

AN OWNER'S GUIDE TO CONSTRUCTION MANAGEMENT



Advancing Professional Construction and
Program Management Worldwide

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Preface

This document is intended as an introductory guide for public and private owners to understand the roles and responsibilities of the key professionals critically important to the success of a construction program and/or project.

This document will benefit those owners who embark on a construction project or program providing guidance to define the expertise recommended for success in the planning, design and construction processes. It introduces construction and program management practices describing how they can enhance the success of a project.

Traditional and alternative project delivery methods are presented, with the corresponding risks to be managed in each. In addition, the differences between Agency Construction Management and At-risk Construction Management are highlighted along with guidance in selecting Construction Managers and Program Managers.

CMAA also publishes Construction Management Standards of Practice and accompanying guidelines describing in detail the roles and responsibilities of the professionals introduced in this Owners Guide.

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Executive Summary

Construction is inherently a complex endeavor. An owner embarking on a construction project or program faces a variety of challenges, such as time and cost constraints, program and quality goals, project team creation and integration, and internal organizational requirements. Successful delivery requires a well crafted management plan, a disciplined approach to carrying it out, and effective leadership of the program/project team.

A Construction Management professional can help identify specific needs, mobilize appropriate staff and manage implementation. Management services and expertise are tailored to specific project or program needs, and comprehensive project controls are integrated into the process to help manage the critical issues of time, cost, scope, quality and safety.

The term “Construction Management” is used broadly in the industry to convey a variety of professional services. Similarly, the term “Program Management” has multiple connotations. This Owner’s Guide refers to these two concepts as CMAA defines them in their Standards of Practice, as follows:

Construction Management is a professional management practice applied to construction projects from project inception to completion for the purpose of controlling time, cost, scope and quality.

Program Management is the practice of professional Construction Management applied to a capital improvement program of one or more projects from inception to completion. Comprehensive Construction Management services are used to integrate the different facets of the construction process—planning, design, procurement, construction and commissioning—for the purpose of providing standardized technical and management expertise on each project.

Construction Management comes in two general forms, agency Construction Management and Construction Management at risk. In *agency Construction Management*, the owner utilizes a Construction Manager (CM) as its principal agent to advise on or manage the process over the life of the project, or specific phases of the project, regardless of the project delivery method used. This agency CM form also applies to program management where the Program Manager (PM) oversees Capital Improvement Programs (CIPs) involving multiple projects, multiple sites, or a very large and/or highly complex project. 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 price proposal and performance role during the Construction Phase. The CM converts to the legal equivalent of a general contractor once a price is agreed for the performance of the construction work.

Program Management is typically used in agency form. However, unusual owner or program circumstances occasionally suggest the use of *program management at risk*, wherein the PM takes on construction responsibility for some or the entire program.

The project or program team is critical to successful delivery, and should enhance and compliment the strengths of the owner to provide a comprehensive set of resources and skills. The core players on a design and construction team are the owner, the designer, the builder (or contractor), and the manager (CM or PM). The designer, the builder, and often the manager, will typically have numerous subconsultants and/or subcontractors. The owner, using either a Construction Management or program management approach, may choose to manage the team with in-house personnel, or contract out to a qualified consultant, or use a combination of both. The relationships of the various players among one another will be determined by the management plan, the delivery method(s) chosen, and the contracting format.

Contracting for and Delivering the Project or Program

As an owner, it is necessary to choose a project delivery method and contracting format that efficiently delivers the project or program. A *project delivery method* is designed to achieve the satisfactory completion of a construction project or program from conception to occupancy. A large or complex program may employ multiple delivery and contracting methods. 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. Not only have construction and program management been used effectively in all delivery and contracting methods by owners, these services can and should include the provision of valuable insight and advice to the owner in identifying which delivery method is best for the project.

Construction projects and programs in the United States have traditionally been accomplished 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 alternate delivery methods include multiple primes; developer manager; design-build; design, build, operate and maintain (DBOM); design, build, operate and transfer (DBOT); CM at risk (also called CM/GC); lease/lease back; public private partnership (P3); and integrated project delivery (IPD).

A number of contracting formats exist to accommodate these various delivery methods, including fixed price, guaranteed maximum price, cost plus percentage of cost, cost plus fixed or variable fee, and unit price contracts.

Contracting for and Delivering CM/PM Services

Typically, professional construction and program management services are procured on the basis of an objective evaluation of the qualifications of competing firms. In this approach, as with most professional service contracts, the issue of price does not enter into the ranking of Construction Management and program management firms, and selection is based on qualifications alone. The owner and the selected CM/PM then jointly, through negotiation, develop a final scope of services to support the timely delivery of the project. Development of a CM/PM 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

CM/PM services are hourly rates (either billing rates or salary times multiplier) plus direct expenses; lump sum fee; and cost plus fixed fee.

1.0 Framing Construction Projects and Programs

Considerations

There are several considerations that an owner must evaluate in selecting a method of accomplishing a project:

- *Time needs* - Does it have to be done quickly? Will the schedule be affected by outside influences? Will the schedule be lengthened by cash flow constraints? Must the schedule be compressed to achieve revenue objectives?
- *Need for flexibility* - How much change will be required during the planning, design, and/or construction? How much of the project or program will the owner and Designer fully define 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 to define and plan 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 and schedule impacts of decisions that are made in the course of design development? How complex is the design process?
- *Financial constraints* - How is the project or program financed? How does the financing influence the schedule, type of contract, risk and other requirements?

The Participants

While a myriad of organizational variations have evolved over time to meet specific needs, all share the same basic set of players:

- *The owner* - The private or public organization ultimately responsible for the proper execution of the project or program.
- *The Construction Manager (CM)* – An organization or individual with the expertise and resources to provide Construction Management services.
- *The Program Manager (PM)* – An organization or individual that applies the practice of Professional Construction Management to a capital improvement program of one or more projects from inception to completion. Comprehensive Construction Management services are used to integrate the different facets of the construction process – planning, design, procurement,

construction and activation – for the purpose of providing standardized technical and management expertise on each project.

- *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/PM and are monitored by the CM/PM for compliance with the scope statement and both the design and construction budgets.
- *Other consultants* - Providers of specialized services, such as commissioning agents, real estate acquisition firms, geotechnical engineering firms, environmental engineers, and permitting consultants that are employed by the owner in support of the project. Their efforts are coordinated and monitored by the CM/PM.
- *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.

Meeting Project and Program Needs

The integration and coordination of the complex interrelationships occurring in a typical construction project or program require substantial expertise. Some owners may have extensive operational organizations with significant resources and capabilities. Other owners may not have the organizational resources or expertise on board to meet specific project or program needs. Whatever level of expertise the owner may have, project and program organizations can be designed to leverage and compliment the strengths of the owner's existing staff and provide the comprehensive skills needed for success.

Construction Management and Program Management are specialized professional service disciplines applied to the planning, design and construction processes. CM/PMs provide an array of management options and expertise tailored to owner and project needs and independent of the chosen contract form or project delivery method. For example, CM/PMs apply and integrate comprehensive project controls to manage the critical issues of time, cost, scope and quality. It is in the matching of services to project and program needs, in concert with the owner, where Construction Management and Program Management creates value.

Expertise applicable to virtually any project or program includes:

- Stakeholder coordination
- Project scope development
- Risk management
- Sustainability
- Land acquisition
- Permitting

- Financing
- Cash flow management
- Design acquisition and management
- Constructability review
- Budgeting & Cost estimating
- Contracting and project delivery methods
- Value engineering
- Cost and schedule control
- Contract administration
- Document control
- Construction inspection
- Quality control
- Dispute avoidance and resolution
- Commissioning
- Activation

A significant advantage of using a CM/PM is that the organizational structure is not dependent on a single contracting format or delivery method. These are discussed in greater detail in the next chapter.

Engaging a CM/PM

When an owner hires a CM or PM to assist with project delivery it is typically as either an "agency CM/PM" or a "CM at Risk". In "agency CM/PM" the CM/PM assumes the position of owner's representative, professional advisor or extension of staff to the owner. The owner holds the contracts, and certain cost and performance risk is placed on the Contractors. In this role, the CM/PM is truly a project advocate and can offer advice unencumbered by any interests other than those of the owner and the project or program. The term "agency" infers, as is intended, a delegation of function to the CM/PM by the owner. As a consequence, it is possible that certain tasks and responsibilities place the CM/PM in a legal agent relationship with the owner. The necessity for openness and candor between the CM/PM and owner is paramount. This agency form applies to program management where the PM oversees Capital Improvement Programs (CIPs) involving multiple projects, multiple sites, or a very large and/or highly complex project.

When the CM/PM's role includes a construction performance function, it is known as the "CM-at-risk" or "CM/GC" approach. In this approach, the CM/PM provides advisory services during design development until the design is mature enough to establish a construction price, at which point the CM/PM will enter into construction price negotiations with the owner to construct the project. While the owner has the right to reject the CM/PM price and procure the construction by competitive bidding, the CM/PM and owner more often reach a negotiated amount that typically results in a guaranteed maximum price (GMP) contract format. At that time, the CM/PM is placed in a legal position identical to that of a Contractor entering into a traditional construction agreement which provides for the performance of the construction work for an established price. It is important to note the change in relationship between the advisory phase, in which the CM/PM at risk has a duty to advance the owner's

interests; and the construction phase, in which the CM/PM at risk is a contractor and is primarily focused on managing the “at risk” part of its role and no longer has the duty to advance the owner’s interests.

Regardless of the form of contract agreement, the CM/PM plays a pivotal role throughout all the phases of project implementation. A contract agreement will establish the scope of services and will also define the relationship of the parties.

2.0 Contracting and Project Delivery Systems

As an owner, it is necessary to choose an overall project delivery and contracting strategy which efficiently delivers the project. An understanding of the difference between a project delivery method and a contracting format is important because it impacts these decisions.

Contracting Formats

A *contracting format* is an arrangement for the distribution of construction project risk--most frequently cost or performance risk--between the parties to a contract. Cost risk, for example, is the risk of being able to do something within a given budget limit. Cost risk distribution is accomplished through methods of arriving at or limiting the amount of money to be paid. Performance risk is the risk of being able to complete the project on time and at the level of quality as agreed. Performance risk is distributed through the technical terms of the contract, either by describing requirements for the finished product only, or by describing specific methods by which a task is to be performed. Contracting formats require some form of specific scope statement in order for the parties to make an accurate economic judgment as to cost or price.

A number of contracting formats have evolved as a result of the desire of owners or Contractors to either shift or share the risk (usually cost) of a project through contractual provisions or to increase the speed of delivery of construction.

Fixed Price Format – Usually, public and, to a somewhat lesser extent, private works are procured through a sealed bid, fixed price contract or the equivalent. In this contract arrangement, most of the price risk is intended to shift to the Contractor. In order to provide a reasonable and enforceable scope definition to the Contractor so that bids can be developed, fixed price contracts are almost always based on a completed design. The need to have a completed design in hand prior to the commencement of construction requires a longer lead time for the construction process and creates a linear approach to project delivery. This process gives the owner maximum control over the delivered project in trade for reduced speed and reduced opportunity for design innovation.

Alternate Formats - Seeking more flexible alternatives, the private sector developed a host of risk-shifting and risk-sharing contract variations, including negotiated fixed price, guaranteed maximum price (GMP), cost plus fixed or variable fee, time and material, unit price, prepurchasing, and others. These contracts run the spectrum from the lump sum, where all of the cost and schedule risk is placed on the Contractor, to cost reimbursable situations, where the owner agrees to pay all costs. Most of these methods are now also being implemented, to some extent, by public sector owners.

Project Delivery Methods

A *project delivery method* is designed to achieve the satisfactory completion of a construction project from conception to occupancy. A project delivery method may employ any one or a number of contracting formats to achieve the delivery. Project delivery methods define scope as part of their process.

Design-Bid-Build - Construction projects in the United States have traditionally been delivered through the design-bid-build sequence, securing the services of a Designer who will design the project, aid in the procurement of a Contractor, and often inspect the work of the Contractor for compliance with the specification. This sequence usually leads to the sealed bid, fixed price contract believed by many to offer the least capital cost to the owner as well as the one generally required by public procurement regulations to assure fairness in the procurement process. However, this "traditional" project delivery method allows the use of many contracting methods, since there is no inherent constraint on the allocation of price risk.

Because of financial, organizational and time constraints, other project delivery methods have evolved to fit particular projects and owner needs. These include:

- *At-Risk Construction Management (also called CM at Risk and CM/GC)* – A delivery method that entails a commitment by the Construction Manager to deliver the project within a Guaranteed Maximum Price (GMP). The Construction Manager acts as consultant to the owner in the development and design phases, but as the equivalent of a general contractor during the construction phase.
- *Design-Build* – A project delivery method which combines architectural and engineering design services with construction performance under one contract.
- *Design, Build, Operate and Maintain (DBOM)* - The Contractor receives a concession to design, build, operate and maintain a facility.
- *Design, Build, Operate and Transfer* – The Contractor designs, builds, operates and maintains a facility for a fixed period before transferring it over to the owner.
- *Developer Manager* – The Contractor acquires (or has constructed) a facility to suit the needs of the owner who in turn commits to lease the facility.
- *Lease/Lease-Back* – The owner selects a Developer/Contractor based on qualifications or best value then enters into both a lease agreement and a development agreement with the Developer/Contractor. The Developer/Contractor pays a nominal lease fee to the owner for control of the property (the Lease) and then builds the project. At the conclusion of construction the Developer/Contractor leases the developed site and building back to the owner (the Lease-Back).

- *Multiple Primes* – Separate Contractors contact directly with the owner for specific and designated elements of the work.
- *Public Private Partnership (P3)* – A private entity or consortium of investors provides some or all of the capital and a commitment to deliver a completed project for the public sector in exchange for revenue that the project is anticipated to generate.

There are benefits and trade-offs that come with various delivery methods, and it can be invaluable for the owner to have professional CM/PM advice to determine what makes the most sense for any given project or program. For example, one owner may value the speed to completion and the potential for design innovation that Design-Build promises while another owner may not wish to accept the reduction in owner control of final design that accompanies Design-Build delivery. In addition, many alternate delivery methods require the owner to have sufficiently experienced staff resources to fully define the project or be willing to allow another entity to define it.

CMAA has a policy of being project delivery method neutral. Owners who are unfamiliar with alternate delivery methods should consult with a CM/PM to determine what delivery method is right for them and their project.

3.0 Why Construction Management/Program Management?

Construction Management and Program Management have been used successfully in *all* delivery methods for owners, including those who do not continuously maintain the staff expertise or the depth of resources necessary to deal with the complex responsibilities involved in the delivery of major capital projects. The CM/PM frequently helps the owner identify which delivery method is best for the project or program.

Construction Management

Construction management services rely on qualified personnel with construction, design and management expertise to expand the owner's capabilities so that the owner can successfully accomplish its program or project. These services may be provided by the owner, a consultant firm or a mix of sources.

A CM frequently has a role in both traditional and alternative project delivery methods as a trusted advisor to the owner. In such cases, the CM may participate in the decision-making process on behalf of and in concert with the owner. This can be particularly helpful in design-build where substantial scope definition responsibility and project control are assigned to the design-builder, and there exists no natural check on the design-builder.

Benefits of Using a CM

Use of a professional Construction Management consultant improves owner and stakeholder confidence in the potential success of the project or program. This enhanced confidence grows out of the ability of a professional CM to provide experienced personnel who can provide advice and recommendations regarding:

- The effective use of available funds
- Enhanced control of the scope of the work
- Recommendations regarding various delivery methods suitable for the project or program
- Optimal project scheduling options
- Value added use of individual project team members' expertise
- Strategies to avoid delays, changes and claims
- Assist in Designer selection and preparation of Designer's contract
- Enhanced design and construction quality
- Optimum flexibility in contracting/procurement options

Construction management involves a comprehensive management and control effort applied to the project or program for the owner, beginning in the early project planning stages and continuing through project completion. It involves the application and integration of comprehensive project controls to the design and construction process and generally includes the following:

- One or more Management Plans
- Master Planning
- Development of a written scope understood by all of the participants
- Detailed project budget based on scope, quality and schedule
- Development of thorough design criteria for issue to the Designer
- Design quality assurance throughout the design process
- Consideration of material, systems and process alternatives
- Constructability and sustainability reviews
- Code compliance review
- Life-cycle Cost Analyses/Value Engineering
- Milestone cost estimating so that design complies with the budget
- Matching construction spending to available funds
- Construction specification enforcement
- Continual schedule monitoring
- Commissioning

The implementation of these management activities turns the planning, design and construction process into one which maximizes the owner's control over the project's scope, quality, time, and cost, and adds predictability of the outcome from the start of programming to completion of construction.

Early development of the scope provides the information needed to establish a baseline budget and schedule. Because of the continual monitoring of the schedule and project cost over time, the impact of changes and new information on this baseline can be evaluated and managed contemporaneously. The CM can prepare well formulated and appropriately sized construction bid packages, developed during the planning and design process, are the key to minimizing changes and avoiding disputes and delays during construction. This is the owner's most powerful tool in assuring a positive outcome for the project.

The addition of a CM does not lessen the owner's control over the project, but enhances it through the owner's acquiring access to experienced design and construction professionals. When an owner implements a project using an agency CM, it allows the owner to make use of advice that is unaffected by any potential conflict of interest. The owner is still able to obtain the advantages of the many procurement methods, but with much greater control over and confidence in the outcome.

The CM Plan

The Construction Management Plan is the written document prepared by the CM, which clearly identifies the roles, responsibilities and authority of the project team and the procedures to be followed during construction. The Construction Management Plan is typically incorporated into the Project Management Plan which is developed at the outset of the project and includes basic components including the project description, owner's goals and expectations to address scope of work, budget, and master and milestone schedules. As the project moves towards construction, additional elements including the quality management approach and the safety management plan are included in the Construction Management Plan.

Program Management

When an owner embarks on a large, highly complex project, or a Capital Improvement Program (CIP) involving multiple projects and/or multiple sites, it may be appropriate to retain Program Management (PM) services. A Program Manager is assigned the expanded responsibilities of managing all of the resources and relationships necessary to achieve an owner's desired outcome. Depending on the owner's organization and needs, PM services may be provided by in-house personnel or contracted to a qualified consultant.

There are many similarities between Construction Management and program management. Both utilize integrated systems and procedures such as budgeting, estimating, scheduling, procurement, and inspection to manage the planning, design, and construction process. The primary differences between Construction Management and program management are the size, complexity and scope of the projects/programs. In addition, the PM must possess a programmatic and policy-level perspective while a CM must focus on project implementation and process.

Because of these differences, not all CMs are well suited to serve as PMs and not all PMs are well suited to serve as CMs. Certified Construction Managers who also possess PM experience, however, not only have the qualifications to fulfill CM assignments, but also form a solid pool of applicants from which owners should consider selecting their program managers. As with any procurement process for professional services, owners should vet potential PM providers based on their applicable PM experience that is relevant to the owner's specific program.

While program management draws upon the same skill set as described in the preceding "Role of the CM" section, it is often and best engaged early in the conceptual planning phase of a CIP and may include additional activities such as:

- Assisting the owner in securing financing for the program/project
- Developing design standards
- Developing uniform standards for all aspects of project delivery
- Providing the framework for reporting and control systems
- Leading public relations and legislative initiatives
- Providing outreach to other consultants, contractors, and sub-contractors
- Procuring a variety of services or products
- Managing land acquisition and environmental service providers
- Managing master-planning, programming, and design service providers
- Developing the interface management strategy for multiple, concurrent projects
- Establishing and documenting quality and performance standards and specifications
- Developing contracts and procurement strategies
- Assisting the owner with reporting to governing boards

The scope of services to be provided by the program manager is highly dependent upon the needs, capabilities, and resources of the owner's organization and the

specific challenges of their program or project. The PM may also be responsible for providing all of the Construction Management services for the program or the owner may elect to engage independent Construction Managers to assign to individual projects or groups of projects within their CIP. In that case the PM may be responsible for oversight and coordination of those independent Construction Managers and for establishing a clear separation of duties and responsibilities for the PM and the CMs.

In most circumstances the owner will engage the PM in an agency capacity, where the PM is acting as the owner's representative, defining and then protecting the owner's interests. PM services may also be procured in an "at risk" arrangement but this is awkward and problematic to set up because the expectations for quality, cost, and schedule are difficult to define early in the program in sufficient detail to agree upon an appropriate fixed scope of services and guaranteed price.

The Program Management Plan (PMP)

One of the mainstays of program management is the written plan, or Program Management Plan (PMP); which is approved by the owner and defines the vision, implementation strategy, schedule and budget criteria, and the policies, procedures, and standards for the program. It is a living document that should be updated periodically because it is the master reference document for the entire program team throughout the life of the program. Depending on the structure selected for the PMP, the CM Plan content can be a component of the PMP or a stand-alone document that is incorporated into the PMP by reference.

Program Management draws heavily on the skills of the professional Construction Manager and further demands critical thinking and analytical skills coupled with prior program-level management experience to properly guide the owner in thinking several steps ahead of the process. With this kind of program-level planning and management leadership, the PM will prove invaluable to the owner's success.

4.0 Selecting the CM and PM

Typically, CM/PM professional services are procured using Quality Based Selection (QBS) - an objective evaluation of the qualifications of competing firms. QBS is an accepted practice that is used by both public and private entities to select the best qualified CM and/or PM for a program and/or project.

Preliminary Decisions and Information

At the outset of the CM or PM selection process, certain information should be documented and certain decisions should be made regarding the concept of the project or program and the needs of the owner to realize objectives.

A description of the project, including size, purposes, goals and objective parameters, must be developed in order to convey to the CM or PM proposer the activities and approximate level and type of skills that will be necessary. If any studies or other documents are available, they should be called to the attention of the proposers.

The program and/or project proposed scope, schedule and budget should be included in the description. Finalization of schedule should not take place until the selected CM or PM has advised the owner regarding the achievability of the proposed schedule and associated project or program cost.

Owner's Internal Delegation and Management. On all projects and programs, the ability to react to changing circumstances is critically important. The decision-making process must be designed to deliver informed decisions swiftly. It has been said that the most frequent cause of project disruption is delay caused by indecision.

It is very important that contractual authority--authority to obligate the owner to pay money--be delegated to a qualified individual or small group of people so that binding decisions can be rendered in a timely manner and by those who are most familiar with the project or program. These decisions may concern change orders, contracts, dispute settlements, labor relations, minor purchases and contracts in support of the project.

Some owners' governing bodies may establish budget guidance for parts of a project or program, with specific decision and dollar value authority within those budgets delegated to a part of the permanent staff. With appropriate controls, this practice is highly recommended, because it makes for a nimble organization in response to changes that benefits all parties.

The owner should decide and share with proposers the project organization, as envisioned by the owner, including the reporting relationships among the owner and the other parties to the design and construction effort.

The Selection Committee. A CM or PM selection committee should be formed from the owner's staff early in the selection process so that the selection committee can learn as much as possible about the project and the owner's expectations of the CM or PM.

The selection committee is responsible for one of the most critical decisions in the project--the selection of the CM or PM. The committee will be comparing the approaches offered by several firms, their skill levels and the experience of their personnel, with the expectations and needs of the project and the owner's organization. Each individual on the committee should understand how the selection process will be structured. The committee should include the individual on the owner's staff who will be responsible for the project or program.

While it is not necessary that all members of the selection committee be familiar with the design and construction process, at least one member should be. If the owner does not have an individual on its staff that can provide this expertise, it may be appropriate to retain a consultant for the selection process. Individuals such as senior members of the engineering or architectural community can be engaged for this purpose. It is also important that the selection committee be free from any conflict of interest in the selection of a CM or PM.

Qualifications Based Selection of the CM and PM

Laws and regulations generally govern the process of selection for public work, and practices will vary among the states. The process, however, generally follows three steps: a statement of qualifications; a technical proposal; and a price proposal and fee negotiation.

Statement of Qualifications. A request for qualifications (RFQ) should be advertised in national and local publications which will reach the CM and PM community. The requested statement of qualifications is usually a document which describes in general the qualifications of a firm (or team of firms) to perform the work. It will often include the following types of information:

- Firm name and address
- Types of services usually offered
- Names of principals
- Numbers of staff, organized by discipline
- Description of similar work completed including date, size and owner contact
- Description of similar work in progress, including date, size and owner contact
- Annual volume, backlog and capacity
- Record of performance; i.e., cost control, quality, schedule, and safety

Federal Standard Form (SF) 330, parts 1 and 2, contain substantially this same type of information and are maintained by most firms.

The selection committee should evaluate the firms' submissions and make a judgement as to which firms appear qualified to perform the work. This will have the effect of reducing the number of competing firms to what is commonly known as a "short list."

Technical Proposal. Those that are judged to be qualified are requested to submit a

technical proposal. This solicitation, issued as a request for proposal (RFP), is a request for information about a firm's qualifications and intentions to perform the services desired. The technical proposals are usually written for a specific project.

The RFP should provide prospective respondents with a description of the project and information regarding the method of compensation. Additionally, the RFP should contain information about the project such as the project budget, major constraints, unusual services that may be required, and particular goals of the owner.

If the owner has sufficient understanding of the expected scope of services, it may be advantageous to organize the RFP on that basis. The RFP may also be organized as a series of questions to be answered by the respondents.

The RFP should seek the following information from the proposers:

- The respondent's approach to the project in terms of organization, process, tools and techniques, staff and quality assurance/quality control, etc.
- The respondent's experience with projects of similar nature, including owner references
- Resumes of key staff to be assigned full time and those to be available as resources

owners should keep in mind that proposals are often a CM's or PMs largest non-project expense. CMs and PMs appreciate an RFP that allows them to efficiently present their qualifications. It is appropriate for the RFP to include the criteria for the evaluation of the proposals as well as the weighting to be used.

It is desirable for the selection committee to be involved in the development and organization of the RFP. The RFP should be drafted with the understanding that the selection committee will have to evaluate a number of technical proposals and that the more consistent the presentations by the respondents the easier the evaluation will be. A mandatory outline of the technical proposal is useful in organizing the data for comparison by the selection committee. Additionally, a page limitation is suggested to keep the presentations to a manageable size. The page limitation should not include data such as resumes and brochures. The RFP should be examined by an experienced person for clarity and internal consistency.

Evaluation Process. The evaluation process may be time consuming and difficult. The selection committee should proceed with a logical and methodical evaluation of each proposal and grade each against the evaluation criteria stated in the RFP. The final ranking of CM or PMs should be determined by averaging ranks assigned by each panelist rather than averaging the panelists' scores. This serves to reduce the influence of any one member of the panel and to ensure that the relative best of the proposals are identified. The proposal with the best average numerical ranking should be selected as the finalist to proceed to the next steps of submitting a cost proposal and negotiating the work effort.

In some cases, more than one respondent may appear qualified, and interviews or oral presentations may be the only appropriate method to differentiate between the

top respondents. Interviews should be scheduled to provide the respondents with the best opportunity to show their capabilities. Questions should be formulated in advance by the selection committee to clarify points in the RFP response and to stimulate contrasting views among the respondents. Since the owner will be placing the fate of the project into the hands of the CM or PM, the compatibility between the goals and culture of the CM or PM and those of the owner is a critical consideration. On large or complex projects, where the competition is close, two or more rounds of interviews may be necessary (keeping in mind, however, that preparing for interviews can be extremely costly for a consultant).

Price as a Part of the Proposal. As is the case with any professional service contract, the issue of price should not enter into the ranking of CM or PM firms based on their qualifications. The selection committee should keep in mind that the firm will be a trusted part of the owner's project team and that the most important factors are the capabilities of the selected firm.

Some owners will request a cost proposal as a part of the RFP. This can be useful in evaluating the thought given to the approach to the project and the proposer's organization for it. Price proposals included as part of the RFP response may also save time in the negotiation of the agreement.

Unless the RFP is extremely detailed and specific on the issues of cost, the total costs of two proposals will probably not be comparable. Scopes of work as envisioned by each proposer may not be the same, particularly in assumptions about staffing levels. Qualifications of personnel may be sufficiently different to cause significant difference in price as well as level of service. Costs or multipliers (of cost) may be structured so as to appear lower than they effectively are. One proposer's direct cost may be included in the multiplier or assumed to be furnished by others. In essence, costs in the proposal stage are very soft numbers and should be analyzed in detail and with great care before comparisons are made.

When price proposals are solicited with the RFP, they may be required to be submitted in a separate, sealed and labeled envelope to be opened only when the qualifications-based selection phase has been completed.

Negotiation and Development of Scope of Services and Cost. Upon evaluation of the responses to the RFP, the firm judged most qualified is requested to provide a proposed scope of services. After thorough discussions designed to assure that both parties are in agreement on the desired level of service, the selected CM or PM prepares a written scope of services proposal.

Decisions made and approaches discussed at this time will ultimately affect the success or failure of the project. Definition of necessary tasks and the application of estimated labor and expense to each task is an efficient way to develop a budget. To be addressed in the scope of services are:

- Development of a specific project scope statement
- Development of procurement strategy
- Development of a project schedule and budget

- Acquisition of special consultants
- Acquisition of designers
- Acquisition of contractors and suppliers
- Quality, cost and schedule control
- Testing, startup and turnover

The scope of services should include deliverables or other tangible methods for measuring performance. Where applicable, physical examples of reports or other expected outcomes should be included or referenced. CMAA's *Construction Management Standards of Practice* is not intended to be a scope statement in support of a contract, but it provides information about the functions typically provided by a CM or PM firm.

The owner and the selected firm should jointly, through negotiation, agree on a final scope of services based on the selected firm's scope proposal and designed to support the timely delivery of the project. Development of a CM or PM budget grows out of this scope and is the first step in the detailed planning of the project.

If the owner and the most qualified firm are not able to reach agreement on price and scope, negotiations are commenced with the next qualified firm.

Methods of Paying for Services

Several methods are recognized and commonly used in the compensation of firms for professional Construction Management services. All result from a negotiation between the owner and the firm as to the proper level of staffing for particular tasks that constitute the firm's scope of services.

Salary Times Multiplier, Plus Direct Expenses. A typical approach is based on a firm's direct salaries times a multiplier. The multiplier is a number that is derived from the sum of the firm's indirect salary costs (such as FICA and unemployment insurance and salary benefits) and overhead costs (general and administrative office and other indirect costs) divided by the total salaries paid. This ratio is used by the firm to recover these costs. An agreed profit rate is then applied to the product of the direct salary times the multiplier. Direct project expenses are paid separately. Frequently, an administrative or handling charge may be made on the direct expense.

Salaries are the actual salaries of the individuals working on the project. Direct expenses are the necessary and ordinary expenses associated with the firm's performance. These may include items ranging from paper and pens, to automobiles, travel, separate offices, furniture, computers, software, etc. Some owners may provide office space or buy some equipment for the use of the CM or PM during the project to avoid lease payments. Some direct expenses may be avoided by use of owner assets.

Billing Rates. An alternative to the use of salary times multiplier is the use of classified billing rates. These rates are typically based on average salaries for a specified range of employee skills, experience and education. An amount of money is added based on the firm's overhead and profit multiplier and the resultant sum is used for all individuals in that classification. The classifications have to be carefully defined to avoid confusion.

Cost Plus Fixed Fee. Some payment arrangements fix the amount of fee (profit) that the firm will be paid to a lump sum. These arrangements also spell out how and in what increments the fee will be paid. The firm is paid actual salaries times a multiplier to cover all overhead costs and a separate lump sum as profit. The owner should recognize that payment of the fee should be related to time, progress or other factors.

Fee as a Percent of Construction Cost. This form of compensation is not recommended as it is arbitrary and not related to the effort that may be required. For example, a greater effort may be required for a smaller dollar value project due to technical complexity or schedule compression.

Lump Sum Fee. This is the simplest payment method to administer. The parties agree on a total contract amount and the CM/PM delivers the agreed services for the negotiated amount. Monthly progress payments are often determined by dividing the contract amount by the contract duration in months. In its pure form, there is no back up financial data for the invoice.

The Lump Sum Fee payment method is best suited for goods and products, and for services that have a predictable duration for delivery, that result in a well defined work product and that have a low potential for scope variations. Because the duration of CM/PM services is highly dependent on contractor and third party schedule performance, the owner and CM/PM can have difficulty establishing an agreed term of performance. Similarly, CM/PM services are services rather than a work product, so that performance measurement is more subjective. Lastly, owners often want the flexibility to add CM/PM resources and new services quickly, and this can lead to major scope variations that are inconsistent with Lump Sum Fee contracts.

An approach to negotiate the Lump Sum Fee is to price a staffing plan for an agreed duration, add estimated direct expenses, and then add a risk contingency. It is important to identify in the contract the conditions that would trigger a change in the Lump Sum Fee.

Standard Contract Forms

A number of organizations publish contract forms related to the design and construction industry. CMAA provides a number of model forms of agreement specific to the implementation of Construction Management services for use by CMs and owners:

- ***CMAA Document A-1*** Standard Form of Agreement Between Owner and

Construction Manager (for Agency); or

- **CMAA Document GMP-1** Standard Form of Agreement Between Owner and Construction Manager (where a Guaranteed Maximum Price will be provided).

Other published standard forms compatible with these CM agreements are:

- **CMAA Document A-2** Standard Form of Contract Between Owner and Contractor
- **CMAA Document A-3** General Conditions of the Construction Contract; Owner-Contractor Contract
- **CMAA Document A-4** Standard Form of Agreement Between Owner and Designer
- **CMAA Document GMP-2** Standard Form of Contract Between Construction Manager and Contractor
- **CMAA Document GMP-3** General Conditions of the Construction Contract; Construction Manager-Contractor Contract

The advantages of CMAA standard forms of agreement are:

- They provide the most detailed specification of the duties of the CM.
- The Owner-CM agreement is fully integrated with the Owner-Designer, General Conditions and Owner/CM-Contractor agreements.

Use of standard forms increases the predictability of project outcomes, increases the consistency of pricing, and simplifies management. The forms are regularly updated and maintained consistent with the industry practice. Standard forms may be modified as required by the project or the owner's needs, but such modifications should be undertaken only with the advice of an attorney knowledgeable of the forms and the implications of changes to them.

CMAA Publications

Additional information on Construction Management such as services provided, definitions, and procedures may be obtained from CMAA. Following is a list of pertinent available publications:

- Construction Management Standards of Practice
- Contract Administration Procedures
- Time Management Procedures
- Quality Management Guidelines
- Cost Management Procedures
- Sustainability Guidelines