibility, pre-construction service needs, design process interaction, and financial constraints. The project team should enhance and reinforce the strengths of the Owner to provide a comprehensive set of resources and skills to accomplish the project.

While a wide and somewhat bewildering variety of ways to organize a project have been developed to satisfy the needs of Owners and projects, all share the same basic set of players: the Owner, the CM, the Designer, other consultants, Contractors, and Subcontractors. Regardless of resources, Owners must choose a particular organization, contract and award, and combine them into a desired and appropriate contracting format for each project.

Construction management is a professional services discipline applied to the planning, design and construction process of capital improvement projects. Professional CMs address the needs of projects and Owners by providing management services and expertise tailored to project needs and independent of the chosen contract format or project delivery method. It is this management approach that makes construction management unique. CMs apply and integrate comprehensive project controls to manage the critical issues of time, cost, scope, quality and safety.

As an Owner, it is necessary to choose a project delivery method and contracting format that efficiently delivers the project. A contracting format is an arrangement for the distribution or allocation of construction project risk (most frequently cost or performance risk) between the parties to a contract. A project delivery method is designed to achieve the satisfactory completion of a construction project from conception to occupancy. Construction management has been used successfully in all contracting and delivery systems by Owners who do not continuously maintain the staff expertise or numbers necessary to deal with the complex responsibilities involved in the management of major projects. In addition, the CM usually helps the Owner identify which delivery system is best for the project.

A number of contracting formats exist including fixed price, guaranteed maximum price, cost plus fixed or variable fee, and unit price contracts.

Construction projects in the United States have traditionally been delivered through the design-bid-build project delivery method. Because of financial, organizational and time constraints, alternative project delivery methods have evolved to fit particular projects and client needs. These include multiple primes; developer manager; design-build; and design, build, operate and transfer.

Construction management comes in two general forms. In agency construction management, the Owner utilizes a CM as its principal agent to advise on or manage the process over the life of the project regardless of the project delivery method used. In construction management at risk, the Owner utilizes a CM to consult in the Pre-Design and Design Phases of a project. However, the CM's role also includes a construction performance role during the Construction Phase. At that time, the CM converts to the legal equivalent of a Contractor once a price is established for the completion of the construction work.

Typically, professional construction management services are procured on the basis of an objective evaluation of the qualifications of competing firms. As is the case with any professional service contract, the issue of price does not enter into the ranking of construction management firms based on their qualifications. The Owner and the selected CM then jointly, through negotiation, develop a final scope of services to support the timely delivery of the project. Development of a construction management budget grows out of this scope and is the first step in the detailed planning of the project. Among the methods recognized and commonly used in the compensation of firms for professional construction management services are salary times multiplier plus direct expenses, billing rates, and cost plus fixed fee.

1.0 Defining Construction Management

There are several issues an Owner must consider in the selection of a method of accomplishing a project:

» *Time needs of the project*: Does it have to be done quickly? Will the schedule be affected by outside influences? Will the schedule be lengthened by cash flow considerations?

» *Needs of the project for flexibility*: How much change will be required during the construction? How much of the project will be fully defined by the Owner and Designer prior to its being constructed? If other than the Owner, how much influence will the user have over the design and construction?

» *Preconstruction service needs*: How much assistance will the Owner need in the definition and planning of the project with respect to quality and safety, and with respect to cost versus scope versus time?

» *Design process interaction*: How well does the Owner understand the design process and the cost impacts of decisions made in the course of design development? How complex is the design process for the project?

» *Financial constraints*: How is the project financed? How does the financing influence the schedule, type of contract, risk and other requirements of the project?

The Project Participants

While a wide and somewhat bewildering variety of project organizations have evolved over time to satisfy the needs of Owners and projects, all share the same basic set of players:

» *The Owner*: The private or public organization ultimately responsible for the proper execution of the project.

» *The Construction Manager (CM)*: A provider of professional services to the Owner, the CM organizes the effort, develops the management plan, monitors the participants' progress against the plan and identifies actions to be taken in the event of deviance from the plan. The CM also provides expert advice in support of the Owner's decisions in the implementation of the project. The CM can be a firm, a team of firms, or an individual.

» *The Designer(s)*: Employed by the Owner to provide design services in support of the project. While Designers can be contractually responsible to the Owner, they report progress to the CM and are monitored by the CM for compliance with the scope statement and both the design and construction budgets.

» *Other Consultants*: Providers of specialized services, such as real estate acquisition firms, geotechnical engineering firms, environmental engineers, permitting consultants, etc., employed by the Owner in support of the project. Their efforts are coordinated and monitored by the CM.

» *The Contractor*: The organization or individual who undertakes responsibility for the performance of the work, in accordance with plans, specifications and contract documents, providing and controlling the labor, material, equipment, and subcontractors to accomplish the work.

Needs of the Project

Several forms of project organization have been developed that are designed to meet the needs of specific projects and Owners. The integration and coordination of the complex interrelationships occurring in a typical construction process require substantial expertise. Some Owners may have extensive operational organizations with vast knowledge of the business of the Owner or of a particular facet of the construction industry such as finance or building maintenance. Other Owners may not have the organizational resources or expertise on board to meet the needs of a particular project. Whatever level of expertise the Owner may have, the organization of a project can be designed to enhance and reinforce the strengths of the Owner's existing staff to provide a comprehensive set of skills to accomplish the project.

Expertise applicable to virtually any project includes:

» Project scope development
» Land acquisition
» Permitting
» Financing
» Cash flow management
» Design acquisition and management
» Cost estimating
» Cost and schedule control
» Contract administration
» Document control
» Construction inspection
» Quality control
» Value engineering
» Risk management
» Constructibility review
» Contracting and project delivery systems
» Dispute avoidance and resolution
» Commissioning
» Activation

Construction management is a professional services discipline applied to the planning, design and construction process. CMs provide a program of management techniques and expertise tailored to Owner and project needs and independent of the chosen contract form or project delivery method. It is this management approach that makes construction management unique. CMs apply and integrate comprehensive project controls to manage the critical issues of time, cost, scope and quality. It is the matching of services to project/Owner needs that makes construction management a cost effective approach to managing project delivery.

A significant advantage of using a CM is that the organizational structure is not dependent on a single model or set of models. Generally, CMs fall within two categories, "agency" or "at risk."

In "agency construction management" the CM assumes the position of professional advisor or extension of staff to the Owner. The Owner lets most of the contracts, and certain cost and performance risk is placed on the Contractors. In these cases, the CM is in a position to offer advice unencumbered by any interests other than those of the Owner and the project. The term agency infers, as is intended, a delegation of function to the CM by the Owner. As a consequence, it is possible that certain tasks and responsibilities place the CM in a legal agent relationship with the Owner. The necessity for openness and candor between the CM and Owner is paramount.

When the CM's role includes a construction performance function, it is known as the "CM-at-risk" approach. In this approach, which can often occur under a guaranteed maximum price (GMP) contract format, the CM will assume additional obligations and will undertake construction responsibilities during the Construction Phase. At that time, the CM is typically placed in a legal position similar to that of a Contractor entering into a traditional construction agreement which provides for the completion of the construction work for an established price.

Regardless of the form of contract agreement, the CM is performing professional tasks throughout all the phases of program project implementation. A contract agreement will establish the scope of services and will also define the relationship of the parties.