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PREFACE

Unlike most other professionals, such as those in the design disciplines, law, and medicine, construction managers do not generally share a common academic framework of substantive knowledge or professional orientation. The Capstone is designed to add essential elements to the CM body of knowledge that may not have been obtained through formal academic training or required experience. Included in the course are specific topics in the areas of the role of the CM as a professional, CM’s role in project delivery, CM contracts, legal and regulatory issues that impact construction management practice, and risk management. The content of the Capstone will evolve in response to changes in the industry that are critical to the construction management.

The purpose of the Capstone is to bring practitioners from varying backgrounds, academic training and experiences in the design and construction industry to a common framework and orientation from which to operate as professional construction management service providers.
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Chapter 1: The CM as a Professional

1.0 THE CM AS A PROFESSIONAL

1.1 CM’S ROLE AND RESPONSIBILITIES AS A PROFESSIONAL

Construction management is the practice of professional management applied to the planning, design and construction of projects from inception to completion for the purpose of controlling time, scope, cost and quality. It is a management approach that focuses on the delivery of professional services. Construction management is a fundamental realignment of traditional construction relationships. It removes management functions from both the Contractor and the Designer and coalesces them in a specific entity, the Construction Manager (CM).

To engage in the profession of construction management requires training and advanced study concerning the specialized management services that a CM furnishes. An individual or firm possessing competence in this specialized management field and who is a CM as a livelihood furnishes a professional service to its clients. As a result, a CM will be held to a higher or professional standard of care with respect to its activities and business relationships. The application of this standard to the practice of construction management has far-reaching implications for the CM.

Construction management is a service business, and the CM performs those services that are specified in its contract with its client, the Owner. It is best to take a contract-based approach in determining the role and responsibilities of a CM with respect to the cornucopia of services offered by a CM from the pre-design planning through the design, procurement, construction, substantial completion and occupancy by the Owner and final completion of the project.

Defining the CM’s role and responsibilities for a particular project cannot occur until:

- The scope of CM services is clearly defined.
- The type of Owner-CM contract is chosen.
- The responsibilities among the CM and other project participants are clearly coordinated.

The CM’s role and responsibilities are affected also by (1) laws that regulate the construction management practice (e.g. those requiring certification, licensing or registration); (2) federal and state statutes and (3) case law interpretations.

There are several forms and variations of the construction management practice. Each has its own definition, characteristics and menu of services. All variations can be placed in either the “agency” or “at-risk” forms of construction management. The agency CM generally acts as the Owner’s principal agent to advise on or manage the process from
project conception to completion, but does not perform design or actual construction work. When the CM's role includes a construction performance function for an established price, it is known as the “CM-at-risk” approach. The CM provides professional management assistance to the Owner prior to construction and advice on constructibility, budget and schedule considerations. The CM later converts to the equivalent of a contractor during construction. The key difference between these two forms is that the CM-at-risk is in fact a distinct delivery method due to its responsibility for construction performance. Agency construction management, on the other hand, is a distinct set of services that can be applied to any delivery method. Regardless of approach, the CM is performing professional tasks throughout all phases of program/project implementation.

1.2 HISTORICAL EVOLUTION OF CONSTRUCTION MANAGEMENT

Construction management had its beginnings in the early to mid 1960's. At that time, the need for capital facilities and improvements in the marketplace was in great demand. Major urban cities were in need of new or replacement facilities and infrastructure. The private sector had increasing demands for capital expansion and the Federal Government had major requirements for new and expanded facilities. And, the Americans were racing the Russians to the moon.

The type of capital projects needed across the marketplace was getting larger and more sophisticated. In addition, there was a demand by Owners for better time and cost controls, more accurate information, and a reduction in the risks associated with project delivery. Owners were looking for alternatives to the extended duration of the traditional approach and the need to reduce the overall time and cost associated with project delivery. This situation was compounded by:

- The increasing cost of money to finance capital expansion.
- Unpredictable labor demands.
- The need for additional, timely and cost effective facilities.
- The changing role of the general contractor from master builder to master broker.
- The ever increasing numbers of highly specialized trade contractors.

Owners were also seeking to streamline their complex capital construction delivery processes. They wanted timely delivery, with central controls, and a unified team approach. They also wanted priority attention given to their time, cost and quality objectives.

At the same time, major technology and methodology developments were occurring that would play a significant role in the evolution of construction management. First was the advent of the electronic computer and the information explosion which followed. Next
was the development of sophisticated scheduling techniques such as the critical path method (CPM). These were followed by other new techniques such as fast tracking, value engineering, life cycle costing, and constructibility reviews. These management tools and capabilities significantly enhanced the ability of the construction participants to be more successful in the delivery of capital projects.

**Early Construction Management Projects**

One of the earliest reported projects to use construction management was the New York City Madison Square Garden in 1963. This project was successfully managed by a CM acting as an agent of the Owner. Other early-on CM assignments include projects such as the 100-story John Hancock Center in Chicago, the twin 110-story towers of New York’s World Trade Center, the John Manville World Headquarters building in Denver, First National City Bank Building in New York City, projects for the Universities of Ohio, Massachusetts, New York and Illinois; the Albany Mall Complex, Dallas/Fort Worth Airport, Ramapo State College in New Jersey, and the New Jersey College of Medicine and Dentistry, just to name a few. Since the construction and success of these early CM projects, the construction management practice has continued to evolve, refine and improve.

**Construction Management in the Public Sector**

The General Services Administration (GSA) was one of the pioneers with construction management in the public sector and the first of several federal agencies to begin using construction management. It all began with a 1970 study by GSA of its construction methods on Public Building Services Construction Contracting. GSA was primarily using the traditional project management approach and was not happy with the results being achieved in comparison to those achieved in the private sector. GSA wanted to capitalize on the experiences of the private sector and to change the way it had been doing its design and construction business.

The study concluded that the sequential method of contracting being used by GSA at that time, resulted in a total design and construction time on major building projects, of 59 months, compared to 24 months for similar projects in the private sector. Also, inflationary cost escalation was rampant while numerous delays occurred between the many consecutive design stages, and subsequent construction phases. Most significant was the requirement for returning to the Congress for separate construction appropriations, often after the design documents were completed and on the shelf awaiting funds. The report recommended that GSA abandon its outmoded procedures and use phased construction in conjunction with construction management in a new dynamic approach to its nationwide building program.
In 1971, GSA awarded its first construction management assignment and began its program with great enthusiasm, anticipating dramatic time savings ranging from one and a half to two years for its major projects. The first construction management contract let was for the new Federal Law Enforcement Training Center in Beltsville, Maryland. After awarding the construction management contract, this assignment was delayed and ultimately canceled. The first actual application of construction management by GSA was on the three Social Security Payment Centers located in Chicago, Philadelphia and Richmond, California with a total contract value of $97 million. These three projects also involved the first building system projects for GSA. In 1975, the $42 million National Air and Space Museum project located in Washington, D.C. became the first GSA project to be completed using construction management.

Other Federal Agencies which followed the lead of GSA include the Department of Health, Education and Welfare (HEW) and the Veterans Administration (VA). The volume and complexity of these capital programs and the shortage of in-house skills and/or resources were major factors in these agencies considering the use of construction management.

Problems with Construction Management at the Federal Level
After implementing construction management on more than a dozen major projects, including several projects involving building systems concepts, GSA abandoned the use of construction management in the latter part of 1979. This decision was based on the belief that the benefits expected by GSA were not being achieved. A number of reasons given for abandonment include:

• GSA moved too quickly without allowing time for change to occur.
• The government was not able to delegate the same authority that a CM would have in the private sector.
• Federal contracting procedures were cumbersome and not efficiently structured to accommodate the CM’s role.
• Coordination and delay problems associated with multiple trade contracts were difficult to manage.
• A large number of claims and unexpected delays were encountered.
• All construction management contracts by GSA were priced on a lump sum and low bid basis. This resulted in disputes with a number of CMs.
• Funding restrictions caused problems. In certain cases, GSA took over part of the CM’s role because of the lack of funds.
HEW (later Health and Human Services or HHS) began using the CM-At-Risk with a guaranteed maximum price (GMP) approach in the early 1970’s. While some success with construction management had been reported, claims and litigation with a major project in North Carolina (Research Triangle Park) resulted in HHS imposing a national moratorium on construction management in March 1981. In September 1982, HHS issued a departmental policy that required approval by the Office of Facilities Engineering Director before construction management arrangements could be used on directly funded federal projects.

The VA used an agency CM approach to build a hospital in New York City during the mid 1970’s. Unfortunately, this project also encountered delay claims and dampened the VA’s further interest in using construction management for its projects.

With the abandonment of construction management, GSA basically returned to the traditional approach. However, in 1986, through the encouragement of CMAA leadership, GSA began to reconsider using construction management for its projects under a different format. After much study, GSA decided to use “Construction Quality Management” (CQM) as one of its options to manage projects. This time, instead of multiple prime trade contracts being coordinated by a CM acting as an agent, GSA began awarding a single construction contract to a general contractor and hiring a CM to act as GSA’s agent under a CQM contract. Invitations for proposals for such services issued by the GSA, indicate that while the number of construction contracts changed, the basic principles and guidelines of the original GSA System for Construction Management essentially remained the same.

Construction Management and the Professional Associations
With the advent of construction management and the rapid trend among Owners toward using it, in 1972 the Associated General Contractors of America (AGC) adopted guidelines for its suggested approach to construction management. This was followed by the development of a family of standard contract forms for use by its membership. In establishing these guidelines, AGC maintained that it did not endorse construction management as a substitute for any other successful contracting format. Instead, AGC reasserted its long-standing position relative to competitive bidding, while at the same time it recognized that the construction management type contract does present certain distinct advantages on some projects.

The American Institute of Architects (AIA) likewise embraced construction management as a viable alternative and they too published a family of construction management documents in 1976.
In August 1975 the National Construction Management Committees of AGC, AIA, and the American Consulting Engineers Council (ACEC) met together for a joint national Construction Management Council. A general statement and position paper was unanimously adopted by the joint council and ratified by the Board of Directors of AIA, AGC, and ACEC. These associations recognized the importance of the construction management process and agreed to work together on a National Comprehensive Construction Management Program to implement the following:

- To define, develop and disseminate the standards and levels of quality of construction management.
- To develop guidelines and educational programs for the assistance of members and Owners engaged in construction management.
- To relate and coordinate with all elements in the industry performing construction management services to develop acceptable industry-wide standards for construction management.
- To monitor and to make joint recommendation regulations at the federal, state, and local levels affecting construction management.
- To communicate and maintain liaison with the Owners and users of construction management services, advising and assisting them on the best and most economical procedures.

While the intent and the objectives stated above were sound, the joint national cooperation and central focus on standards, quality, education and legislation, never became a reality. Despite their good intentions, none of these organizations are primarily devoted to the practice of construction management, and each has its own vested interest in the marketplace.

**Founding of the Construction Management Association of America**

In October 1981, representatives of 37 firms practicing construction management met to explore mutual interest in forming a national construction management association. The overwhelming consensus of the group was that there was a very real need for a national organization having the growth and development of the construction management profession as its primary focus. Meeting the challenges of the critical issues raised within the construction management discipline—such as definition of scope, standards of practice, ethics, education, client awareness, and legislative and professional liaison—clearly required a concerted effort by a group representing a national perspective. As the result of a strong common interest, the Construction Management Association of America (CMAA) was formed and incorporated in 1982.
CMAA’s membership includes CMs, Designers, Contractors, educators, vendors, public and private Owners, and attorneys representing a broad spectrum of the construction industry that share a common interest in construction management. There are regional chapters throughout the country as well as a number of student chapters on college campuses.

CMAA provides a unified voice for the construction management industry in those areas where collective representation and action as an association is the best method of achieving common goals. CMAA’s goals include:

- Setting standards of practice and developing contract documents for construction management.
- Expanding the understanding of the construction management concept and its use in the marketplace.
- Research and education to assess and advance construction management performance.
- Providing a network of information resources and business contacts.
- Advocacy for construction management in the legislative, regulatory and judicial arenas of federal, state and local government.
- Certification of individual construction management practitioner knowledge and capabilities.
- Leadership and consensus-building on critical issues, such as safety, quality management, insurance and qualifications-based procurement of construction management as a professional service.

**Standard Forms of Agreement**

Over the past two decades, there are a number of Standard Form CM Agreements that have been developed and are currently offered as guides for establishing a contract between the Owner and a CM. Standard forms are now published and made available by CMAA, AGC and AIA. While these forms have similarities, each association takes a different approach to the CM’s function and tends to reflect the perspective of their members. All three associations publish complete sets of ready-to-use companion documents.

The process of developing the CMAA contract documents began in 1983. These documents, after considerable review and public discussion, were finalized in 1990. The strategy in drafting the CMAA documents was to provide contractually specified duties and to avoid redundant or undefined responsibility. The objective of the CMAA
documents is to minimize conflicts between the CM, Designer, Contractor and Owner by treating each of the parties fairly and allocating specific risks to the party that is best able to manage that risk. The standard forms of agreement are reviewed and updated periodically to ensure adherence to this principle.

Notwithstanding the above, many Owners and CMs have developed their own contract documents, which are usually similar to the above, but may be more self protective. Public sector Owners tend to be the least flexible to changes to their standard contract documents since they may be bound by statutes reserving contracting authority, limiting any delegation of authority, and complying with the rules for open competition and conflict of interest.

When an Owner engages the services of a CM, it is essential that the contract documents are clearly understood by the parties in terms of the roles of each party, the responsibilities assumed by each party, and more importantly, the responsibilities and liabilities of other contracting parties.

Standards of Construction Management
The past lack of a definition for construction management, coupled with the variable services that CMs offer, has over the years created a need for acceptable standards of practice. As a professional association, CMAA took the initiative in 1983 to establish Construction Management Standards of Practice guidelines for construction management. The first edition was approved by the CMAA Board of Directors in 1986 and made available to the public in early 1987. Since then, these guidelines have been updated several times. CMAA believes that its current standards of practice and standard contract forms provide for the definition of construction management the construction industry needs.

The Construction Management Standards of Practice was developed by CMAA in response to what the Association believes to be a broad industry need for a unified document, which generally outlines the depth and breadth of services which may be required of a CM.

By definition, a standard establishes a criterion by which the performance of those who subscribe to it may be measured. The CMAA standards are intended as a guide to the range of services that constitute professional construction management. They seek to meet the documented need for the definition of what construction management services are, without unduly structuring the methodologies by which those services are provided by the CM for a particular project. The standard guidelines are not intended to include any hard fast rules of procedure, and they are not considered to be a detailed procedures manual. They do, however, establish the basis for the development of such a document for use on a particular project.
The *Construction Management Standards of Practice* provides standard definitions and addresses seven primary areas or functions including:

- Project Management
- Time Management
- Cost Management
- Quality Management
- Contract Administration
- Safety Management
- Program Management

Each function is further broken down into five phases: pre-design, design, procurement, construction and post construction. These phases are consistent with the CMAA suggested scope of services contained in the CMAA contract documents and with established usage in the construction industry.

**Certification of a Construction Manager**

The terms licensing, certification and accreditation have been discussed as having application to the practice of construction management for some time. These discussions generated questions such as: Would licensing or certification of a CM apply to an individual, corporation, or both? What would be the basis for qualification and examination? What standards would be used for measurement? Who would administer and control the process? What about long term compliance? Are there any legal ramifications?

What about the existing licensing or registration laws for architects, engineers, planners and general contractors? Are these laws adequate for CM qualification? The scope of services rendered by a CM encompasses a broad range of professional skills, management knowledge and experience. The fact that a CM is certified or licensed in any other profession does not per se establish it as a qualified CM. Practitioners in construction management may include all the named categories, but the individuals and firms practicing and rendering construction management services must be knowledgeable and experienced in the technical and management areas required.

To certify means “meeting a standard.” With *Construction Management Standards of Practice*, standard contract forms, and a body of knowledge already established, CMAA took the next step. In late 1986, the CMAA Board of Directors authorized the development of a model certification program. A committee presented its recommendations and a certification program for individuals was given serious consideration. After much study,
the Board of Directors approved in June 1993, a program to certify the individual as a
construction manager and thus clearing the way for implementation of the current CM
Certification Program. This certification is recognition that an individual has voluntarily
met the Certification Program’s criteria with regard to experience and knowledge
necessary to practice professional construction management at a minimum acceptable
level. A practitioner who meets all of the certification requirements is designated a
Certified Construction Manager (CCM).

Summary
John F. Kennedy made the statement that “success has many fathers.” The same can
certainly be said for construction management, but with more purpose, since its
performance takes many forms. The theory and application is as old as construction itself
and some have even likened construction management to being very much like “old wine
in new bottles.”

In 1973, an article entitled “How to Avoid Construction Headaches” appeared in the
Harvard Business Review magazine. The article stated:

“The construction management concept has been touted by some of its more evangelical
proponents as a major breakthrough in the history of building, but it is really not a single
new discovery. Instead, it is a mixed bag of techniques and procedures, dating back to
antiquity, which have been fused together under the pressure of the present building
crisis. The catalyst for this fusion has been the owner’s determination to force the
construction industry to regard a highly fragmented series of discrete decisions and
events as a single process. In other words, the owners have argued that the building
process can be effectively managed.

It now appears that they are correct. The construction management concept has been
applied—and has worked—in many cases and under a wide variety of circumstances.
The construction management approach is one of the more exciting and promising
deviations in the field of facilities construction, and it represents an alternative to
traditional procedures of which all potential construction owners should have the right
to be aware.”

Given how construction management has developed as a professional practice and
demonstrated its ability to work successfully with any contract format and project delivery
method, these comments appear to be quite prophetic.

1.3 ETHICS

The concept of professionalism has always been closely associated with ethics. Most
professional associations have developed codes of ethics to guide the professional
behavior of their members. Whereas ethical codes are important and serve as general
guides, they usually do not address all of the many facets of ethical concerns that are intimately woven into the fabric of everyday practice in our profession.

To establish a meaningful sense of ethical practice, it is important to first establish what we really mean by ethics. Is it law? Is it religion? Is it morality? Some states have seat belt laws; to not comply is illegal, but not unethical or immoral. If you do not go to church, it is not illegal or unethical, but based on your religion, it might be immoral. If you speak derogatorily about a client or employee, it is probably immoral. Is it ethical to review the work of other professionals? What happens when a client requests you to review the work of others? Is it ethical to wine and dine a client to obtain business? How much can you spend on a client before it becomes ethically questionable? Is it ethical to make political contributions to gain work? Is it ethical to try to take work away from others? Is it ethical to try to gain an advantage by trying to maliciously injure the competition? Is it ethical to low ball a fee? Many codes of ethics say you should not competitively bid professional services. How do you get work in the states and cities that bid their work? Ask yourself, “Is it ethical to do many of the things we do everyday?”

There are some simple guidelines you can follow in trying to gauge whether or not your decisions and actions move beyond the bounds of ethical practice:

• Don't do anything that will embarrass you if you read it on the front page of the newspaper tomorrow.
• If you have to think about it twice, it's probably wrong—normally your gut reaction is right.
• You cannot use the end to justify the means.

Ethics Start with Marketing Ethics
Ethics start with marketing of professional services. A good marketing program is essential to survival, but unfortunately, construction management services are susceptible to overselling. Overselling may appear at the time as a subtle transgression, but it becomes far less subtle when a disappointed Owner regrets its selection of a CM and begins to have misgivings about the construction management profession itself.

On projects where the scope is vague, it becomes important to clarify the scope up front and put this in your proposal. As one practitioner stated, “We frequently don’t get the jobs we understand.” This is particularly true when you do the first phase and know what it takes to finish the job. Give it your best price and deal with it fairly. Inadequate fees mean either a poor quality product or a financial loss. If you cannot do a quality job for the price then walk away. Integrity is one of your best marketing tools and much of your reputation boils down to doing what you say you will do. Overselling and accepting fees where you do not have enough money to do the job are clearly ethical questions. In short:
• Do not sell people you don’t have.
• Do not bait and switch.
• Do not sell what you do not plan to deliver.
• Compete fairly with your competitors.

Failure to deliver what you have promised and attempting to sell your services by discrediting your competition are among the most unethical offenses that a professional can commit.

Project Delivery
Balancing fees with resources and quality of product to meet professional standards is probably the biggest challenge facing the construction manager. Project control becomes all important. Lack of adequate control can put you in a position of making the decision, “Do I put what I need to into this project to finish and give a quality job and lose money, or do I cut back and minimize my costs to avoid a loss?” This becomes both a business and ethical issue and it presents a difficult dilemma. Most reputable firms will put reputation above loss, but then again the firm would have to have the ability to absorb the loss. The obvious answer is to not contract for inadequate fees, to maintain sufficient project control and to make the necessary decisions that keep you from getting in this situation in the first place.

A summary of the ethical aspects of project delivery might be:
• Deliver what you promise.
• Balance your fees against resources needed and quality of product.
• Implement project controls that will maintain that balance.
• Maintain your professional standards.
• Do not compromise quality for schedule.
• Do not assign responsibility where the training is not adequate.
• Be up front with your client.

Training and recruiting are also ethical issues. The two most common complaints of people leaving construction management firms are:
• Being turned loose on a job and not being adequately trained or directed as to what they are to do.
• Not doing what they were told they would be doing when hired.
Honesty

As construction managers, we all struggle to survive and prosper in a highly competitive and increasingly litigious society. We can find ourselves brought into litigation where we are not at fault and bear no responsibility. Frequently we find that the most advantageous decisions economically may not be compatible with ethical considerations. During periods of economic downturn it becomes even more difficult to keep ethics in the forefront of our daily practice.

As a professional, the CM provides many services, but aside from its technical expertise, the main thing it is selling is integrity... it is selling trust. When the CM fails to provide this, it damages its reputation, and it hurts the profession.

It is always easier to tell people what they want to hear. Doing what the client wants as opposed to what the facts show is an ethical issue. Do not compromise integrity and do not succumb to client pressure when what you are being asked to do is dishonest. Disclose to the client any circumstances that might compromise your judgment or prevent you from serving in the client's interest. Be willing to admit your mistakes.

The CM is usually in the role of “Team Leader” on projects, and as such, it has the responsibility to maintain the highest standards of ethical practice. The very foundation of successful partnering in construction is honesty and fair play. When asked to comment on ethics in professional services, one leading professional said “I can sum it up in three words... honesty, honesty, honesty!” If the CM does not view its professional services as being synonymous with honesty and integrity, then it is likely in the wrong business.
2.0  PROJECT DELIVERY

2.1 DELIVERY METHODS FOR CONSTRUCTION PROJECTS

A *project delivery method* is a system designed to achieve the satisfactory completion of a construction project from conception to occupancy. The construction process is a complex undertaking that involves many different activities and people in its planning and execution. These tasks, and the roles and responsibilities of the Owner, Designer, CM, Contractor(s), subcontractor(s), vendors and suppliers can be organized in numerous ways to deliver a construction project from concept to completion. The different approaches used to successfully deliver a project are numerous, with many variations possible. However, in terms of fundamental differences, it is possible to reduce the number of approaches to several basic delivery forms. These include:

- Traditional Approach (Design-Bid-Build).
- At-Risk Construction Management.
- Multiple-Prime Contracting.
- Design-Build.

Variations among these basic delivery methods exist and can be introduced depending on the specific needs of the project. The reasons for such variations include the different forms of professional and construction contracts that can be used; the degree of care, responsibility and risk assumed by the parties involved; pricing alternatives and methods of compensation; fast-tracking, and the use of scope bidding. The multiple roles that may be assumed by the project participants can also result in variations in the basic delivery methods (for example, in certain specialty areas such as kitchen design, one firm might serve as the Owner’s technical advisor, designer, material supplier, and subcontractor at various points during a project).

Construction management is a discipline uniquely tailored to the planning, design and construction process of capital projects. It has proven effective regardless of the chosen contract form or project delivery method. Indeed, construction management has been used successfully in all contracting methods 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. The following is a brief review of project delivery systems, along with a discussion of some of the important points pertaining to each delivery method.
Factors That Influence Project Delivery

The planning, implementation, and control process associated with a construction project can be complex and often times difficult. From the Owner’s perspective, factors having an influence on successful project delivery include:

- **Budget**

  The Owner has an obvious need to determine a realistic budget before design to evaluate project feasibility, to secure financing, and as a tool to choose from among alternative designs or site locations. Once the budget is determined, the Owner requires that the project be completed at or near the established figure without excessive overruns.

- **Design**

  Of foremost importance to the Owner is that the desired facility function as envisioned, that the design program successfully fulfill the needs of the Owner and the facility’s users. Therefore, the Owner requires that its design team be well qualified in the type of facility being designed. In addition, the Owner must ensure that the Owner’s and users’ program needs are clearly conveyed to the design team. Since the design of the facility actually must be buildable and properly communicated in order to be useful, the Owner requires that the design documents are constructible, complete, and coordinated. The documents should properly incorporate unique features of the site to include subsurface conditions, interface with adjoining properties, access, and other characteristics.

- **Schedule**

  The Owner has similar needs in the area of scheduling. The date of completion of a new facility can be critical, either in terms of generating revenue from the facility, or in terms of providing needed functional space by a particular deadline. Therefore, a realistic assessment of project duration and sequencing needs to be performed early in the planning process. The schedule should then be monitored throughout design and construction.

- **Risk Assessment**

  The development of any facility involves many risks. In construction, issues of risk are closely tied to schedule and budget issues. The Owner requires an understanding of the risks involved in construction, and should make a conscientious decision regarding allocation of these risks among project participants, so that all areas of exposure are properly understood. In considering risk allocation, the Owner should strive to assign risks to those parties that exercise control over those aspects. For example, it would typically be problematic to require that the Contractor correct problems due to design errors at no extra cost since the Contractor generally has little control over the cause or magnitude of such errors.
• Owner’s Level of Expertise

The Owner’s familiarity with the construction process and level of in-house management capability will have a large influence over the amount of outside assistance required during the process and may guide the Owner in determining the appropriate project delivery method.

The Traditional Approach (Design-Bid-Build)

The traditional design-bid-build system remains the most popular delivery method for construction projects. The parties involved in the traditional delivery system include the Owner, the Designer, and one or more Contractors with subcontractors. Figure 1 illustrates the key roles and relationships of the parties involved. The traditional delivery system is characterized by executing the major phases of a project in a linear sequence.

The Owner engages a design consultant, which prepares the design of the complete facility, including construction drawings, specifications and contract packages. Once completed, the design package is presented to interested general contractors, who prepare bids for the work, and execute contracts with subcontractors to construct various specialty items. In many cases, the Contractor submitting the lowest responsive and responsible bid is selected to perform the construction. This Contractor is then responsible for constructing the facility in accordance with the design.

The Designer typically maintains limited oversight of the work and responds to questions about the design on behalf of the Owner. The Designer may also assist the Owner in administering the construction contract, including determination of project progress, for interim payments made to the Contractor.

With the traditional delivery system, the Contractor’s job is to construct the project in accordance with the plans and specifications once they are complete. It may subcontract all or a portion of the work to specialty contractors who perform as subcontractors under its general supervision. The Contractor is responsible for the means, methods and sequence of construction, and also for the scheduling and coordination of all subcontractors, suppliers, and vendors. The Contractor selected for construction does not have any responsibility to participate in the design phase.

The Owner manages the overall process and administers all contracts in the traditional approach. However, the Owner can elect to have little involvement in the day-to-day coordination and performance of the work, relying on the Designer for executing the design, and the Contractor for constructing the work. The Designer may provide on-site construction monitoring services as an agent of the Owner.

The role of the Owner primarily centers on funding the design and construction effort, providing overall direction during design, furnishing any pre-purchased equipment, and
General Characteristics
• Phases are linear
• Construction documents are usually complete
• Contract may be negotiated or competitively bid
• Any number of Subcontractors

The Traditional Approach
Design-Bid-Build

Owner
- Manages overall process
- Maintains significant control, often through a CM

Contractor
- Does not participate in design
- Responsible for means, methods and sequence of work
- Agrees to complete within a specified timeframe and for a specified price

Consultants

Subcontractors

Suppliers

• Prepares the plans and specs
• Interprets the plans and specs
• Approves shop drawings
• Option to provide construction monitoring services
providing any information and approvals required by the construction contract. Some owners are more sophisticated than others and may have the technical resources to do all or a portion of the construction monitoring services themselves. However, in many cases, an Owner will hire a CM to help manage the process and administer the contracts. If a CM is hired in the traditional delivery method, the CM functions as the Owner’s agent throughout the project delivery process.

Construction documents are usually comprehensive and complete when the traditional system is used. While they may be modified through addenda during the Procurement Phase, or by change orders during construction, they are essentially complete before any cost proposals or bids are made. Since all bidders are working on the basis of complete documents, the normal expectation is that each bidder will render its price based on a proposed and specific form of contract pricing.

This delivery method offers the advantages of being widely applicable, well understood, and with well established and clearly defined roles for the parties involved. Furthermore, it offers the Owner a significant amount of control over the end product, particularly since the facility’s features are fully determined and specified prior to selection of the Contractor.

While the Owner bears all major project risks prior to construction, once the construction contracts are signed, the cost is known and the major risk belongs to the Contractor. Getting reliable price information before construction starts can be helpful to the Owner in obtaining any required project or contract approvals, and in securing any necessary financial commitments. In addition, the Owner can benefit from price competition.

However, many construction owners have experienced a variety of frustrations using this system. Among the chief disadvantages of the traditional system are:

- The process is time-consuming since all design work must be completed prior to solicitation of the construction contract.
- The Designer may have limited ability to assess scheduling and cost ramifications as the design is developed which can lead to a more costly final product or to increased Owner risk as to the feasibility of the project during design.
- The absence of Contractor’s input into the project design may limit the effectiveness and constructibility of the design. Important design decisions affecting both the types of materials specified and the means of construction may be made without full consideration of a construction perspective.
- The Owner generally faces exposure to Contractor claims over design and constructibility issues since the Owner accepts liability for design in its contract with the Contractor.
• The traditional approach tends to promote more adversarial relationships rather than cooperation or coordination among the Contractor, the Designer and the Owner.
• The Contractor pursues a least-cost approach to completing the project, requiring increased oversight and quality review by the Owner.
• Many general contractors perform little or no work themselves, increasing the complexities of the scheduling, coordination, and logistical support required and has resulted in placing increased burden and potential risk on the Owner and other project participants.

Multiple-Prime Contracting
One alternative to the traditional procurement system is multiple-prime contracting, in which the Owner holds separate contracts with Contractors of various disciplines, such as general construction, structural, mechanical, and electrical. In this system, the Owner, often through its CM, manages the overall schedule and budget during the entire Construction Phase.

This method, which is required in a number of states for public construction, originally was intended to preserve the opportunity for local small trade contractors to compete for public work. In this system, as depicted in Figure 2, individual contracts such as design, construction, and equipment, are directly executed and held by the Owner. Trade construction contracts may be competitively bid or negotiated directly and the Contractors are responsible for the means and methods of construction. The Owner usually maintains the right and authority to approve and enforce the schedule, terminate, and to pay the Contractors directly.

In states where multiple-prime contracting is required, the number of prime contracts is usually small, consisting generally of contracts for general construction, HVAC, plumbing and electrical. Often, the Owner will manage these contracts directly with its own staff, or, in the absence of a separate CM, will impose additional coordination duties on the general construction prime contractor. However, in many public projects and in the private sector, multiple prime contracting usually will involve a CM hired by the Owner as its agent to administer the multiple contracts. With a CM available for increased administration and coordination, additional prime contracts are typically awarded, with work broken down into many smaller units based on typical trade subcontractor bid packages.

There are two basic types of multi-prime contracting: phased construction and full multi-prime or trade contracting. In the discussion that follows, it is assumed that a CM is involved in the construction team.

Phased Construction. Multiple-prime contracting has gained favor in recent years due to the opportunity to “fast-track” the project through phased construction. Phased
Chapter 2: Project Delivery

• Owner contracts with multiple entities
• Owner maintains coordination role, often via CM
• Prime contracts broken up by trade or divided by law
• Allows for phased or fast-track construction

FIGURE 2

MULTIPLE PRIME APPROACH

Owner

Designer Prime Contractor Prime Contractor Prime Contractor

Subcontractor Suppliers Subcontractor Suppliers

Consultants
construction is typically selected when work must start before plans and specifications are complete. The project is bid in phases such as site work, site utilities, and one or more general construction packages for the buildings and/or other facilities. The Owner gets the benefit of time savings, cost savings, and better control due to the direct contracts managed by the CM. The CM takes on the duty of managing and coordinating the contracts in the Owner’s interest to maintain the overall schedule. This creates the opportunity for the Owner to have better control over the project schedule, since its CM sets the schedule for bidding individual portions of the work. For example, if an initial phase of construction (such as foundation construction) is delayed, the CM may reduce Owner liability for delays by postponing the bidding of follow-on work.

This system also provides an opportunity to manage costs throughout the phased procurement of contracts. For example, the CM can be instrumental in assisting the Owner in directly procuring major material items—such as structural steel or major mechanical equipment—which may provide significant savings by avoiding Contractor mark-ups. Additionally, the CM has a responsibility to be sure initial packages are bid within budget and subsequent packages can be bid within budget as the design is finalized. This duty is particularly important when the Owner is starting work on a construction site before all or most of the construction has been bid. In this scenario, the Owner begins work based upon the CM’s representations that the balance of the project can be bid and built for the budget.

Trade Contracting. In multiple-prime trade contracting, the Owner holds contracts with each individual trade contractor. The Owner has privity of contract with each of the trade contractors and gains the documented benefits of cost savings in the bidding process and better control throughout the construction process. The CM has a duty to coordinate these contractors in the Owner’s best interest. This is in direct contrast with the traditional delivery method, where the Contractor is managing and coordinating the subcontractors and suppliers in the Contractor’s best interest. Under this approach the total construction cost is the sum of the individual trade contracts, plus the CM’s Construction Phase fee and general conditions costs. The project is bonded at the individual trade contractor level.

The success of multiple-prime contracting is largely based on the effectiveness of the coordination among the prime contractors and the CM. By holding numerous individual contracts with the various prime contractors, the Owner assumes a greater risk of performance. While a CM may be very effective in coordinating the various primes, often the lack of a single point of responsibility for project performance can create problems since individual prime contractors cannot be held responsible for delays or disruptions caused by other prime contractors.
At-Risk Construction Management
This method, adopted and promoted by many large general contracting firms, is similar in many ways to the traditional approach, in that the CM acts as the equivalent of a general contractor during construction. However, this method is typified by the CM’s early involvement in the process, during the Design Phase. The key roles are defined in Figure 3.

CM-At-Risk has also been referred to as CM/Independent Contractor, CM/GC or CM GMP.

Under this method, the CM holds the risk of subletting the construction work to trade subcontractors and guaranteeing completion of the project for a fixed, negotiated price following completion of the design in a similar manner as the traditional approach. However, in this scenario, the CM also provides advisory professional management assistance to the Owner prior to construction, offering schedule, budget and constructibility advice during the pre-construction phases. Thus, instead of a traditional general contractor, the Owner deals with a hybrid of a construction manager and a general contractor.

The CM’s dual role typically works as follows: The CM begins during Pre-Design and Design Phases by serving in a advisory role and acting as an agent of the Owner while being compensated either on an hourly basis or for a set fee. During these phases, the CM will work with the Owner and the design team to provide input on the method of construction and will develop preliminary estimates of various alternatives to assist in developing the most cost effective design. At some point in time when the design is sufficiently complete (e.g. plans 50% complete and specs 80% complete), the CM prepares an estimate for construction performance and offers the Owner a total project cost usually in the form of a guaranteed maximum price (GMP) or fixed price (lump sum). If for some reason an agreement cannot be reached on the price for construction performance, the CM may continue to perform as an agent of the Owner.

When the CM provides either a GMP or lump sum for the project, it assumes the risk to deliver the project on time and within a fixed budget. The CM is also then free to act within the confines of the contract and its implied conditions. While the risks associated with a lump sum price are clear, the risk assumed by the CM under a GMP contract can vary and will depend on the fee and financial incentive arrangements ultimately agreed to by the parties. For example, the CM’s guarantee may be its fee, or a portion thereof, if the price is exceeded. Or, it could be for the excess of the GMP (total project construction costs). Regardless, the CM, in essence, becomes a general or independent contractor.

The advantages of using the CM-at-risk approach as a project delivery method include:

• Earlier development of effective working relationships for the project team.
FIGURE 3

**AT-RISK CM**

- Similar to the traditional approach

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**Owner**

- Begins as an agent
- CM offers a contract price, usually a GMP, after preliminary design is complete
- Assumes risk
- Responsible for schedule and coordination and schedule enforcement
- Responsible for means, methods, techniques and sequence of construction
- Fast-track and multiple trade contracts are options
- Option for cost savings/sharing

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**Designer**

- Prepares the plans and specs
- Interprets the plans and specs
- Approves shop drawings
- Makes periodic filed visits
- Participates in final inspections

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**CM**

- Trade contract may involve competitive bids or negotiated contracts
- Trade contracts may be with Owner or CM
- CM may perform portions of the work

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**Consultants**

- Trade contract may involve competitive bids or negotiated contracts
- Trade contracts may be with Owner or CM
- CM may perform portions of the work

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**Subcontractor**

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**Suppliers**
• Benefit of the constructor’s input during the Design Phase.
• Potential cost security for the Owner, the guarantee of the construction costs before the contract documents are complete.
• Cost savings/sharing incentives if the final construction cost is less than the GMP (some may claim this as a negative because of the potential for a conflict of interest).
• Less exposure for the Owner to safety problems, compared to multiple prime contracting.
• Less exposure to the Owner for the problems of schedule and coordinating the trade contractors, compared to multiple prime contracting.

In addition to providing the Owner with the benefit of pre-construction services, the CM-at-risk scenario offers the opportunity to begin construction prior to completion of the design. The CM can bid and subcontract portions of the work at any time, often while design of unrelated portions is still not complete. In this circumstance, the CM and Owner negotiate the GMP or fixed price based on a partially completed design, which includes the CM’s estimate of the cost for the remaining design features. Furthermore, CM-at-risk may allow performance specifications or reduced specifications to be used, since the CM’s input can lead to early agreement on preferred materials, equipment types and other project features.

The primary disadvantages cited in the CM-at-risk method involve the contractual relationship among the Designer, CM and Owner once construction begins. Once construction is underway, the CM converts from the professional advisory role of a construction manager to the contractual role of a general contractor. At that time, there are no longer any implied duties of loyalty and care to the Owner. All trade contracts are usually held by the CM and contain the necessary provisions to allow the CM to manage and control the trade contractors to assure performance in terms of time, cost, and quality. The CM has the right to enforce the schedule, pay the trade contractors, and terminate them if such action becomes necessary. Trade contracts may involve taking competitive bids or negotiating direct contracts. The CM also has the option of performing portions of the work with its own resources (unless prohibited by law on certain public projects). The CM is responsible for the means, methods, techniques, and sequence of construction. It is also responsible for scheduling and coordinating the trade contractors. This modified relationship raises the question as to whether or not a CM, with its own entrepreneurial and financial interests, can relate to the needs of the project and the Owner’s best interest, and tensions over construction quality, the completeness of the design, and impacts to schedule and budget can arise. Interests and stake holding can become similar to the
traditional design-bid-build system, and adversarial relationships may result. While the fixed price or GMP is supposed to address the remaining unfinished aspects of the design, this can in fact increase disputes over assumptions of what remaining design features could have been anticipated at the time of the negotiated bid.

One mitigating approach to this problem is for the CM to share with the Owner its subcontractor bids, to ensure openness in the process. The CM may further assume risk by taking some responsibility for design errors discovered during construction, if it was involved in the review of the design prior to establishing the contract price. In addition, arrangements can be made regarding risk sharing and profit sharing if there are over-runs or under-runs in the GMP.

Other potential disadvantages of the CM-at-risk system include:

- If the contract price is established too early on in design, any design flexibility is greatly reduced.
- The Owner may have little or no control over cost contingencies.
- On public projects, the CM who guarantees the cost of a project may not have the right to perform the work if all work is required to be bid.
- The contract price is often based on scope documents and disputes can arise as to the understanding of the final contract documents.
- Potential bid shopping after the contract price is rendered.
- Possible slow payment to trade contractors.
- Potential failure of the CM to schedule and coordinate the trade contractors or subcontractors.
- The possible absence of project controls which benefit and preserve the interest of the Owner.

An owner wishing to use the at-risk construction management approach can realize many benefits. Chief among them is the opportunity to incorporate a contractor’s perspective and input to planning and design decisions and the ability to “fast-track” early components of construction prior to full completion of design. However, since a commitment for construction performance is made earlier in the process, a premium is placed on the proper selection of the CM to provide the best value to the Owner.

**Design-Build**

The design-build (D-B) project delivery method has grown in popularity, and is seen by some in the industry as the perfect solution in addressing the limitations of other methods. For the Owner, the primary benefit is the simplicity of having one party
responsible for both the development of the design and the execution of the construction for the project. While the other systems often give rise to disputes among various project participants—with the Owner acting as referee (or party ultimately to blame)—in design-build many of these disputes become internal D-B team issues which do not affect the Owner. Although the design-build approach has been around for a long time, it has recently gained in popularity. A key factor greatly influencing recent growth is the increased desire of owners to have a single point of responsibility for their projects to reduce their risk and the potential for disputes.

Under this method, the Owner contracts with a D-B team to plan, implement, and control the entire project through completion, occupancy, or startup. However formulated, the D-B team performs the complete design of the facility, usually based on a preliminary scope or design presented by the Owner. At some point early in the process, the D-B team will usually negotiate a fixed price to complete the design and construction of the facility. Figure 4 conceptually illustrates the roles and responsibilities of the parties involved in the design-build delivery method.

While there are many design-build firms which provide all of the essential services required for project delivery, this approach typically involves a joint venture, usually between a general contractor and a design consultant, with both firms having some direct or related experience with the type of facility planned by the Owner. Since contractors are comfortable in the role of risking corporate capital in performing projects, they often are the lead members of this sort of team. One variation of the typical D-B team structure, known as fee-paid developer, involves the Owner engaging a developer, which then selects its own designer and contractor partners. Another variation of this delivery form is when a construction firm takes on the total responsibility and subcontracts for the design services.

Under the design-build delivery method, all design, vendor, supplier, and construction contracts are held by the D-B team. During the Construction Phase, the D-B firm may do all of the work or subcontract portions of the work required. Subcontracts may be negotiated or competitively bid. Basically, the Owner has little involvement other than making the key decisions that are necessary throughout the design-build process. The Owner may want to supplement its staff with an advisory (agency) CM to provide certain technical support services to assure that the D-B team is achieving the goals and objectives established for the project.

**Advantages of Design-Build.** Design-build delivery systems can provide distinct advantages for the Owner. For example, the Owner has a single point of responsibility with which to communicate. In comparison, the traditional, multiple-prime or at-risk construction management approaches involve at least two or more parties contracted by
FIGURE 4

THE DESIGN-BUILD APPROACH

Owner

- Owner contracts with a single entity
- Linear or fast-track options

Design-Build Contractor

- May be a single firm
- Can be a joint venture often led by contractor with designer as sub
- Usually guarantees certain performance capabilities will be achieved
- Responsible for schedule and coordination
- May be cost plus, lump sum, GMP
- Holds all contracts
- May perform portion of work or sub 100%

Vendors  Subcontractors  Suppliers
the Owner. The design-build approach minimizes the obligation of the Owner to schedule and coordinate the overall project. It also reduces the potential exposure to complex claims by reducing the number of parties involved and at the same time provides for incentive/shared savings opportunities. Further, the design-build approach allows the Owner to begin a project with very little information, proceed through a project feasibility phase (if necessary), and ultimately end up having a D-B firm guarantee that certain performance characteristics will be achieved when the project is complete.

For the Contractor, the design-build approach involves a high degree of risk. However, if the approach realizes a successful project, the risks taken are offset by a greater profit potential.

Like the CM-at-risk method, the design-build approach allows construction expertise to be involved in the Design Phase. It also allows for fast-tracking and/or phasing the project which is a key advantage not found with the traditional method, but provides the Owner with the option to use the traditional linear phasing for its project if it so desires. The design-build approach allows some construction contracts to be let before all design is actually complete and sometimes before a final price determination is made.

**Potential Problems with Design-Build.** The design-build method has potential problems for the Owner, the D-B firm and the subcontractors who eventually get involved. The Owner has few checks and balances and stands to lose some degree of control over price, schedule, and technical matters. Under the design-build approach, the design function is an obligation of the D-B team and the Designer may not have any direct relationship with the Owner. Some believe this can limit the Owner’s control of the overall quality and/or performance of the project when a GMP or lump sum contract is used. The primary caution for an Owner considering design-build is that it considers the level of involvement it requires for a successful project. First, the Owner needs to recognize the effort and completeness that must be behind its initial scope/preliminary design which forms the basis of its contract with the design-builder. Often, the Owner will require additional consultants to help in developing its scope or preliminary design, in the role of a traditional design firm.

The Owner also has little opportunity for involvement in and mitigation of problems when they occur. Accordingly, it is difficult for the Owner to verify that it is receiving the best value for its money, without a great deal of confidence in the D-B team. Areas of concern usually involve disagreement over the details of the original scope of work, quality, controlling the overall time factor, and the ultimate cost of the project. There is also a greater potential for changes and disputes over quality and/or performance, particularly when a GMP or lump sum price is involved. The Owner may choose to use construction management, where its interests in these areas are expected to be under control of the CM, with greater opportunity for mitigation when they occur.
Owners with highly specialized program needs or desires may not find it advantageous to turn over responsibility to an outside team, without ensuring adequate levels of oversight and communication. For example, a government agency constructed a high-technology research facility involving highly specialized equipment using design-build. During project development, the D-B team made several key design and equipment selection decisions without full involvement of the Owner, resulting in an unsatisfactory facility that required costly changes.

With this lesson in mind, design-build may be best suited to conventional projects for which project requirements can be clearly defined and for which expertise is widely available. For example, a classroom/office facility or dormitory complex might be types of projects ideally suited for design-build. In projects of this type, the Owner is not assuming undue risk in conceding control over the project, and may benefit from the advantages of design-build.

Another primary consideration for the Owner is proper selection of the D-B team. Since the Owner selects a team that has been created prior to selection, it may be difficult for the Owner to maintain the proper balance of design expertise, financial capability, construction experience, and experience in D-B team roles. In particular, the Owner should strongly favor D-B teams with a successful track record working together on previous projects in the same roles. More so than in any other delivery system, the success of a design-build project may hinge on the initial selection process.

As in the traditional approach, there can be much brokering of the construction work and this can result in more complex logistical planning, scheduling and coordination. In addition, this situation can be compounded by bid shopping, inadequate project controls and lack of a change order control process.

Applicability of Construction Management Services with Different Delivery Methods
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 the project and Owner needs that makes construction management a cost effective approach to managing project delivery. As discussed in this section, the many forms of project delivery lead to several different variations of the construction management practice. All variations can be placed in either the “agency” or “at-risk” form of construction management.
Agency construction management encompasses a range of services provided by a CM on behalf of an Owner. The agency CM acts as the Owner’s principal agent and does not perform design or actual construction work. It is a common misconception that agency construction management represents a distinct project delivery system. In fact, agency construction management consists of a distinct set of services that are applicable to any project delivery method. These services can be used by the Owner as necessary to extend or supplement the Owner’s own expertise and its own staff, as well as to manage the construction process to help address some of the shortfalls of the project delivery system chosen.

When the CM’s role includes a construction performance function, the CM will assume additional obligations and is typically placed in a legal position similar to that of a general contractor entering into a traditional construction agreement which provides for the completion of construction work for an established price. Thus, the CM is said to be “at-risk”.

Regardless of the form of contract agreement, the CM performs professional tasks throughout all the phases of program or project implementation. A contract agreement will establish the scope of services and will also define the relationship of the parties. The term agency signifies 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. A CM working as an agent to the Owner primarily provides the benefit of independent, professional services provided on the Owner’s behalf throughout the project. In contrast to some other project participants, the CM has no vested financial interest in the project—in either its design or construction—and maintains a responsibility to act on the Owner’s behalf and to provide impartial advice concerning the construction project.

Regardless of the project delivery method used, a professional CM should improve the Owner’s confidence in the success of the project. This enhanced confidence grows out of the ability of a professional CM to make expert recommendations regarding:

- Most effective use of available funds.
- Enhanced control of the scope of the work.
- Optimal project/program scheduling options.
- Best use of individual project team members’ expertise.
- Maximum avoidance of delays, changes and claims.
- Enhanced design and construction quality.
- Optimum flexibility in contracting/procurement options.
Construction management includes a significant component often missing from the project delivery systems—a comprehensive management and control effort applied to the project for the Owner, beginning in the early program 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:

- Development of a written scope understood by all of the participants.
- 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 review.
- Code compliance review.
- Milestone cost estimating—to ensure design complies with the budget.
- Matching construction spending to funds availability.
- Construction specification enforcement.
- Continuous schedule enforcement.

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

The most frequently cited criticism of construction management services is that the CM adds a level of bureaucracy to a project, resulting in added cost. While it can be argued that services associated with such costs may actually reduce the overall project costs, it should also be noted that an Owner can realize the benefit of the construction management services without necessarily committing to large increases in cost by supplementing its own project management as necessary and selecting a CM on a service-specific basis.

The Owner has the option of tailoring its use of construction management services to its needs in order to provide the best combination of project control and cost. For example, many Owners have a large contingent of inspection personnel, but may lack sufficient management experience to enact effective project cost controls. Or, an Owner may wish to have more construction knowledge built into the design process by engaging a CM to perform a value engineering or constructability review. The Owner may also desire
enhanced scheduling expertise in coordinating its various Designers and Contractors for a multiple-phase effort.

Other Owners may be very comfortable with their design team, but may need assistance in finding qualified contractors to perform the work. Many Owners use a CM’s construction closeout services to resolve intractable problems on projects which degenerate due to disputes with the Contractor over schedule and delay issues.

Summary
Clearly, there is no one right project delivery method for a given project. All of the methods discussed have been used successfully, and have weaknesses which can limit their success. The following considerations should guide the Owner in selecting the proper delivery method:

- **Type of Project:** The Owner should gauge the level of complexity and uniqueness of the project, and maintain an appropriate level of control.

- **Size of Project:** The amount of outside assistance and number of project participants should match the significance of the project. Obviously, the more complex and costly a project, the greater the need for professional management and advice.

- **Owner Capabilities:** The Owner should realistically assess its own in-house capabilities in evaluating project procurement methods.

- **Time Considerations:** If the project needs to be constructed in a severely compressed time limit, methods adaptable to fast-track construction should be considered. However, the Owner must weigh the need for the compressed time limit against the increased cost and risk of fast-tracking.

- **Likelihood of Changes:** If the Owner is aware that its requirements may change considerably during the project, this should be evaluated against the potential cost of such changes. For example, a D-B team may present the most fluid method of incorporating changes during construction, but those changes may come at a higher cost than through other methods.

Professional construction management can help Owners in constructing the best facilities possible, on time and within budget. Construction management services are highly desirable, if not essential, to a successful project especially for Owners lacking this expertise in-house. These services are adaptable to any project delivery system, and are scalable to meet the specific needs of the project.
2.2 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 is the risk of being able to complete a defined scope within a given budget. This 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. This 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. All contracting formats require some form of specific scope statement in order for the parties to make an accurate economic judgment as to cost.

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.

Public, and quite frequently private, works are usually procured through a sealed bid, fixed price contract. In these contract arrangements, 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 requires a linear approach to project delivery that reduces flexibility.

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, and unit price. 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.

Actual usage of a particular contract form for the Construction Phase depends on the particular delivery system being used, the type of project being implemented, the completion status of the plans and specifications at the time of contracting, and the consideration of any performance requirements. Other factors include, the type and level of sophistication of the Owner, the role of the Designer(s), method of financing, scheduling requirements, and in the public sector, compliance with applicable laws and statutes. Some of the more commonly used construction contracting formats and the corresponding project delivery methods that they are most often associated with are shown at the top of the page.
All Construction Phase contracting formats are a variation of two basic forms, cost reimbursement and fixed price. Furthermore, all construction contracts involve pricing that is either negotiated or procured by competitive bid. Many construction contracts will have different combinations of those basic forms.

**Fixed Price/Lump Sum Contracts**

Fixed price contracts, also known as lump sum contracts, are used in the private and public sectors, primarily with the traditional project delivery system for contracting with single and multiple-prime contractors. This form of contract is also used for contracting trade or specialty contractors as part of the CM-at-risk and design-build delivery methods.

In the private sector, Contractors are usually pre-qualified with the objective of improving quality. In the public sector, pre-qualification is usually subject to restrictions established by laws and statutes. Contractors are usually asked to bid work based on a complete set of drawings and specifications, but, on rare occasions, may be asked to bid on a partially complete design, known as a scope bid. Once bids are received and evaluated, a fixed price contract is usually awarded to the lowest responsible bidder with a responsive bid.

The fixed price includes all costs to the Contractor, who agrees to provide what is clearly stated or reasonably implied by the construction documents used for bidding. With this contracting method, the Contractor usually assumes all of the risk associated with cost and performance. Therefore, it is important that the Contractor price such risks and include them in the bid.

In negotiated fixed price contracts, generally used in the private sector, Contractors may be brought on before the design is complete to provide preliminary pricing and even to

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<th>Type of Contract (Construction Phase)</th>
<th>Basic Delivery Method</th>
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All Construction Phase contracting formats are a variation of two basic forms, cost reimbursement and fixed price. Furthermore, all construction contracts involve pricing that is either negotiated or procured by competitive bid. Many construction contracts will have different combinations of those basic forms.
provide pre-construction services. These preliminary prices form a basis to negotiate the fixed price agreed to under contract. Negotiating the fixed price is generally not an option in the public sector.

The primary advantage of the fixed price or lump sum contract is that the construction costs are known prior to the actual work starting. In addition, a fixed commitment is obtained by the Owner from the Contractor. Best results are achieved when the contract documents are 100% complete and there are a reasonable number of experienced contractors willing to bid. A disadvantage of the fixed price contract is the potential for an adversarial position between the Owner and the Contractor. In addition, poorly drafted construction documents can result in the need for changes, thus increasing contract costs, possibly delaying completion, and resulting in claims.

**Cost Plus Fixed Fee Contract**
The cost plus fixed fee contract is a cost reimbursement type of contract that provides for a fixed fee established at the time of contract award. The fee does not vary with the actual costs expended unless the scope of work is changed. Depending on the terms and conditions of the contract, the fee may also be increased when the contract is delayed for reasons beyond the control of the Contractor involved.

The use of a fixed fee allows the Owner to limit the potential incentive for the Contractor to increase profit through increasing contract costs. The Owner should adjust the fixed fee only when unusual circumstances or difficulties arise. Factors having a bearing on the amount of fixed fee include size, complexity, location, duration, scope of work, and the terms and conditions agreed to by the parties for direct reimbursement costs.

The fixed fee usually includes profit, plus the cost of officers, principals, and home office support staff not directly assigned to the construction site; all costs not directly related to site operations; and cost not identified as reimbursable under the terms and conditions of the contract. Examples of costs that are not normally a part of the reimbursable expenses include home office overhead, recruitment costs for job site and home office personnel.

Reimbursable expenses generally include the costs of all job site supervisory personnel, staff relocation costs, travel and living expenses, subsistence to key field employees; the cost of all job-site labor, material, equipment, all subcontractor costs, communications, vehicles, project-related fees paid, reproduction, postage, computers, and any other field office related expenses. Other reimbursable expenses may include the use of home office personnel who may be involved in purchasing, expediting, scheduling, and estimating, and any other specific functions or tasks that are usually part time and project or field
support service related. Further, the cost of general condition items and any field labor associated with the performance of general conditions would be considered reimbursable expenses.

This type of cost reimbursement contract allows construction to start without the plans and specifications being 100% complete. When time restraints are a concern, this method of contracting becomes a means of meeting the earliest possible time objectives. In addition, this method allows phasing and sequencing of key decision points that may be necessary for determining the feasibility of unique or state of the art projects with unpredictable pricing by tracking sequential progress vs. available budget as construction is underway.

While this method is open-ended and potentially costly there are situations such as unique or remote projects where some costs cannot be foreseen. If a fixed price contract were used, the contracts would have to include large contingencies for such risks.

A variation to the cost plus fixed fee approach is the percentage fee plus cost. In this case, the fee is based on a percentage of the total cost of the work and the services provided. The primary disadvantage of this option to the Owner is the possible disincentive for the Contractor involved to control time and costs.

**Time and Material**
This type of contract provides for the Contractor to be reimbursed for all of its time at fixed hourly rates for equipment and material, plus all subcontractor costs for construction. The Contractor also receives a reasonable allowance for overhead and profit. Essentially the entire risk is borne by the Owner and the potential for gain is limited for the Contractor. The Owner may retain control over the Contractor’s methods, procedures, and performance requirements.

This type of contract is occasionally used with the traditional delivery system, but is most common in situations where the scope of work cannot be clearly defined, such as repair work, maintenance, or emergency repair situations. The Owner has no control over the ultimate cost, and the Contractor has little incentive for work efficiency or to control project costs.

**Unit Price**
This type of contract is used as one of the options associated with the traditional delivery system, when the exact quantities may be unknown. This format is most closely associated with sealed-bid contracts and is primarily used for civil works and horizontal-type construction projects. The total cost to the Owner will vary with the actual quantities of units put in place and the Owner assumes the risk of cost and the amount of work
required. While this type of contract allows work to proceed without the full scope being known, it requires accurate methods of measuring quantities and reimbursement terms be established before the contract is awarded.

The unit price contract requires that the work be divided into various quantities and that a pricing structure be established for specified units of work. When competitive bids are to be considered, it is necessary that all units of work be described and bidders be asked to provide a price for each unit of work. With the unit price contract, the Owner pays a fixed amount for each work unit completed by the Contractor, which, depending on the contract stipulations, will typically include a percentage included by the Contractor for its overhead and profit. The total cost of the contract will vary with the actual quantities of units of work put into place. Quantities are usually subject to variations and adjustments within reasonable limits. However, a significant increase or decrease in quantities on an individual item can substantially affect the performance costs of the Contractor. Therefore, in the public sector, provisions for an equitable price adjustment are normally included for increases or decreases of set percentages from the estimated quantities.

Unit price contracting can be beneficial when there are a limited number of work units and where the estimated volume is substantial. There is an inherent fairness implied in the method, in that it provides for the Contractor to be compensated for exactly the amount of work it completes. A disadvantage is that the final cost to the Owner is dependent on the accuracy of the estimated quantities and that the Contractor’s individual unit prices reasonably reflect the actual cost of performing the associated work.

**Guaranteed Maximum Price (GMP)**

This contracting format is commonly used in the private sector and increasingly in the public sector and often in conjunction with the fast-track process (the overlapping of the design and construction activities). It is often associated with a CM-at-risk delivery method. Under the GMP concept, a guaranteed maximum price is established before construction starts. The Contractor agrees to perform within a cap or ceiling that is commonly based on the completion and approval of the preliminary design stage drawings and specifications. The Contractor is usually selected and a GMP is established with an understanding by the parties that the actual cost of the work could be less. The GMP may include either the estimated or bid cost of certain trade contracts, purchases from suppliers and vendors, general condition items, the Contractor’s fee, reimbursable expenses, and sometimes a contingency to protect the Contractor from unforeseen costs at the time the GMP is prepared.

One of the primary benefits of this contracting format is the flexibility it gives the Owner, due to the ability to retain the Contractor before the construction documents are 100%. This presents an opportunity to enhance the schedule as well as the cost of the
project. Possible disadvantages include the complexity associated with the scheduling and coordination involved and the potential impact resulting from scope changes or differences over the interpretation of the original scope.

It is important the phrase guaranteed maximum price be clearly defined in the contract as to what it includes and specifically excludes. Terminology such as “construction costs” or “project costs” must be clearly defined. The definition of construction costs is usually stated as the cost of all work required to complete the construction as defined in the construction contract documents. Normally, it does not include such items as land costs, professional service costs, or the cost of movable equipment, furniture, etc. In addition, definitions should be provided for reimbursable and non-reimbursable costs.

Once a GMP for construction cost is established, the Contractor takes on the risk of completing the project. Trade and specialty contracts can be bid or negotiated, and are usually held by the Contractor. It is the responsibility of the Contractor to stay within its estimated costs and contingency allowances.

On some GMP projects, the Owner may reserve the right to approve all trade and purchase contracts. Under such conditions, the contract should be clear as to which party pays the difference between the estimated trade contract cost and the actual trade contract award value when the award value approved by the Owner is greater than the estimated cost element included in the GMP. Since many GMP contracts are negotiated before the project is completely specified, a contingency is often included in the GMP, to be drawn against as the exact scope of the work becomes better defined. Items that are difficult to estimate or are dependent upon the Owner’s later decision are sometimes priced as allowances, whereby an agreed upon allowance is established to cover the eventual cost. Frequently, finish items such as carpets or draperies are priced in this manner, with the understanding that the Owner will make the final selection of these items at a later date and will compensate the Contractor for the actual amount expended on them.

Since the terminology of a guaranteed maximum price implies that the actual price could be lower, it is reasonable for an Owner to expect that it might realize a savings by paying the Contractor the actual cost of completing the project. The Owner can encourage the Contractor to deliver such a savings by offering an incentive to share the savings below the GMP with the Contractor and by either reviewing all subcontracts prior to award or by retaining the right to audit the project at its completion. The purpose is to challenge the Contractor to construct the project for less than the established GMP. The keys for successfully achieving benefits from such a clause include the establishment of a realistic GMP, mutual cooperation, and a completion date for receipt of the 100% drawings by the Contractor.
As in most contracts, the Owner has the right to make changes. Accordingly, the contract should be clear as to how the GMP will be equitably adjusted for both added and deleted work. If the project is extended beyond the scheduled completion date for reasons beyond the control of the Contractor, a time extension and an increase in the Contractor’s compensation may be required.

Summary
It is imperative that any construction contract be well written and understood by the parties as to the risks that are assumed and by whom and to ensure that the Construction Phase objectives can be completed without any disputes or claims. There are two basic choices for contracting one or more participants during the Construction Phase. These include a fixed price or lump sum arrangement or the use of one of the cost reimbursement-type contracts. It is recognized that both of these contract forms can have many variations, and participants can be selected on a competitive or negotiated basis.

2.3. MANAGING CM ASSIGNMENTS
The future of any construction management firm will depend on its demonstrated ability to successfully manage projects. Clients are demanding and expect the firms they engage to perform in full compliance with the contract and to meet all of the client’s interests and desires. A CM must be capable in the full range of project management, contract administration and organization/control functions to be able to fully represent the interests of a client. This section will cover the basics which are involved in this process.

Project Management
Project management includes the overall responsibilities that a CM must be capable of performing. These capabilities include the full spectrum of determining, formulating, developing, installing, coordinating and administering all required elements of the delivery process. More specifically, the CM must understand the basic responsibilities and interrelationships of all team members; i.e., the Owner (both project management staff and facility user), the Designer(s), the Contractor(s), and other team members, such as consultants and the CM. Additionally, the CM must have the functional knowledge to define the interrelationships between such management components as time, cost, contract administration, quality, safety, and risk.

The CM must utilize this proficiency in assessing team member responsibilities and functional interrelationships to clearly set forth the project objectives and the team control mechanisms during the various stages of the project. Decision making, including obtaining sufficient information to make reasoned decisions, is probably the key element leading to a successful project.
The two key planning tools utilized in project management are the Construction Management Plan and the Project Procedures Manual. Although these two tools may appear to be synonymous, they are clearly different. The Construction Management Plan outlines the project description, the Owner’s goals and objectives, the milestone schedule, the budget, the team members (including their roles and responsibilities), the strategy to be used in contracting and procurement, and the management information system.

The Project Procedures Manual describes the process to be followed in controlling the various management components utilized in meeting the objectives contained in the Construction Management Plan. The basic elements of the Project Procedures Manual include:

- The budget and the systems required for monitoring and controlling project costs.
- The quality assurance program established by the team and how it is to be implemented.
- The project schedule and how it is to be developed, implemented and maintained.
- Specific project systems, methods and procedures (i.e. bidding, payments, change orders, submittals, correspondence, reports, performance records, claims avoidance/resolution, etc.).
- Functional responsibilities and limits of authority.
- Correspondence distribution matrix.
- Checklists.
- Meetings, including type and frequency.
- Sample forms to be utilized.
- Detailed Procurement Phase procedures.
- Coordination between the team members during all project phases.
- Design review process and procedures.
- The project acceptance and closeout procedures.
- Procedures for verifying compliance with all safety laws and regulations.

During the course of the project, both the Construction Management Plan and the Project Procedures Manual must be kept up to date with changes required due to various constraints, such as budget, schedule, regulatory, etc.
Time Management
Time management encompasses all aspects of scheduling during the course of the project. Scheduling integrates the restrictive elements of time and resources from conception through design, construction and project occupancy. The main contribution of scheduling is the mitigation (or elimination) of time and resource crises and the determination of a predictable date for completion. Scheduling should be used as a flexible tool: a means to an end, not an end in itself.

Scheduling and coordination of the project requires a blend of abilities in the technical aspects of scheduling and sensitivity to the project’s needs and capacities. The scheduling process must be designed to employ scheduling techniques that meet the specific project requirements and effectively integrate the process and techniques into the overall management effort.

Schedules can be presented in several forms, all of which have an appropriate place on a project. Depending on the project requirements, the scheduling technique could utilize relatively simple bar charts or could require critical path method (CPM) scheduling to be able to effectively portray the project needs for time management. The computer, with associated scheduling software, is an effective tool; however, it does not replace knowledge of basic scheduling concepts and management uses.

During the Construction Phase of a project, it is imperative that the scheduling system be capable of supporting the time analysis portion of the change order process. Most projects will use a CPM system to schedule the project and for routine updates. The procedures utilized for the scheduling system must be capable of performing time impact analyses for any job changes which could affect progress, including weather. The CM must have a thorough working knowledge—and to a lesser degree a legal knowledge—of the use of the as-planned schedule, float, fragnets, time impact analysis, schedule updates and schedule revisions.

Cost Management
The CM usually has the responsibility to generate and track all project costs, from the initial conceptual estimate to the final accounting. The detailed project budget, prepared by the CM before design begins, becomes the design professional’s guide as the process moves toward the bidding phase. After bids are received, the value of the accepted contractor proposals provide the basis for updating the budget. As construction proceeds, contract changes and allocated expenses are recorded. Every aspect of the project’s cost is estimated as early as possible and documented when it occurs.

The full scope of the cost management function requires a broad range of knowledge of construction estimating. This includes conceptual estimating, construction estimating,
feasibility formats, comparative cost studies, change order estimating, material and labor costs, equipment and labor production rates, material technology, industry standards, labor practices, construction details and techniques, and construction industry economics.

The CM should be able to reasonably forecast project budgets based on preliminary information without the aid of detailed drawings, and be able to estimate construction costs with a high degree of accuracy from completed contract documents. This process of moving from conceptual estimates for budget purposes into detailed line item construction budgets is essential for accurate project cost control. Other project costs, such as planning, design, real estate, management, inspection, testing, permits, occupancy, etc. must also be determined and furnished to the Owner in a timely manner, and in a format that is easily understood and which can be accurately maintained and updated as expenditures are made.

In short, the establishment of a cost management system applies skills and techniques to ensure that the project is planned, designed, procured and constructed in the most economical way while meeting the project original budgetary requirements. The project phases which are contained within this system and their subtopics include:

**Pre-Design Cost Investigation.** Establishment of a cost management plan, including all cost components, which becomes the basis and framework within which the costs of the project are controlled, including:

- Project feasibility studies.
- Energy conservation studies.
- Conceptual budgeting.
- Cost models.
- Preliminary cash flow studies.
- Project funding studies.

**Design Phase Cost Management.** Provision of ongoing estimating and cost management services to ensure that the budget is preserved as the designs are developed by the Designer, including:

- Value analysis studies.
- Life cycle analysis.
- Trade off studies.
- Estimating and budget updating.
Construction Phase Cost Management. Establishing and monitoring cost management procedures through completion of construction, including:

- Change order control system.
- Payment request evaluation.
- Claims cost analysis.

Contract Administration
The CM, in representing the Owner, carries a responsibility for the operational and administrative provisions of the contracts used on the project. This responsibility does not extend to the writing of contracts or related legal services, but does include recommending appropriate contract provisions. It is the CM’s responsibility to help establish the contracting format for the project, including each contractor’s and consultant’s requirements. To support the format, the CM should see that appropriate contract provisions are inserted for contact administration which meet basic industry standards, as well as the requirements of the Construction Management Plan and the Project Procedures Manual.

Each project must be evaluated from a contracting format perspective, taking into consideration the unique conditions and requirements of the project and local construction contracting practices. This includes the recommendation of contract formats to the client, assisting in assembling contract documents, review of the documents for suitability and the coordination of their use on the project.

The execution of these responsibilities requires a thorough understanding of contracts, construction law and standard contracting documents. A knowledge of traditional contracting procedures, construction management procedures and the possibilities for contracting innovation is necessary.

The key components contained within an effective contract administration system and their subtopics include:

Design Document Review is generally the periodic review of design documents for the purpose of managing cost, time, quality and risks, including:

- Conducting and documenting pre-design project conference.
- Constructibility reviews at various stages of design documents.
- Analysis of sequencing and phasing of construction.
- Reviews of coordination, consistency and completeness of design documents.
- Strategies for contractual risk sharing between Owner and Contractors.
• Recommendations for specific contract/agreement provisions.
• Identification of impractical material/performance specification requirements.

*Procurement Process* involves the establishment of contracting format and the bidding and contracting procedures to be employed, including:

• Bidder pre-qualification.
• Bidders’ interest campaign.
• Organization of bid packaging.
• Preparation of Special Provisions in General Conditions and Contracts.
• Delivery of bid documents and information to bidders.
• Prebid conference.
• Bid evaluation and negotiation.
• Coordination for Owner purchased equipment and materials.
• Identification of required permits, insurance and labor affidavits.
• Assistance with contract negotiations.
• Construction contract preparation.

*On-Site Communications* involves establishment and maintenance of communication procedures to be used on site, including:

• Pre-construction conference.
• Communication flow chart.
• Project directory.
• Correspondence files.
• Chain of responsibility and authority.
• Submittal flow chart and logs.
• Field orders.
• Coordination meetings.
• Shop drawings.
• Directives and reports.
• Cost and schedule performance data.
Project Documentation involves the establishment and maintenance of recording systems for receipt, handling and distribution of project documentation, including:

- Contract documents.
- Requests for Information.
- Owner’s directives.
- Designer’s directives.
- Submittal receipt and approvals.
- Changed condition notices.
- Change orders.
- Minutes of meetings.
- Project reports.
- Daily field reports.
- Payment requests.
- Photographic documentation.

Material Management encompasses all activities relating to the acquisition of materials or equipment between its specification and installation, including:

- Identification of early purchase needs.
- Scheduling and expediting procurement and delivery.
- Inspections during fabrication and at delivery.
- Transportation and materials handling.
- Storage, insurance coverage, lien statutes.
- Specifying, negotiating and purchasing.

Project Closeout involves development and implementation of closeout procedures, including:

- Punchlist inspections.
- Punchlist work.
- Final inspections.
- Operational training.
- As-built drawings.
• Operation and maintenance manuals.
• Occupancy permits.
• Claims investigation and resolution.
• Contract closeout.
• Closeout reports.
• Occupancy plans.
• Move in coordination.
• Warranties and guarantees.
• Post-occupancy Inspections.

Information Management
Proper information flow is crucial to the success of a project. The CM is usually responsible for the establishment of a system for the management of information on every assigned project. Should any party not receive critical information during the course of their work, all parties can be subjected to additional costs and the potential for unexpected liabilities.

A construction project normally generates a tremendous amount of information which must be disseminated to all appropriate parties on a timely basis. The sources of this information will cover the full spectrum, including contracts, meeting minutes, drawings and specifications, submittals, requests for information, etc. Documents may be hard copies or electronic data, including both e-mail and computer files. Documents will include letters, memoranda, submittals, forms and any other data which can be transmitted by mail or facsimile. Electronic transmission of data has become common as an accepted and economical means of communication. An e-mail system enables users to quickly transmit information and retain a record for future use. Computer files, such as CADD, spreadsheets, logs, database files, and word processing documents can be transmitted on a network, by modem or by disk. Web-based project management systems can also be effective in the distribution and storage of project information.

All of these forms of information constitute the project record. As the hub for the management of all types of data flow, the CM should be capable in the fields of correspondence, technical writing, meeting recording and reporting, management information systems, business protocol, computer systems and networks, and the legal precedents regarding contract documentation.

The basic focus of the management information system should be to keep the project team informed, continuously, as to the overall status and forecast of the project in
comparison with the established plan. Examples of the types of reports and data that should be considered during each phase of the project are:

**Pre-Design Phase**
- Design schedule.
- Schedule and progress reporting.
- Budget versus cost.
- Design change requests.
- Meeting minutes.

**Design Phase**
- Schedule and progress reporting.
- Project cost summary.
- Change order reporting.
- Budget versus cost.
- Cash flow projections.
- Meeting minutes.

**Procurement Phase**
- Schedule and progress reporting.
- Project cost summary.
- Summary of bid results.
- Budget versus cost.
- Cash flow projections.
- Construction schedule.
- Meeting minutes.

**Construction Phase**
- Schedule and progress reporting.
- Project cost summary reporting.
- Budget versus cost.
- Progress payment reporting.
• Change order reporting.
• Potential disputes/claims.
• Cash flow projections.
• Daily field reports.
• Inspection reports.
• Meeting minutes.

Post Construction Phase
• Agency inspections and approvals.
• Occupancy permits.
• Claims status and disposition.
• Final inspection reports.
• Final project cost summary.
• Project history.

Quality Management
Quality management begins in the planning stages of every project and continues throughout the project and into the Owner’s use of the facility. Quality management is an inherent part of the CM’s contract and, as such it is essential that the CM be knowledgeable of and capable in all aspects of quality management.

Definitions: The following descriptions are accepted in defining quality management.

• Quality: Achievement of the project’s requirements, such as budget, schedule, function, fit, finish, public acceptance, etc.

• Quality Management: The process of planning, organizing, implementing, monitoring and documenting of a system of policies and procedures that coordinate and direct relevant project resources and activities in a manner that will achieve quality.

• Quality Control: The continuous review, certification, inspection and testing of project components, including persons, systems, materials, documents, techniques and workmanship to determine whether or not such components conform to the plans, specifications, applicable standards and project requirements.
• Quality Assurance: The application of planned and systematic methods to verify that quality control procedures are being effectively implemented.

**Quality Objectives:** During the Pre-Design and Design Phases of a project, the responsibility for specifying quality normally belongs to the Designer. The specifications are the result of its interpretation of the Owner’s requirements or desires and personal preferences based on its experience. From the perspective of the CM, three things are important:

• That the quality of everything be specified.
• That the quality specifications of system components be compatible.
• That the quality specified be at least at a level that is commensurate with the project needs.

The CM should work with the Owner, Designer, and other consultants to ensure that these objectives are met. Using contract document reviews and constructibility reviews, the CM should check all drawings, specifications and associated documents to be sure that there are no gaps, inconsistencies or vagueness that will create errors or uncertainties in cost estimates, schedules, bidders lists or purchase orders.

**Value Engineering:** Value engineering (VE) seeks to obtain for the Owner the best value for the construction dollar spent. Once a quality standard is specified and justified, VE is a disciplined approach to obtaining that quality at the lowest possible cost. In some cases, VE may prove that a higher level of quality and initial cost may produce a lower life-cycle cost for a system or component.

**Shop Drawing and Sample Review:** Careful, detailed review of shop drawings and samples is essential to ensuring that trade contractors, vendors and suppliers maintain the quality standards specified. The CM should establish and maintain procedures for managing the review and control of required shop drawings and samples. Normally, the Construction Manager should check all submissions for completeness and, when tasked by the Owner, for compliance with the Designer’s drawings, submit them to the Designer for review and approval, and expedite return to the Contractor or supplier for revision or construction, as appropriate.

**Punch Lists:** The CM will normally provide for inspection of the project work noting both the status and quality of work in place. Items that require corrective action are placed on a punch list, and the Contractors are required to make necessary corrections. This process is continuous and all punch list items must be remedied before a project is closed out and accepted by the Owner. If a punch list item will be covered over or will delay subsequent construction, immediate remedial action should be ordered. The Owner and/
or Designer will also make a punch list when the Contractor declares substantial completion, and corrective action will be managed by the CM.

Start-Up, Operational Training, and Operations Manuals: The CM should ensure that procedures have been defined for systems start-up and the training of the Owner’s personnel, and that Operations Manual(s) for the facility have been compiled. Training programs should be conducted either by the systems installers or by specialty contractors. Objectives of the training programs include ensuring that the Owner’s personnel can:

• Start, operate and shut down the systems efficiently and safely.
• Efficiently maintain and, if appropriate, repair the systems.
• Identify parts and service suppliers.
• Understand warranty terms and conditions.

Safety Management
The CM must be aware of its contractual obligations regarding safety on the project site. In the past, safety on the job site was considered the sole responsibility of the Contractor. However, federal and state governments, as well as the courts, are increasingly holding all construction professionals and the Owner responsible for job site safety.

The CM must have a thorough understanding of the current safety requirements. The CM should coordinate the incorporation of these requirements in the contract documents, as well as in the Construction Management Plan and the Project Procedures Manual.

The basic objectives of an adequate safety plan should include provisions to ensure that:

• All contractors will comply with all applicable federal, state and local requirements including the provisions of the Occupational Safety and Health Acts with all additions and revisions, to the extent that the provisions and standards affect the work of the project.
• A safety and substance abuse policy and program is established for the project. This includes the barring of illegal drugs and intoxicating beverages on the job site, whether in vehicles, on a person, in offices, or in any other work locations on site. The program should also include provision for random drug tests, consistent with applicable laws.
• Employees shall not be required or knowingly permitted to work in an unsafe environment except for the purpose of making safety corrections, and then only after proper precautions have been taken for their protection.
Employees are responsible for knowing and abiding by the rules and regulations which are applicable to their tasks and for reporting observed or anticipated hazards to their immediate supervisor. If the hazard is not corrected, the affected employee will report the unsafe condition to the site safety personnel.

2.4 PROCUREMENT OF PROFESSIONAL CM SERVICES

Introduction
CMAA recommends the selection and use of a CM for projects which are complex by virtue of their nature or size, or for which the Owner does not have an adequate capacity to manage the project effectively.

Typically, professional services of this sort are procured on the basis of an objective evaluation of the qualifications of competing firms. Price is generally not, nor should be, a consideration in selection. There are accepted practices that are used by both private and public owners to select the best qualified firm for the project.

Owner Selection of Project Team
At the outset of the CM selection process, certain information should be documented and certain decisions should be made regarding the concept of the project, the project delivery system, the project team and the needs of the Owner in realizing project objectives.

Determination of Project Delivery System. Early in the process, the Owner must decide whether the traditional three party approach (Owner-Designer-Contractor), a design-build approach, an approach requiring construction management or some combination of these would be most appropriate for the project. The Owner’s selection of a project delivery system sets the framework for the roles and responsibilities of the various members of the project team and the related terms and conditions of their respective contracts.

Owner’s Criteria for the Project Team, as Part of the Selection Process. As the Owner selects a desired project delivery system, it establishes criteria for the different members of the project team, setting the framework for the selection process. In doing so the Owner must consider the following:

- Project goals.
- Owner’s organization and structure.
- Legal requirements (licenses, qualification to do business).
- Financial/budget.
- Bid vs. negotiation issues.
• Professional services issues.
• Methods of compensation (lump sum, cost plus, or other).
• Risk allocation and insurance.

Once selected, the CM can have a significant impact on the final structure of the project team and the actual project delivery systems used by providing information to the Owner regarding the criteria.

**Owner’s Internal Delegation and Management.** The project organization, as envisioned by the Owner, including the reporting relationships among the Owner and all other parties to the design and construction effort, should be made and summarized for reference in the selection process. On all projects, the ability to react to changing circumstances is critically important. The decision-making process must be designed to deliver informed decisions in a responsive manner. One of the most frequent causes of project disruption is delayed or indecisive action.

Some Owners’ governing bodies may establish budget guidance for parts of a project, with specific decision authority within those budgets delegated to a part of the permanent staff, subject to review. It is very important that contractual authority for the Owner be clearly designated so that the perspective CM understands its proper working relationship within the Owner’s organization.

**Owner’s Selection Process.** The actual process used by the Owner for selection and procurement of professional services will be determined by the Owner’s criteria and related legal and organizational issues. For example, public owners may need to comply with statutory requirements concerning selections. While the same may be true of very large corporations, it is less likely to be so for small business entities. At this point, the Owner will need to:

• Decide whether to advertise the need for CM services.
• Decide whether to require interested CMs to pre-qualify by furnishing information concerning their qualifications and experience.
• Determine the format of the Request for Proposals and the required content and time constraints for the proposals.
• Determine whether to hold interviews with the most qualified CM candidates.
• Develop selection criteria for its decision making.

**The Selection Committee.** A CM selection committee should be formed from the Owner’s staff early in the selection process so that the committee can learn as much as possible about the project and the Owner’s expectations of the CM.
The committee is responsible for one of the most critical decisions of the project—the selection of the CM. 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.

While it is not necessary that all members of the committee be familiar with the design and construction process, at least one member should. If the Owner does not have an individual on its staff who 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 used for this purpose. It is also important that the committee be free from any conflict of interest in the selection of a CM.

**Price Versus Qualifications Based Selection.** In some instances, due to the Owner’s preference or statutory requirements, CMs may be asked to submit competitive bids in response to a request for proposal or advertisement. This is not a preferred method of procuring construction management services and CMs have been actively involved in trying to change statutory requirements or, through litigation, to establish that construction management services are professional services akin to those of architects and engineers, and thus should be selected by competitive negotiation procedures.

Under the federal Brooks Act, professional services of architects and engineers must be competitively negotiated rather than bid. The reasons for doing so are as follows:

- The required level and nature of services cannot be accurately defined in order to provide the basis for a competitive bid.
- The level of quality can vary from firm to firm.
- Owners select their professional advisors (architects, engineers and CMs) on the basis of subjective criteria such as trust, confidence and loyalty.

This is further complicated by the fact that many requests for proposals for construction management services, which are issued by Owners are incomplete and fail to take into consideration entire categories of services which CMs may furnish but of which Owners are unaware. The result is a request for proposal that is defined in broad based, sometimes ambiguous, terms. Consequently, qualifications based, negotiated selection is most appropriate for construction management services.
Qualifications Based Selections of a CM

Owner's Design of the Selection Process. Laws and regulations usually govern the process of selection for public work, and practices will vary among the states. The process, however, may generally follow three steps: a statement of qualifications, a technical proposal, and a price proposal and fee negotiation.

Statement of Qualifications. A request for qualifications (RFQ) may be advertised in national and/or local publications which will reach the CM community. The statement of qualifications (SOQ) is usually a document which describes in general the qualifications of a firm (or team of firms) to perform the required services. 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 SF254 contains substantially this same type of information and is maintained by most firms. A related form, SF255, contains similar data and is designed to specifically address a particular project.

The selection committee evaluates the firms' submissions and makes a judgment as to which firms appear qualified to perform the services. 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 may then be 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 provides prospective respondents with a description of the project and information regarding the method of compensation. Additionally, the RFP contains information about the project such as the project budget, major constraints, unusual services that may be required, and specific goals of the Owner.
If the Owner has sufficient understanding of the expected scope of services, the RFP may be organized on that basis. The RFP may also be organized as a series of questions to be answered by the respondents.

The RFP typically seeks 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.
- 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.

Often, the RFP includes 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. A well-drafted RFP allows the selection committee to evaluate a number of technical proposals in a consistent manner. This might be done by requiring a mandatory outline of the technical proposal as well as a page limitation to keep the presentations to a manageable size.

**CM’s Proposal Preparation Process.** It is important that CM firms accurately describe the competence and capabilities of their firms and professionals in their SOQs and technical proposals and refrain from the use of terms which are considered “puffing.” This is particularly crucial where the CM’s SOQ and/or technical proposal is made a part of a contract and describes the services and expected results of the CM’s services. Similarly, CMs should be aware that often the RFPs/RFQs describe the services of the CM and the expected results and responsibilities of the CM in a very expansive nature. When incorporated into the CM’s contract, this language can have the unanticipated result of raising the standard of care of the CM and of broadening the responsibilities of the CM further than is typical and necessary. As a general rule, incorporation of the CM’s SOQ and/or technical proposal is moderately risky (unless done well) and incorporation of the Owners’ RFP/RFQ in the CM’s contract is even more risky.

**Owner’s Evaluation Process.** The evaluation process may be time consuming and difficult. The selection committee often proceeds with an evaluation of each proposal and grades each against the evaluation criteria stated in the RFP. The CM proposal(s) with the best score may be selected as finalist(s) to proceed to the next steps. When several respondents are qualified with strong proposal scores, interviews or oral presentations may be conducted to differentiate between the top respondents.
selection committee may formulate questions in advance 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, the compatibility between the goals and culture of the CM 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.

**CM Candidate Presentations as Part of the Selection Process.** As noted above, many selection processes established by Owners provide for the shortlisting of candidates to provide presentations to the Owner and its procurement advisors. This shortlist of candidates is often arrived at following a detailed review, evaluation and rating by the Owner of the submitted proposals or quotations. These presentations are intended to give each CM candidate an opportunity to demonstrate to the Owner its capabilities and competence and the opportunity for the individual team members to develop a rapport with the client. Again, CM candidates should be cautioned to accurately describe in their presentations to the client the services to be provided and the expected results so as to avoid the possibility of contract terms and conditions with which it would be difficult to comply and even more difficult to renegotiate.

**Price as a Part of the Proposal.** As is the case with any professional service contract, it is preferable that price not enter into the ranking of CM firms based on their qualifications. Since the CM will be a trusted part of the Owner’s project team, the most important factors are the capabilities of the selected CM.

Some Owners may 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 comparisons may not be easy to make.

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 CM firm judged most qualified may be asked 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 prepares a written scope of services proposal.

Decisions made and approaches discussed at this time can 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.

An effective scope of services could include a list of deliverables or other tangible methods for measuring performance. Physical examples of reports or other expected outcomes can be included or referenced. The Owner and the selected CM can jointly, through negotiation, agree on a final scope of services based on the selected CM's scope proposal.

Should the Owner and the most qualified CM not reach agreement on price and scope, negotiations can commence with the next qualified firm.

Owner's Selection—Protest. For governmental work, the Owner's selection process and the provision for protests by a CM of Owner’s selection decisions are often defined by statute. Those protests provisions are usually very formal, and have in most cases stringent requirements for filing and notice of protests, often with short timeframes. On the other hand, Owners of private projects typically do not provide in their RFP/RFQ for any protests of a selection decision by the Owner and there is effectively no mechanism for an unsuccessful candidate to seek to overturn a selection decision. Unsuccessful candidates may, in some instances, be able to secure from the project Owner a debriefing of the selection process and the CM's proposal, but that does not typically provide a mechanism for revision of the Owner’s selection decision. Absent a binding contract
terminated by the Owner as part of Owner's change of selection decision, the CM has little opportunity for legal or administrative recourse in private industry.

**CM's Selection of Client.** There are clients for whom a prudent CM may elect not to work. These include clients with the following characteristics:

- Under funded.
- Lacking unified internal support for project.
- Unresponsive decision-making process.
- Novice clients.
- Unrealistic budgets.
- Unrealistic schedules.
- Litigious nature.
- Unrealistic contractual terms and conditions.
- Unrealistic risk allocation.
- Poor credit-worthiness.

CMs should consider these factors carefully before electing to pursue CM opportunities with a new client.

**Contract Issues: Drafting, Reviewing, Negotiating And Forming Professional Service Contracts**

**Use of Standard Contract Forms Versus Specially Prepared Contracts.** Various professional societies have developed contract documents for providing CM services (American Institute of Architects, Engineers Joint Contract Documents Committee and others), but the best contracts available are those published by CMAA. Through its definition of the CM's Basic Services, CM's Additional Services, and the Owner's Responsibilities, CMAA contract documents thoroughly describe the CM's scope of services for a given project.

It is common, however, that many Owners prefer to use or are statutorily required to use other standard form contracts. These contracts may be included in the RFP or furnished upon request. The CM should carefully review this contract and, at a minimum, utilize the CMAA contract as a checklist during the review and negotiation process.

**Principal Contract Review Issues.**

*Oral Contracts.* There is a tendency among CMs, like other construction professionals, to accept verbal authorizations and approvals from their clients for the performance of
professional services. This is a dangerous practice because without documentation there is the risk that the CM may have accepted, at least in the client’s eyes, more responsibility than it expected or was willing to undertake. There is also the opportunity for misunderstandings concerning the CM’s role and responsibilities. Performance of professional services without written contracts is an unacceptable practice and should be avoided.

**Conflicting Terms.** It is common for Owners to use standard form contracts but complicate the formation of those contracts by revising or adding contract terms through addenda or other methods. This is an effective way for the Owner to incorporate into the contract any special requirements it might have, but it also has the possible negative implications of creating terms and conditions which may (and probably do) conflict with other terms and conditions within that agreement itself or within other contracts within the family of contracts. For example, terms and conditions added to a standard form CMAA contract may conflict with the CMAA General Conditions. It is important that a CM reviewing such a contract be aware of those opportunities for conflict.

**Significant Contract Terms.** There are a number of particularly significant terms in CM contracts which have liability implications:

- **RFP/RFQ as a Part of the Contract**—As discussed above, when the RFP/RFQ is incorporated into the contract, there is the possibility of conflicts or ambiguities between the contract, the RFP/RFQ, and the CM’s proposal. That conflict needs to be addressed and resolved during contract negotiation.

- **Use of Purchase Orders for Contracting**—Many non-governmental clients prefer to use their purchase orders as part of their procurement process. These purchase orders are primarily designed and intended to be used for the purchase of products and goods and therefore, include terms and conditions which are inappropriate for the performance of professional services. These terms and conditions may also conflict with coverage and exclusion of coverage provisions for insurance, particularly for professional liability insurance which the CM may maintain. Therefore, the CM should recognize that purchase orders do have, typically on their reverse side, terms and conditions which the CM will find unacceptable and which need to be addressed.

- **Insurance and Bonds**—Many less sophisticated clients have a misunderstanding about the types of insurance CMs may maintain and restrictions on that insurance. This is particularly true with regard to professional liability insurance. While the typical CM firm can readily provide certificates for its comprehensive general liability insurance, workers’ compensation, automobile liability, and related umbrella/excess insurance coverage, the constraints on the CM’s ability to provide...
certificates for professional liability insurance are less well understood. While a few general liability carriers place restraints on the ability of the insureds to agree to indemnify, all professional liability insurance carriers place significant restraints on indemnification provisions in contracts of their insureds. More importantly, professional liability insurance policies include a number of specific exclusions from coverage, which can usually be related to contract provisions. For this reason, it is critical that CMs consider insurance coverage (and exclusions) when reviewing contracts.

Owners who consider CMs akin to general contractors often require the CMs to furnish performance and/or payment bonds. It is very difficult for firms who provide only professional services, including CMs in an “agency” relationship, to secure bonds from sureties. For CMs providing services in an “at risk” relationship, surety bonds can be provided if the CM meets underwriting requirements.

Other insurance provisions in contracts which may require careful review by the CM include: the naming of additional insureds or additional named insureds, waivers of subrogation and specific modifiers of insurance coverage.

- **Risk Management and Allocation Provisions**—There are various techniques which CMs can utilize as part of their proposal and contract review process to manage the risk inherent in their services. These kinds of risk management and allocation techniques can include, in addition to the clear definition of the CM’s scope of services, mutual indemnification clauses, limitation of liability provisions, roles and responsibilities of others, as well as alternative dispute resolution practices.

- **Standard of Care**—It is very common for project Owners to include provisions in their RFP/RFQ and/or contracts which are designed to raise the standard of care applicable to the CM’s services. This is done through the use of specific words or entire provisions which have legal implications, such as guarantees or warranties. The CM should recognize these provisions and their liability implications and take them into consideration when writing its proposal and negotiating its contract.

**CM’s Contract Review Processes.** Many CM firms, like many architecture and engineering firms, have in place internal procedures for the review and approval, or disapproval, of contracts, including the proposed scope of services, the Owner’s RFP/RFQ and contract form. These internal review procedures should include careful consideration of the proposed budget and financial provisions (those having to do with compensation and payment), the scope of services and other provisions having legal significance. In many firms, responsibility for this review is allocated as follows: financial review, including confirmation of hourly rates, mark-ups and allocation of reasonable profit, to the chief financial officer; definition of scope of services of the CM and of others and
application of manhours or other levels of effort, to the principal CM practitioner for the project; and review of provisions having legal implications, such as insurance and indemnification provisions, to legal counsel or individual with appropriate training.

Special Issues for Governmental Clients

Statutory and Legal Requirements. Virtually every governmental entity has legal restrictions on its ability to procure professional services. Some jurisdictions have specific provisions concerning construction management services. There may be considerable confusion in those provisions concerning construction versus construction management, particularly in regard to whether the procurement should be competitively bid or competitively negotiated. The CM should be aware of those legal or regulatory restrictions and factor those into decisions to compete under any procurement process and/or to select its client.

Protests of Procurement Decisions. As discussed above, most governmental agencies provide a mechanism for participants in procurement to protest decisions made by the procuring agency. Those protest provisions usually have very short timeframes and requirements for filing which are construed stringently by the courts because of the agency’s urgent or significant need to procure services or work. Unsuccessful CM candidates must be aware of these requirements for giving notice and filing protests and be prepared to meet them. In a practical sense, filing protests with federal agencies is only moderately successful and with most other governmental agencies largely unsuccessful for several reasons:

- The deference which courts give to decisions made by procuring agencies.
- The inherent subjectivity of criteria in selection of professional services like construction management.
- The needs of the procuring agencies to make decisions in a timely manner to meet public requirements.

Considering this, an unsuccessful CM should review the merits of its case realistically prior to filing a formal protest.

2.5 CM COMPENSATION

Introduction
There are no accepted industry-wide standards or guidelines for determining reasonable and fair compensation for CM services. CM costs are typically driven by the level and types of services requested/required. They are largely labor and therefore, are directly proportional to the number of hours and level of experience spent on the project. Like many
other items involved in a construction project, CM costs can be benchmarked as a percentage of construction. However, these costs vary widely on a percentage-of-construction basis by project type, size and level of service. Industry surveys have shown that the cost of such services will typically range from three (3%) to ten (10%) percent of the total estimated cost of construction. These costs should be considered part of the normal expected cost for planning, implementing and constructing a successful project, not an additional expense to the expected project budget.

The cost of CM services for a specific project will depend on a number of factors:

- Form of CM contract (agency or at-risk).
- Point in project timeline when the CM is brought on board.
- Scope of services to be provided.
- Relationship of the CM to other project participants.
- Risks and authority assumed by the CM.
- Skills and number of staff resources required.
- Cost of labor, overhead, allowance for profit, and direct expenses to be paid by the Owner.
- Project scope and complexity.
- Estimated construction costs.
- Expected duration on the project.

All of these variables must be considered when discussing or comparing fee compensation for CM services. In fact, most of these factors must be considered when defining the CM’s scope of services for a specific project.

**Basic CM Fee Structures**

Several methods are recognized and commonly used in the compensation of firms for professional construction management services:

- Cost Reimbursement.
- Fixed Fee.
- Cost Plus Fixed Fee.
- Fee as Percentage of Construction Costs.
- Guaranteed Maximum Price.
All result from a negotiation between the Owner and the CM as to the proper level of staffing for particular tasks that constitute the CM’s scope of services.

**Cost Reimbursement.** This method of compensation is one of the most commonly used forms of compensation associated with agency CM, particularly for projects in the public sector. This method is based on the CM preparing an estimate of its labor costs and direct expenses, and the application of one or more multipliers to the estimated cost of various labor classifications for overhead and profit. With regard to the definition of labor costs, the multiplier can be applied to bare labor only, or to total payroll costs (bare labor plus payroll taxes and insurance). In some cases, the CM’s profit margin may be included in the multiplier or separately identified by another multiple. In addition, the CM’s profit is sometimes separately identified as a fixed percentage or as a fixed fee.

Reimbursable expenses normally include reasonable actual expenditures made by the CM, its employees, or its professional consultants in the interest of the project. The CM normally develops its cost estimate for reimbursable expenses based on the understanding it has with the Owner, services to be provided, its project plan and staffing requirements. The CM should include these as part of its proposal prior to formal contracting. In some cases, it is not unusual for the estimated reimbursable expenses to be capped with the understanding that increases may only be granted for circumstances beyond the control of the CM.

Some contracts allow a separate fee in the range of five (5%) to ten (10%) percent to be applied to the cost of reimbursable expenses in order to cover the CM’s cost of handling the administration of such expenses. Examples of common reimbursable expenses recognized during the construction phase include travel and living expenses, relocation costs, subsistence to key employees, communications, computer equipment, computer software, vehicles, fees, permits, reproduction and mailing; professional liability insurance and other insurance costs for coverage beyond the normal limits carried by the CM, general conditions (including labor costs), and other reasonable field office related expenses.

An overall cost limitation for the CM’s services is sometimes established for each project phase as part of the CM’s contract. Cost limitations may also be established for specific services or tasks. Such limitations of cost are usually only increased when the scope of CM services changes or when the project duration is extended for reasons beyond the control of the CM.

Payments under this method of CM compensation are usually based on the actual labor hours and direct expenses expended by the CM staff and as authorized by the contract terms and conditions. A reasonable retention of five (5%) to ten (10%) percent is normally withheld by the Owner until substantial completion of the project is achieved. Thereafter,
the retention is substantially reduced and paid in full when the project is considered to have reached final completion, as defined by the contract documents.

**Salary Times Multiplier Plus Direct Expenses.** A typical cost reimbursement approach is based on a CM’s direct salaries (actual salaries of the individuals working on the project) times a multiplier. The multiplier is a number that is derived from the sum of the CM’s indirect salary costs (such as FICA, 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 CM to recover these costs. An agreed profit rate is then applied to the product of the direct salary times the multiplier. Direct project expenses (necessary and ordinary expenses, e.g. paper and pens, automobiles, travel, separate offices, furniture, computers, software, etc.) are paid separately. Frequently, an administrative or handling charge may be made on the direct expense.

The CM’s compensation schedule can cover the entire project period, or may be divided into two separate phases, pre-construction and construction. The objective in separating the costs, is to enable the parties to better control the CM’s costs and account for differences in the overhead expenses associated with the CM’s permanent base of operation, versus its field activities. During the pre-construction phase, the CM’s staff resources are usually corporate, branch, or home office base supplied. The multiplier allowed for such staff is often greater than it is for staff permanently assigned to the field.

Certain field construction office costs associated with an assignment are usually recognized as reimbursable expenses. In some cases, part or all of these costs may be avoided by the CM when the Owner provides field office space, equipment, utilities, supplies, etc. directly and at no cost to the CM. On occasion, the Owner may require that one of the trade contractors provide field office support services for the CM’s field operations, as part of a general conditions requirement. Such requirements would obviously reduce the CM’s normal expected field overhead cost and therefore, reduce any multiplier applied to the CM’s field labor cost for the construction phase.

The multiplier for hourly labor costs actually used will most likely depend on the size and duration of the project, the scope of CM services, the complexity of the project, and whether or not payroll expenses, fee margin, overhead, direct expenses and other costs are to be included in the multiplier or identified separately. The Owner may require that the multiplier be supported by financial statements and/or an audit of the CM’s operations.

**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 CM’s overhead and profit multiplier and the resultant sum is used for all individuals in that classification. The classifications should be carefully defined to avoid confusion.
**Fixed Fee.** A fixed fee approach can be used when the scope of the CM’s services is clearly defined and understood by the parties. When this method is employed, a fixed fee is usually established for services during the pre-construction phase and a separate fixed fee is usually established for services during construction. Increases to the fixed fees are normally recognized for services that extend beyond the anticipated completion date, for circumstances or delays beyond the control of the CM, and for increases in the scope of services that were not anticipated when the contract was signed. Appropriate terms and conditions should be included in the CM agreement to cover these situations.

On occasion, when the GMP form of contract is used, a fixed fee is used for the pre-construction phase. The fixed fee is intended to cover the cost of CM services for the period prior to the CM preparing and rendering a GMP to the Owner, and also through the pre-construction period which usually ends with the award of the first construction trade contract by the CM. The fixed fee includes all of the CM’s costs including payroll costs, direct expenses, overhead, profit, and any other project related costs expended by the CM.

The fixed fee approach can adversely affect the parties involved. For example, unexpected problems can require a CM to expend more cost than budgeted for staff to perform certain tasks, or to resolve problems. The CM could also be required to provide a greater level of effort than originally anticipated. Such factors can have a serious impact on the CM’s fixed fee budget. Conversely, some Owners believe that a temptation always exists for the CM to put forth less effort than anticipated or actually required in order to maximize the CM’s profit.

Progress payments to the CM under the fixed fee method of compensation are usually paid in accordance with a pre-determined schedule of monthly progress payments for the pre-construction phase, and the reported aggregate percentage of construction work actually completed by the trade contractors during construction. A retention of five (5%) to ten (10%) percent is considered reasonable through substantial completion of the project. Thereafter, the retention is usually reduced and paid in full when the project is considered to have reached final completion as defined by the contract documents.

**Cost Plus Fixed Fee.** This method of compensation is of a cost reimbursement nature. The CM is paid actual salaries times a multiplier to cover all overhead costs and a separate lump sum as profit. It fixes the amount of fee (profit) that the CM will be paid to a lump sum and often spells out how and in what increments the fee will be paid. The fixed fee portion under this method of compensation will generally range from two (2%) to four (4%) percent of construction costs with most fees closer to two (2%) percent. Factors having a bearing on the amount of fixed fee include size, complexity, duration, the services to be provided, and the terms and conditions agreed to by the parties for direct reimbursable costs. In addition, the use of multipliers applied to certain allowable costs can also have a bearing on the amount of fixed fee agreed to by the parties.
The cost plus fixed fee method of compensation can also be divided into two separate phases. For the pre-construction phase, a fixed fee may be established and certain direct expenses are recognized by the parties as reimbursables. Other compensation options sometimes used for the pre-construction phase are fixed fee or a lump sum. The pre-construction phase usually ends at the time of the award of the first construction contract. During the construction phase, a separate fixed fee is established and all project related costs are usually reimbursed, as per the terms and conditions of the contract.

The fixed fee usually includes the cost of officers, principals, and home office support staff not directly assigned to the construction site, all costs not directly related to site operations, and costs not identified as reimbursable under the terms and conditions of the contract. Examples of costs that are not normally a part of the reimbursable expenses include home office overhead, recruitment costs for job site and home office personnel, and profit.

Reimbursable expenses generally include the costs of all job site personnel, staff relocation costs, travel and living expenses, subsistence to key field employees, consultants, the cost of all job site material, equipment, communications, vehicles, project-related fees paid, reproduction, postage, computer, and any other field office-related expenses. Other reimbursable expenses may include the use of consultant’s home office personnel who may be involved in purchasing, expediting, scheduling and estimating, and any other specific functions or tasks that are usually part time and project or field support service related. Further, the cost of general condition items and any field labor associated with the performance of general conditions would be considered reimbursable expenses. The parties should clearly identify and agree on what is, and what is not included as part of the fixed fee, and identify such items in the contract before a fixed fee is established. In addition, the contract should also be clear in its definition of reimbursable costs and how the fixed fee and reimbursable costs will be paid.

Progress payments are usually made based on a percentage of the fixed fee in terms of actual construction progress achieved, plus actual labor costs and the actual allowable reimbursable expenses incurred by the CM to date. Retention may range from five (5%) to ten (10%) percent through substantial completion. Thereafter, it may be reduced and then paid upon final completion, as defined by contract terms and conditions. Increases in compensation limits may be allowed when scope changes, additional CM services or delays beyond the control of the CM are encountered. In some cases, the parties may agree that the fixed fee never increases. In other situations, the CM contract may be silent on these issues. Such silence can be a source of disagreement when these circumstances arise.
**Fee as a Percentage of Construction Cost.** Under this method of compensation, the CM usually begins by providing CM services during the pre-construction phase on a fixed fee or lump sum basis. CM services rendered during the construction phase is based on a fixed percentage of the estimated or actual construction cost.

If the estimated or actual construction costs (based on contract award values) are increased due to approved changes, the amount of CM compensation may be increased based on a pre-determined percentage of the costs of such changes. The fee percentage applied to additional work may sometimes be based on a sliding scale (usually decreasing), depending on the size of the increase of construction cost.

Progress payments are usually made to the CM based on the reported percentage of actual construction work completed, with reasonable terms for retention of fee until final payment is made to the CM.

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.

**Guaranteed Maximum Price (GMP).** The GMP pricing format is most typically associated with a CM-at-risk delivery method, whereby the at-risk CM offers a usually based on preliminary design stage drawings. The design (working drawings) may be in the range of 50-60 percent complete and the technical specifications approximately 80 percent complete. The GMP may include the estimated and/or bid cost of certain trade contracts, purchases from suppliers and vendors, general condition items, the CM’s fee, reimbursable expenses, and sometimes a contingency to protect the CM from unforeseen costs at the time the GMP is prepared. It is not unusual for certain costs of specific items to be identified separately or even capped as part of the GMP. For example, the CM’s fee, the cost of general conditions and the CM’s contingency may be identified separately as part of the overall GMP, but any costs exceeding such allowances are usually paid on a cost reimbursable basis. The use of specific allowances for unknowns should be kept to a minimum.

It is important the phrase *Guaranteed Maximum Price* be clearly defined in the contract as to what it includes and specifically excludes. When an agreement on a GMP is reached with the Owner subsequent to signing the initial contract, an amendment to the original agreement is usually required. Some believe that a new contract should be established, since the principles, terms and conditions change. If for some reason the GMP for the cost of construction cannot be agreed upon, the CM may continue at the Owner’s option to perform CM services during the construction phase as an agent of the Owner. Usually, the Owner also maintains the option to terminate the contract.
Under a GMP arrangement, the CM’s compensation is normally broken into two phases and identified separately for the pre-construction and construction phases. During the pre-construction phase, the CM will usually be compensated on a fixed fee, lump sum, or cost reimbursable basis and paid in monthly portions. Another option is to compensate the CM on labor times a multiplier for overhead and profit, with a not-to-exceed cost limitation. The pre-construction phase usually ends upon the award of the first construction contract and when the work begins in the field.

Once a GMP for construction cost is established, the CM takes on the risk of completing the project. Trade and specialty contracts are bid, negotiated, awarded, and usually held by the CM. It is the responsibility of the CM to stay within its estimated costs and contingency allowances.

On some GMP projects, the Owner may reserve the right to approve all trade and purchase contracts. Under such conditions, the CM contract should be clear as to which party pays the difference between the estimated trade contract cost and the actual trade contract award value when the award value approved by the Owner is greater than the estimated cost element included in the GMP.

There may be situations where the Owner only wants to pay the actual cost of completing the project, assuming the actual construction costs could be less than the GMP established for construction costs. In such cases, the contract should be clear as to who derives the benefit of any cost savings. This is best achieved by a shared incentive savings clause included in the contract.

As in most contracts, the Owner retains the right to make changes. Accordingly, the contract should be clear as to how the GMP will be equitably adjusted for both added and deleted work. In some contracts, there may be no adjustment in fee for changes. The CM is only compensated for the cost of the work under the terms for reimbursable costs. If the project is extended beyond the scheduled completion date for reasons beyond the control of the CM, a time extension and an increase in the CM’s compensation may be required.

It is important that the term “construction costs” or “project costs” be clearly defined. The definition of construction costs is usually stated as the cost of all work required to complete the construction as defined in the construction contract documents. Normally, it does not include such items as land costs, professional service costs, or the cost of movable equipment, furniture, etc. In addition, definitions should be provided for reimbursable and non-reimbursable costs.

Payments to the CM during the construction phase are usually made on a monthly basis and in proportion to the cost incurred and the construction work actually completed. A retention by the Owner of five (5%) to ten (10%) percent of the CM’s
earnings is considered to be reasonable. Two payment issues requiring attention include the potential for overpayment and calculating any sharing of cost savings if made part of the contract requirements.

If for some reason the GMP is exceeded, the CM will be responsible for the additional costs unless the Owner is determined to be partially or totally responsible. If the Owner is found to bear responsibility, the CM may be entitled to a cost adjustment and/or a time extension.

There are two points that are sometimes not understood by Owners or properly addressed in some GMP agreements. Both points are common causes of compensation disputes between Owners and GMP CMs. The first is, who owns the savings or the contingency that is sometimes created in the actual buy-out of the trade contracts and purchases after the GMP has been agreed to by the parties? The second point is, who benefits if the actual construction costs are less than the established GMP? Unless the contract specifically provides otherwise, the answer to both of these questions is the CM, since the CM is the party taking the risk.

**General Condition Items.** On some projects, a CM may be responsible for providing general condition items. General condition items may include such items as site security, scaffolding, hoists, signs, safety barricades, water boys, cleaning, dirt chutes, cranes, shanties, preparation for ceremonies including minor construction activity in connection therewith, temporary toilets, fencing, sidewalk, bridges, first aid station, trucking, temporary elevators, special equipment, winter protection, temporary heat, water and electricity, temporary protective enclosures, field office and its related costs thereof such as equipment, furnishings and office supplies, progress photographs, messenger service, installation of owner furnished items, post and planking, general maintenance, subsoil exploration, refuse disposal, field and laboratory tests of concrete, steel, and soils, surveys, bench marks, and monuments, storage on-site and off-site of long lead procurement items, and miscellaneous minor construction work.

The cost of general condition items, including related labor costs expended by a CM, may be paid when such costs are actually incurred. An alternative is to establish a maximum cost of performance for the general condition items for the project. This can be achieved by a lump sum, cost not to exceed limit, or even a GMP. When a CM performs under a GMP, the general condition items can be part of the overall GMP for the cost of construction, or be separately identified as a GMP established for general condition items within, or separate from, the GMP established for total construction costs.

**Creating the Desired Owner—CM Relationship.** The creation of the desired legal relationship between the CM and the Owner requires careful consideration during
contract negotiation and drafting. The CM’s method of compensation should be consistent with the form of construction management being sought by the Owner. A method of compensation that creates a potential for conflict between the Owner’s interests and the CM’s interests indicates a non-agency relationship.

Of the alternatives presented above, the first three are consistent with the agency relationship because the calculation of the CM’s compensation does not conflict with the protection of the Owner’s interests. However, using the percentage of construction cost as the CM compensation determinant presents an inherent conflict. Where the CM fails to deliver the project at the lowest possible cost, the CM’s compensation will actually be greater than if cost containment had been achieved. The CM, in essence, is rewarded for the higher construction cost. This alternative is inconsistent with an agency relationship.

A CM contract with a GMP is also inconsistent with an agency relationship. Because costs exceeding the GMP may be paid out of the CM’s fee, the CM has an incentive to keep costs within the GMP. The CM may keep construction costs from overrunning the GMP by performing the work and by cutting corners to save money, time, or costs. Much like a general contractor, the CM has some incentive to put its own interests above those of the Owner.

Factors for Determining Compensation
In summary, there are a number of factors to be considered for establishing fair and reasonable compensation for CM services. These include the following:

• The Owner and the CM should agree on a scope of services and the use of a particular form of CM agreement prior to the CM submitting its cost proposal.

• The Owner should consider the cost of CM services only after the establishment of the technical requirements and after careful consideration of the CM’s qualifications, related experience and proposed staffing plan.

• The CM contract proposed to be used by the parties should clearly define the risks and authority assumed by the CM, as distinguished from those retained by the Owner. Keep in mind that the use of any standard form agreement usually requires some changes in order to be tailored to a particular project. Legal counsel should be involved.

• The Owner and the CM should establish a clear understanding of what is included, and what is excluded in any fee arrangement and the cost of the work. This includes definitions for such terms as Guaranteed Maximum Price (GMP), cost of the work or cost of construction, project costs, allowances, contingencies, reimbursable costs,
non-reimbursable costs, fixed fee, multiplier, etc., as may be appropriate for the particular form of CM contract to be used.

• When applicable, the Owner and the CM should establish a reasonable overhead allowance based on an audit of allowable and reasonable costs.

• Contract provisions should address how changes in scope and additional CM services will be handled.

• When a GMP is used, it should be based on the total estimated cost of construction and not on individual line items within the total estimated cost.

• For GMP contracts, the Owner and the CM should establish a clear understanding of the type and use of any contingency funds. A CM contingency (ranging from 1% to 3%) for errors in estimating or for covering unforeseen costs relating to construction is considered to be reasonable. Such contingency is identified separately and paid based on documented evidence of expenditures by the CM.

• Consideration should be given to using a shared savings clause that provides an incentive for the CM to achieve performance under the GMP approach.

• Contract provisions should address extended CM service costs for any project extension caused by reasons beyond the control of the CM.

• Establish terms for progress payments.
3.0 CM AS PRACTITIONER

3.1 CM CONSULTANT AGREEMENTS

Risk is endemic to construction and a well-drafted contract, clearly defining expectations and properly allocating risks and responsibilities, is key to successful project management.

This section will identify some causes of disputes and specify means of preventing them in the contract development and negotiation phase of the project.

**Proximate Causes of Disputes**

Typically, troubled projects experience restrictive budgets, limited performance time and/or extraordinary operational needs. While these characteristics are present in private business, they are even more common in the public sector: a project can be delayed due to a lack of funds, political, environmental or other problems to the point that it desperately needs to be placed in service and then design and/or construction period must be compressed to the shortest time possible. Also, since public funds are involved, expenditures are often closely and publicly scrutinized, and funding beyond the original contract amounts can be difficult to obtain. In addition, public contracting laws often restrict an Owner’s choice of participants in the construction process and the forms of construction delivery available.

The most prominent conditions that can lead to disputes are:

- The Owner’s staff is not adequate to meet project needs.
- A scope of services or work is not clearly defined.
- An inappropriate project delivery method has been selected.
- The design is not sufficiently complete.
- Contract documents are deficient.
- Estimates are not accurate.
- Bids are too low.
- Project management is not effective.
- Unanticipated site conditions are discovered.
- Unexpected environmental issues arise.
- Uncontrollable events interfere (force majeure).
- The CM, Designer or Contractor has performance problems.
• Owner initiates numerous changes.
• Inadequate insurance coverage exists.
• Contractor’s (and Owner’s) claims are not properly managed and controlled.
• Inappropriate dispute resolution procedures exist.

Some of these problems arise due to the unique physical characteristics of the project. The impacts of changed site conditions are probably the least avoidable, though much can be done to minimize the consequences through capable engineering and project planning. The remaining circumstances described above arise out of the planning and administrative process, the format and content of contract documents used and the established relationships among participants in the construction process. Problems can be avoided, or at least substantially diminished, by careful advance planning structuring of the contract documents and defining the relationships established by those documents.

**CM Consulting Agreements**

The relationships among participants in a design and construction project are *contractual*; they are controlled, not just legally but also administratively, by what is stated and omitted in the documents which comprise the contract. There may be only one such relationship, as between an Owner and a D-B firm in a design-build project; two contracts, as between the Owner and the Designer and between the Owner and a Contractor in a traditional design-bid-build project; or there may be a large number of different and often simultaneous contracts as between the Owner and its design team, and other contracts with individual contractors and suppliers for portions of the work. In addition, the Owner may have contractual relationships with a CM to assist the Owner or act as its agent in performing its responsibilities on the project. The contract documents should be used as a means of carefully defining and controlling the relationships among the participants in the project, their responsibilities and the risks they assume.

An Owner developing the contract documents for a project may opt to use standard forms of agreement, use a customized, project-specific set of contracts or use a combination of both. For most Owners, standard forms of agreement offer the best choice since these forms have been tested and are periodically revised to reflect the legal status of the design and construction industry.

Two of the most widely used CM document sets are those published by CMAA and the American Institute of Architects (AIA). The Agency Series published by CMAA was most recently updated in 2003 and, the comparable AIA set was issued in 1993. The current set of CMAA CM-At-Risk Series was revised in 2002.
CMAA Documents
Currently, there are four basic standard forms of agreement issued by CMAA for use when an Owner retains a CM as an agent of the Owner to represent it in the project management process. These documents are:


The four CMAA Standard Forms of Agreement for at-risk construction management where the CM has responsibility for construction performance are:


The strategy in drafting the CMAA documents was to provide contractually-specified duties and avoid concurrent or undefined responsibility to minimize conflicts between the CM, Designer and Contractor.

The relationships established by CMAA Documents A-1 through A-4 are essentially the same as those set forth in American Institute of Architects (AIA) documents B141/CMa-1992 and B801/CMa-1992, to the extent that there are one or more contracts for construction between Owner and Contractors and separate agreements between the Owner and Designer and the Owner and CM. The project management system implemented by the CMAA documents is, however, significantly different from that of the AIA. Under the CMAA documents, the CM is the Owner’s principal agent, not the Designer, and the CM is responsible for contract administration; the Designer’s role is limited to matters of design.
AIA Documents
The AIA standard forms of agreement that are comparable to the CMAA Agency Series consists of:


The AIA also has a set of documents that can be used when the CM is at risk and provides a guaranteed maximum price option, although the concept of the AIA series is substantially different from that of the comparable CMAA series. The AIA documents are:


The principal differences between the AIA and CMAA CM-at-risk documents are:

- In the AIA system, the CM is essentially a general contractor who provides limited services during the pre-construction phase. In the CMAA system, the CM provides extensive professional services regarding the cost, schedule, and quality of the work during both pre-construction and construction phases.
- In the AIA system, the CM may perform part of the construction work. In the CMAA system, the CM may do so only if the CM submits a bid for a specific portion of the work and such bid is the low bid. Further, such work is done under a separate contract between the Owner and CM.
- In the CMAA system, the Owner has the right to not accept a proposed guaranteed maximum price and direct the work to continue with the CM and Designer acting as the Owner’s agents (essentially the Agency Series system). This option does not exist in the AIA system.
- If the Owner accepts the guaranteed maximum price under the CMAA system, the CM still retains certain project and quality management responsibilities on behalf of the Owner. In the AIA system, the CM is clearly acting only in the traditional role of a general contractor once the guaranteed maximum price is accepted.
• The CM makes all payments to the Contractors in the AIA system. In the CMAA system, either the Owner or CM may do so depending upon project-specific considerations.

CM Contract Issues: Modifying Standard Forms of Contract
Pre-printed forms have become a “standard” in the construction industry. The provisions of each form are interrelated with the provisions of other forms in “families” of standardized documents. It is beyond the scope of this course to suggest areas where forms can be modified. The following is an outline of considerations when modifying a standard form contract:

• Seek advice of legal counsel.

• Be thoroughly familiar with the system being implemented by the forms.

• Assure that modifications are properly coordinated with the provisions of other relevant project documents. For example, coordinate CM construction administration requirements in the Owner/CM Contract with those contained in the Owner/Designer and Owner/Contractor agreements.

• Think ahead as to how the modifications will be received.

• Place responsibility with the party best able to control the risk or event and avoid duplicative or overlapping responsibilities.

• Have the modifications reviewed and edited by experienced staff before finalizing for approval.

Summary
There is no single set of contract documents that will be the most appropriate for every project. Owners should generally use standard forms of agreement (with minimal but necessary and appropriate revisions). The current CMAA documents are probably the best to use when a CM is employed. In other instances, Owners may need to draft a set of documents that clearly defines the roles and responsibilities of the parties and which recognize the unique features of the planned work.

3.2 CMAA CONTRACT DOCUMENTS

Standard Form Contracts
Many Owners and CMs believe that use of standard form agreements can reduce overall project costs, simplify management and improve the predictability of the design and construction process. Standard form contracts also generally tend to be current and consistent with industry practice and allow for Owners to more easily evaluate the pricing
information of its consultants. Standard form contracts can also be modified to accommodate the Owner’s peculiar project needs or requirements. However, this should only be done in consultation with an attorney who is knowledgeable as to the implications of such revisions.

This section will outline the features of the CMAA Standard Forms of Agreement, particularly as contrasted with comparable AIA standard contracts.

The CMAA Documents
CMAA defines construction management as a professional management practice applied to a construction program from inception to completion for the purpose of controlling time, cost, scope and quality.

It took several years for CMAA to develop a standard scope of CM services and contract forms. The process of developing these documents began in 1983, and in 1988, the first edition of the CMAA Standard Forms of Agreement was issued; the documents included both an Agency Series in which the CM acts to provide its services as the Owner’s agent and an At-Risk Series in which the at-risk CM may provide a guaranteed maximum price (GMP). Since then, as the documents have been used and CMAA has received comments from the different parties, both sets of documents have been reviewed and updated periodically.

Responsibilities Defined by the Agency Series
The following focuses on the responsibilities as allocated between CM and Designer in the CMAA A-1 (Owner/CM) and CMAA A-4 (Owner/Designer) documents.

Project Planning and Selection of a Designer.

• The CM is employed prior to the Designer. The CM prepares a management plan which includes a project budget, master schedule, management information system, quality standards and other components for acceptance by the Owner and implementation during the project.

• Following acceptance of the management plan by the Owner, the CM prepares a milestone schedule for the design, assists the Owner in selecting a Designer, and assists in review and preparation of the agreement between the Owner and Designer.

The Construction Management Plan.

• The CMAA system emphasizes pre-design and pre-construction phase planning through use of the Construction Management Plan. The Construction Management Plan defines the project requirements in narrative form and establishes the strategy for fulfilling those requirements. As the project progresses and its documentation
becomes more definitive, various aspects of the Construction Management Plan may be revised and refined.

- The Designer may make recommendations for revisions to components of the Construction Management Plan, including the project requirements, master schedule, project budget and the management information system.

_The CM is the Owner’s principal agent in providing CM services for the project. The Designer provides and has sole responsibility for all professional design services in connection with the project._

- The CM and Designer each recognize the other’s role and responsibilities.
- The documents detail the CM’s services as principal agent.

*CM and Designer agree to cooperate.*

- CM and Designer services are intended to be complementary, not duplicative.
- CM and Designer are each entitled to rely on the services and work products of the other for proper performance of services.

_The CM prepares estimates of the construction costs and the Designer has final determination as to the suitability for the design of recommendations made by the CM._

- The project costs are estimated by the CM and incorporated into the Construction Management Plan and the Designer is entitled to rely on such data while preparing its drawings and specifications.
- The Designer has sole responsibility for design, makes final decisions regarding recommendations made by the CM concerning the design and makes final determination as to the specification of materials and equipment for the project (subject to any directives issued by the Owner).

_The Designer develops design criteria._

- The Designer develops design criteria based on the information set forth in the Construction Management Plan.
- The design criteria evolve from preliminary to detailed and definitive in the manner established in the Construction Management Plan.

*CM and Designer cooperate to achieve compliance with the project budget.*

- During the Design Phase, the CM and Designer are required to maintain close liaison and have constant interchange of information and documentation.
- The Designer provides to the CM drawings and specifications as required in the Construction Management Plan.
During the Design Phase of the project, the Designer receives from the CM advice, cost analyses, value analyses and information as to constructibility, clarity, consistency and coordination in the documentation.

The Designer prepares design documentation for construction.

- Design documentation is prepared in the form for contracting (single or multi-prime) indicated in the Construction Management Plan.
- Design documentation is prepared and coordinated so as to permit scheduling and sequencing of construction as is required by the Construction Management Plan.
- During the Procurement Phase, the Designer prepares addenda, attends conferences and determines the acceptability of substitutions.

The Designer’s Construction Phase services are limited.

It is not intended by the CMAA A-4 documents that the Designer will (as a part of basic services) visit the site to become generally familiar with or check the quality or quantity of work, or to determine that the Work is proceeding in accordance with the contract documents.

As a part of its basic services provided in CMAA A-4, the Designer will, during the Construction Phase, perform certain services in connection with interpretations and clarifications, substitutions, change orders, submittals and subsurface and physical conditions. For example, subparagraph 3.4.3 of the A-4 agreement provides:

“Upon receipt from the CM...of written requests for clarifications and interpretations of the drawings, specifications and other design-related information, the Designer shall review the same and issue (through the CM) in writing appropriate clarifications and interpretations.”

The Designer’s participation in review or approval of applications for payment is treated as additional services. Other additional services, such as visits by the Designer to the site in addition to those necessary to perform its basic services are described in Article 4 of the A-4 agreement.

The scope of the Designer’s Construction Phase administration services under the CMAA A-4 agreement are reduced compared to the scope provided in AIA Document B141/CMa. Consequently, the Designer’s services fee and its exposure to liability for its services related to administration of the construction is reduced.

- The Designer is not required or obligated to visit the site to become generally familiar with the Work.
• During the Construction Phase, the Designer visits the site as necessary in order to:
  - Provide interpretations and clarifications.
  - Determine the acceptability of substitutions.
  - Prepare design documents arising from change requests or change orders.
  - Review shop drawings and other submittals.
  - Prepare design documents arising from questions regarding subsurface conditions.

*The CM makes certain determinations during the Construction Phase.*

• The CM determines Contractor compliance with the contract documents and reviews and approves Contractor's applications for payment. Coordination, scheduling, or sequencing of the Contractor's work that is required by the Owner and CM Agreement will be provided by the CM, and any coordination, scheduling or sequencing required by the Contractor (i.e. as part of Contractor's means, methods, techniques and sequences of the Work) will be provided by the Contractor. The CM, in consultation with the Designer, issues certificates of substantial and final completion.

• The Designer provides, as additional services, those services resulting from significant changes in the general scope, extent or character of the project or its design as fixed in the Construction Management Plan, and in connection with certain visits to the site as may be requested by the Owner or CM.

*The CM’s Leadership Role as Contemplated by the Agency Series*

The CMAA documents are innovative in that they define the responsibilities between the CM and Designer in a system where the CM is entrusted by the Owner to lead the process of design and construction. During the Design Phase, the CM’s services may relate principally to the following:

• Matters of scheduling and coordination of the activities of all parties involved.
• Coordinating and expediting the flow of information between the Owner, Designer and others.
• Evaluation of constructibility.
• Cost estimating.
• Preparing and revising the project budget.
• Developing time and sequencing considerations related to design alternatives prepared by the Designer.
• Providing recommendations as to the separation of the construction contracts into various categories of work.
• Commenting on clarity, consistency and coordination of the design documentation.

During the Procurement Phase, they may include:
• Assist in attracting bidders, prequalifying bidders.
• Conduct pre-bid conference, distribute addenda.
• Assist in bid opening, evaluation and award.

During the Construction Phase, the CM's services involve:
• Serving as the Owner’s principal agent at the site.
• Reviewing Contractor schedules.
• Administering the prime contracts for construction on the Owner’s behalf.
• Monitoring the quality and quantity of the Work.
• Monitoring cost and time during construction.
• Coordinating and expediting communications.
• Functioning as the initial arbiter of disputes between the Owner and Contractor.

The CM has the obligation during the Construction Phase to determine that the Work is being performed in accordance with the Contract Documents. The CM also determines the amounts owed to the Contractor and issues Certificates of Payment.

The CM’s leadership role and primary management responsibility exposes the CM to potential liability should it fail to properly perform its services. By providing services and assuming authority, the CM can more effectively control risk. For example, the management services provided by the CM in connection with the design schedule increases the likelihood that design documents will be developed and delivered without delaying construction. The CM’s obligation to certify amounts owed to contractors, rather than making recommendations to the Designer for certification enhances the CM’s ability to facilitate the Contractor’s compliance with the project schedule and quality requirements.
Responsibilities Defined by the CM-At-Risk Series

The CM-At-Risk Series documents are similar in many respects to those in the Agency Series documents. The following section notes the differences in responsibility allocations for the CM and Designer in the At-Risk Series documents as contrasted with the Agency Series.

Project Initiation Through Establishment of a Guaranteed Maximum Price.

- From the inception of the project until the time that the Owner requests, and either accepts or rejects, a guaranteed maximum price (GMP), the CM is the Owner’s principal agent and performs nearly all of the services specified in the Agency Series.
- At the time a GMP is requested, the role of the CM may change depending upon whether or not the Owner accepts the GMP as proposed by the CM.

Owner Rejection of the GMP.

- The Owner may elect to not accept the CM’s proposed GMP; the Owner may elect to stop the project without recourse (termination for convenience) or the Owner may elect to proceed with the project with the CM and Designer performing essentially in roles contemplated by the Agency Series documents.
- If the Owner stops the project, either or both the CM and Designer contracts may be terminated for convenience. In this case, the CM and/or Designer are paid their bona fide costs to the date of termination, plus reasonable termination expenses as defined by the contracts.
- If the Owner rejects the GMP and instructs the CM and Designer to continue with the project with the CM acting as an agent of the Owner, both the CM and Designer agreements should be modified.

Owner Acceptance of the GMP.

- If the Owner accepts the GMP proposed by the CM, the CM becomes responsible for the ultimate cost of the construction. If the cost exceeds the GMP provided by the CM, the CM is responsible for the excess costs.
- Unlike other standard forms of agreement, the CM is not eligible to perform any of the work unless the CM submits a bid (with the other bidders) and unless the CM is the low bidder. In this case, the Owner and CM will enter into a separate agreement for the performance of and payment for this work.
- Because of the CM’s responsibility for construction performance, the CM becomes in many ways the equivalent of a general contractor during the Construction Phase.
• However, the relationship between the Owner, CM, and Designer, as created by the CMAA CM-At-Risk Series is unique among those organizations promulgating standard form contracts in the construction industry. In the CMAA system, the “project team” concept is maintained throughout all project phases and the required standards of performance are specified.

Performance Is Judged According to a Standard of Care
The CMAA documents maintain the legal principle that the duty owed by the CM and Designer in performance of their services is measured by a standard of care. The CM and the Designer each agree generally to perform their services in accordance with the standards of their professions and as defined by the applicable contracts or law.

Neither the CM nor the Designer warrants or guarantees perfect results. Whether the CM or Designer has performed according to the required standard of care will be determined by a variety of factors such as the manner in which professionals in the industry generally perform, the experience of the CM or Designer, and the specific requirements of the contract and the project.

3.3 CONSTRUCTION CONTRACT GENERAL CONDITIONS FOR AGENCY CM

Introduction
The purpose of this section is to review the General Conditions recommended for use in construction contracts where the Owner has elected to use an agency CM to manage the construction process.

Background
A typical set of construction contract documents contains a detailed statement of terms, conditions and the administrative requirements with which the Contractor will be required to comply, along with the technical specifications and drawings describing the facility or infrastructure to be constructed. These terms, conditions and administrative requirements can be brief and general as they typically are in residential construction projects, or they can be lengthy and detailed as they are in most major public works and infrastructure projects. This section is intended to address the terms, conditions and administrative requirements generally associated with large, complex capital projects, where agency construction management is most common.

On large public works projects, public agencies generally utilize one of three standard forms of contracts, if they do not already have their own contract documents. These are:

• The American Institute of Architects Contract Documents.

• The Engineers’ Joint Contract Documents Committee Contract Documents.
• Construction Management Association of America Contract Documents.

These are also the standard contract document formats that Designers choose when tasked with developing drawings and specifications for a client.

This section will review the CMAA Document A-3, General Conditions of the Construction Contract Between Owner and Contractor. The intent of the General Conditions is to:

• Clearly define Owner and Contractor rights and responsibilities.
• Clearly define the role and responsibility of the CM.
• Clearly assign risks to the Contractor and Owner.
• Provide a procedure for executing changes in the Work scope in a fair and equitable manner.

The CMAA General Conditions
The CMAA General Conditions presume that the construction documents (i.e., the drawings and technical specifications) define the scope of Work reasonably completely and accurately (i.e. within the applicable standard of care), and any adjustment to that scope of Work will apply principles extracted from the General Conditions which are basically good commercial practice and “fair dealing” standards. This requires that the Owner and Contractor have the capability of responding quickly to unanticipated changed conditions, and that all parties will deal fairly and equitably with each other.

The General Conditions in the CMAA Contract Documents include fifteen (15) articles:

• Article 1: General Provisions
• Article 2: The Owner and Construction Manager
• Article 3: The Designer
• Article 4: The Contractor
• Article 5: Safety and Protection of Property
• Article 6: Subcontractors and Suppliers
• Article 7: Work By the Owner or By Separate Contractors
• Article 8: Commencement and Completion
• Article 9: Changes
• Article 10: Inspection, Testing and Correction of the Work
• Article 11: Payments and Completion
- Article 12: Liability and Property Insurance
- Article 13: Termination
- Article 14: Dispute Resolution
- Article 15: Other Provisions

Review of the CMAA General Conditions

Article 1: General Provisions. The General Provisions provide definitions used in the General Conditions, and identify the parties to the contract. Also, the following general topics are addressed.

- Contractor’s “first hand” detailed knowledge of the site and documents—By entering into the contract, the Contractor represents that it has examined the Contract Documents thoroughly, visited the site to become familiar with the local conditions, and has become familiar with federal, state, and local laws and rules that may affect cost, progress, and performance of the Work.

- The complete Agreement—The Contract Documents comprise the entire contract between the Owner and the Contractor concerning the Work. The Contract Documents are complementary and what is called for in one is binding as if called for by all.

- Intent and purpose obligation of the Contract—It is the intent of the Contract Documents to describe a functionally complete project. Any labor, material, or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result shall be supplied whether or not specified.

- Meaning of words—Words with customary, technical, or trade meaning, shall be interpreted in accordance with that meaning.

- Current version of references intended—References to standard codes, specifications or manuals mean the latest revisions at the time of bid opening.

- Interpreter of Contract Documents—CM shall interpret the Contract Documents reasonably and consistently with the overall intent of the Contract Documents.

- Contractor notice requirement for scope changes—The Contractor is obligated to immediately notify the CM of conflicts, errors, or discrepancies in the Contract Documents. Before proceeding with the affected work, the Contractor is obligated to obtain a written interpretation or clarification from the CM, and any work done before the CM renders its interpretation is at the Contractor’s sole risk.
• Order of precedence of the Contract Documents—The Contract Documents order of precedence is established in order to resolve conflicts in these documents. The order from highest to lowest precedence is as follows: the Contract and any properly executed Change Orders; the Supplemental Conditions; the General Conditions; the Specifications; the Instruction to Bidders; the drawings; the stated dimensions given on a drawing prevail over the scaled measurements on the drawing; detailed drawings are given precedence over general drawings.

• Contractual relationships of the parties defined—The Contractor agrees that this contractual arrangement does not create a contractual relationship (i.e., privity) between the Contractor, and the CM or Designer. In addition, the Contractor waives any right the Contractor may have as an alleged third party beneficiary of any agreements between the Owner and the CM or Designer and covenants not to sue the CM or Designer as a third party beneficiary of such agreements.

• Material and equipment substitution process—The intent of named equipment is to establish type, function and quality requirements unless followed by words indicating no substitution is permitted. To make a substitution, the Contractor must submit a proposal and include a certification of performance, a statement that it will not impact substantial completion, a statement regarding whether a change in the contract will be required to adapt the design to the substitution and a detailed estimate. A similar procedure is required for requesting the substitution of “means and methods”, techniques, sequences, or procedures of construction are specified. The substitution review process allows the CM and Designer a reasonable time to evaluate the proposal. The Contractor must pay for review of a substitution proposal.

• The CM and Designer have no duty or authority to supervise or direct performance—Terms of the contract describing a requirement, direction, review or judgment of CM or Designer is not intended to assign any duty or authority to supervise or direct the work to these parties. Whenever in the Contract Documents the term “as ordered”, “as directed”, “as required”, “as allowed”, or terms of like effect are used, or adjectives such as “reasonable”, “suitable”, “acceptable”, or adjectives of like effect are used to describe a requirement, direction, review, or judgment of the CM or Designer as to the Work, it is intended that the requirement, direction, review or judgment shall be solely to evaluate the Work, and the use of such terms or adjectives shall not assign to the Owner or CM or Designer any duty or authority to supervise or direct the performance of the Work.

• Ownership of Contract Documents—The Contractor has no ownership rights in the Contract Documents.
Article 2: Owner and Construction Manager. The following provisions address the Owner's and CM's duties and responsibilities:

• Owner’s Agent—The CM will act as the Owner’s principal agent.

• Communications—All communication with the Contractor will be through the CM.

• Contractor’s delegated authority—The Contractor is required to file with the CM a list of persons authorized to sign documents on behalf of the Contractor which will fully bind the Contractor, or in the case of a corporation should file a certified copy of a resolution of the board of directors in which are listed the names and titles of those personnel authorized to sign documents on behalf of the company and fully bind the corporation.

• Timeliness obligation—The Owner shall furnish information and services required by the contract promptly.

• No authority to change contract—CM does not have the authority to revoke, alter, enlarge, relax or release any requirements of the Contract Documents.

• No supervising intended—The CM shall establish and implement a program to monitor the quality of the Work but neither the Owner, the CM nor the Designer will supervise, control, direct or have authority over or be responsible for the Contractor’s means, methods, techniques, sequences or procedures of construction. They shall not be responsible for Contractor’s safety precautions and programs nor for the Contractor’s failure to comply with laws and regulations.

• Indemnification—The Owner, CM and Designer shall not be responsible for the acts or omissions of the Contractor, its subcontractors or suppliers (i.e., the Contractor’s team).

• Contractor’s obligation to deliver conforming Work—Observations by the CM including inspections, testing, or approvals by others shall not relieve the Contractor from its obligation to perform the Work in accordance with the Contract Documents.

• Reject Work—The CM has the authority on behalf of the Owner to disapprove or reject Work where, in the opinion of the CM or the Designer, the Work does not conform to the requirements of the Contract Documents. Disapprovals shall be communicated to the Contractor through the CM.

• Meetings—The CM shall have the authority and discretion to call, schedule, and conduct job meetings which the Contractor and its subcontractors must attend.

• Submittals—In consultation with the Designer, the CM shall establish procedures for processing submittals.
• Change orders—The CM shall review all requests for changes and process change orders, including applications for a change of contract time.

• Completion of the Work—The CM shall determine when the Contractor’s work is substantially complete, and in consultation with the Designer issue a Certificate of Substantial Completion with attached lists of incomplete work. Also, the Certificate of Final Completion shall be prepared by the CM and issued when the Contractor’s work is complete.

• Surveying responsibilities—Engineering surveys to establish reference points for construction shall be provided to the extent necessary to proceed with the Work. The Contractor shall be responsible for layout of the Work, shall protect and preserve reference points and make no change or relocation without prior approval of the Owner. The Contractor shall report to the CM whenever reference points are lost, destroyed or require relocation, and the Contractor shall be responsible for accurate replacement or relocation of reference points by professionally qualified personnel.

• Owner’s responsibility for site access—The Owner shall be responsible for furnishing land upon which the Work is to be performed, right-of-way and easements for access thereto and other lands designated for use by the Contractor. Easements and permanent structures or permanent changes in existing facilities shall be obtained and paid for by the Owner. Contractor shall provide at its expense additional lands that may be required for temporary construction facilities or storage of materials and equipment.

• Owner’s right to stop or suspend the Work:
  - If the Work is defective or the Contractor lacks sufficient skilled workers, suitable materials or equipment, or the Contractor fails to furnish or perform Work in such a way that the completed Work will conform to the Contract Documents, the Owner may order the Contractor to stop the Work.
  - The Owner, at any time and without cause, may suspend the Work for a period of up to 180 days by written notice.
  - The right of the Owner to stop the Work does not create a duty on the part of the Owner to exercise the right for the benefit of the Contractor or any other party.
  - If the Owner or CM suspends the Work for an unreasonable period of time, or fails to act within the time specified in the contract, the Contractor shall be entitled to a change in contract price or time in accordance with provisions of Article 9. No cost will be allowed prior to the Contractor providing notification to the CM in writing of the act or failure to act involved. This must be provided within 20 days of the event occurring.
- No request by the Contractor for a change in contract price or time will be allowed if the request is made after final payment.

• Owner’s right to perform Work:
  - If after written direction from the CM, the Contractor fails, within a reasonable time, to proceed to correct defective Work or to remove and replace rejected Work within a reasonable time, or if the Contractor fails to perform the Work in accordance with the Contract Documents, the Owner may, after seven (7) days written notice to the Contractor, correct and remedy the deficiency.
  - The Owner is obligated to proceed expeditiously to complete corrective and remedial action. The Owner may exclude the Contractor from all or part of the site, take possession of all or part of the Work, and suspend the Contractor’s services related thereto, take possession of the Contractor’s tools, appliances, construction equipment, and machinery at the site, and incorporate in the Work all materials and equipment stored at the site for which the Owner has paid the Contractor.
  - The Contractor shall allow the Owner or the Owner’s representative such access to the site as may be necessary to enable the Owner to exercise this right.
  - If the Owner does perform the Work, it shall be entitled to appropriate decrease in contract price. All direct, indirect, and consequential costs of the Owner related to such rights and remedies shall be charged to the Contractor and a change order shall be implemented. These direct, indirect, and consequential costs shall include but not be limited to fees and charges of the CM, engineers, architects, attorneys, and other professionals, court and arbitration costs, and all costs to repair and replace the Work of others destroyed or damaged by the correction, removal, and replacement of the Contractor’s defective Work.
  - The Contractor shall not be allowed an extension of contract time due to any delay in performance of the Work attributable to the Owner exercising its rights and remedies under this provision.

Article 3: The Designer. The following provisions address the services provided by the Designer and the related rights and responsibilities of the Designer:

• Not responsible for “means and methods”—The Designer shall not be responsible for the Contractor’s means, methods, techniques, sequences or procedures of construction or the safety precautions and programs.

• The Designer shall not be responsible for the Contractor’s failure to perform or furnish the Work in accordance with the Contract Documents.
• General duties—The Designer shall provide to the Owner architectural and professional engineering services for all Design Phases of the Project and professional design services during the Construction Phase as required in the agreement between the Owner and Designer.

• Shop drawings and other submittals reviewed for conformance only—The Designer shall promptly review shop drawing, and samples (i.e., submittals) for conformance with the design concept and compatibility with the Project as a functioning whole, but will not review the means, methods, techniques, sequences or procedures of construction or safety precautions and programs. The review of separate items shall not indicate approval of the assembly in which the item functions.

- The Contractor shall do no work without the required approved submittals for that portion of the Work.

- Should errors, omissions, or conflicts in the Drawings prepared by the Designer be discovered, the Designer shall prepare clarification amendments or supplementary documents and provide consultation as required. All communication will be through the CM.

• Site visits—The Designer may make visits to the site to carry out its contractual responsibilities.

• Communication—The Designer shall only communicate with the Contractor through the CM.

• Start up—The Designer may provide assistance in the initial operation of any equipment during start-up testing, adjusting, and balancing.

• Owner’s right to change its Designer—The Owner may terminate employment of the original Designer and appoint a new Designer who will assume the duties of the former Designer.

**Article 4: The Contractor.** The following provisions address the Contractor’s rights and responsibilities:

• Access to work site—The Owner, CM, Designer, testing agencies, government agencies with jurisdictional interest and all parties designated by the Owner or the CM shall have access to the Work at all times. The Contractor shall provide proper and safe conditions for such access.

• Completeness and accuracy of documents—By submitting a bid, the Contractor has agreed that the Contract Documents together with supplementary written
instructions issued by the Owner or the CM that have become part of the contract appear accurate, consistent and complete.

• Duty to report errors or omissions—During the performance of the Contract, the Contractor shall report to the CM any errors, inconsistencies, or omissions in the Contract Documents, including any requirement that may be contrary to usual construction practice, law, ordinance, rule, regulation or other order of any public authority.

• Duty to supervise—The Contractor shall supervise and direct the Work competently and efficiently.

• Responsible for “means and methods”—The Contractor shall be solely responsible for means, methods, techniques, sequences, and procedures of construction.

• Responsible to verify conformance—The Contractor shall be responsible to verify that all completed Work complies with the requirements of the Contract.

• Authority of Contractor’s designated resident representative—The Contractor shall designate in writing a competent, full-time resident superintendent to supervise and direct the Work, and the superintendent shall not be replaced without written notice and approval by the CM.

  - This superintendent shall have authority to act on behalf of the Contractor, and all communications given to the superintendent shall be as binding as if given to the Contractor.

  - The superintendent shall during the performance of the Work remain on the project site no less than eight hours per day five days a week until termination of the contract, unless the job is suspended or work is stopped by the CM or Owner.

  - The superintendent shall not be employed or used on any other project during the course of the Work.

• Communication through CM only—All communications to the Designer or Owner shall be submitted by the Contractor through the CM.

• Solely liable for Contractor’s Team—The Contractor shall be solely responsible for all acts or omissions of the Contractor’s employees, subcontractors, suppliers and other persons furnishing or performing the Work (i.e., the Contractor’s team).

• Absolute duty to conform to Contract Documents—The Contractor’s responsibility to perform the Work in accordance with the Contract Documents is absolute, and shall not be diminished by actions or duties of the Designer, CM, or any other person.
Chapter 3: CM as Practitioner

- **Required on site record documents**—The Contractor shall maintain at the site in a secure place one record copy of all drawings, specifications, addenda, written amendment, change orders, approved shop drawings, submittals and written interpretations and clarifications in good order and annotated to show all changes made during construction. These records shall be available to the CM and Designer for reference and shall be delivered to the CM upon completion of the Work.

- **Qualification of surveyors**—The Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform the Work as required by the contract documents.

- **Restricted hours of work**—Except as otherwise indicated in the Contract Documents, all work at the site shall be performed during regular working hours, and the Contractor shall not permit overtime work or the performance of work on Saturdays or Sundays or legal holidays without CM’s written consent given after at least 48 hours written notice.

- **Contractor’s responsibility for furnishing equipment, materials, etc.**—Contractor shall furnish and assume complete responsibility for all materials, labor, equipment, transportation, construction equipment, machine tools, appliances, fuel, power, lighting, heat, telephone, water, sanitary facilities, temporary facilities, and other facilities and incidentals necessary for the furnishing, performing, testing, start-up, and completion of the Work.

- **Quality of work**—All work shall be performed by the Contractor in the skillful, workmanlike manner.

- **Qualifications and conduct of workers**—Contractor shall at all times provide competent and suitably qualified personnel to furnish and perform the Work in accordance with the requirements of the Contract Documents, and shall promptly remove from the site any person or organization that does not meet these requirements.

  - The Contractor shall at all times maintain good order and strict discipline among its employees, and shall require the same of its subcontractors, suppliers, and any other persons or organizations furnishing or performing the Work. The CM may require the Contractor to remove from the project any person or entity that the CM deems incompetent, careless, or otherwise objectionable.

  - The Contractor shall confine construction operations, equipment materials storage, equipment, and the activities of the workers to the project site, land and areas identified in and permitted by the Contract Documents, and other lands and areas permitted by law, rights-of-way, permits, and easements. The Contractor
shall not unreasonably encumber the premises with construction equipment or other materials, and the Contractor shall assume full responsibility for any damage to any such land or area, to the Owner or occupant thereof, or to the land or areas which are contiguous.

- The Contractor shall not load, or permit any part of any structure to be loaded in a manner that shall endanger the structure.

- During the progress of the Work, the Contractor shall keep the premises free from accumulations of waste material, rubbish, and other debris resulting from the Work. At the completion of the Work, the Contractor shall remove all waste material, rubbish and debris as well as tools, appliances, construction equipment, machinery, and surplus materials and leave the site clean and ready for occupancy.

- The Contractor shall restore to original condition, all properties not designated for alteration by the Contract Documents.

- If the Contractor fails to clean-up during or at the completion of the Work, the Owner may do so. The cost of this clean-up shall be charged to the Contractor.

• Construction operations costs and fees
  - The Contractor shall obtain and pay for all construction permits and licenses required of the Work.
  - The Contractor shall pay all government charges and inspection fees necessary for prosecution of the Work, applicable at the time of bid opening or the effective date of the Contract if there was no bid opening.
  - The Contractor shall pay all charges of utility owners for connection to the Work.
  - The Contractor shall pay all license fees and royalties related to, or necessary for the Work.
  - The Contractor shall pay all sales, consumer use, service and other similar taxes.

• Obligations to comply with the applicable laws—The Contractor shall give all notices and shall comply with all government laws and regulations applicable to the performance of the Work. Neither the Owner, CM, nor Designer shall be responsible for monitoring the Contractor’s compliance with any laws or regulations unless otherwise expressly noted in the Contract Documents.

• Managing allowances—It is understood that the Contractor has included in the contract price the cost of allowances in the Contract Documents. The work covered by allowances will be managed by the CM, and cost for this work will include:
- The cost incurred by the Contractor less any applicable trade discounts for materials and equipment required.
- The cost for unloading, handling on the site, labor for installation, overhead, profit, and other expenses.
- The Contractor shall be entitled to a change order prior to final payment reflecting actual amounts due the Contractor due to work covered by allowances.

• Submittal requirements

- The Contractor shall submit to the CM seven (7) copies of all shop drawings, samples, or other submittals bearing a stamp or specific written statement that the Contractor has satisfied its responsibilities under the Contract Documents and that the shop drawings, samples, or other submittals are complete with respect to quantities, dimensions, specified performance design criteria, materials, and similar data.

- The Contractor shall submit submittals required by the Contract Documents to the CM promptly as to not cause delay in the Work.

- Before submission of submittals, the Contractor shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar data and coordinated each submittal with each other.

- At the time of submission, the Contractor shall give the CM specific written notice of each variation that the shop drawings, samples, or other submittals may have from the requirements of the Contract Documents with each specifically noted in the submittal.

- Review of submittals by parties acting on the Owner’s behalf shall not relieve the Contractor from responsibility for any variation from the requirements of the Contract Documents, unless the Contractor has in writing called the CM’s attention to the variation, and the Contractor has received written acknowledgment of each such variation incorporated in the submittal. No review by the CM or Designer shall relieve the Contractor from responsibilities for errors and omissions in the shop drawings.

- CM shall endeavor to have submittals reviewed and returned to the Contractor within 21 days of submission.

- The Contractor shall make at its own expense any corrections to the submittals required by the Designer/CM, resubmit the required number of corrected copies, and annotate the revision.
Where a submittal is required by the Contract Documents, any related work performed prior to the review, approval, and return, shall be at the sole risk, expense and responsibility of the Contractor.

- Submittals in any stage of review or approval shall not constitute Contract Documents.

- Cutting and patching—The Contractor shall do all cutting, fitting, and patching as may be required to make the several parts come together properly, and integrate with other work.

- Obligation to protect work of others
  - The Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering other’s work, and shall only cut or alter their work with written consent of the CM and others whose work will be affected.
  - If the Contractor, its subcontractors, suppliers, or any other person or organization furnishing or performing work damages property of the Owner, the work or the property of any other contractor on site, or any other structured facility on site, then the Contractor shall promptly remedy such damage.

- Intellectual property rights—If a particular invention, design process, product, or device, is specified in the Contract Documents, and the Owner, CM, or Designer has actual knowledge that its use is subject to patent rights or copyrights, such rights shall be specified in the Contract Documents.

- Warranty
  - The Contractor shall warrant that all materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by the CM, the Contractor shall furnish reports of required tests or other satisfactory evidence as to the kind and quantity of materials and equipment.
  - The Contractor warrants and guarantees all Work to be in accordance with the Contract Documents and defect-free, and all defective work, whether or not in place, may be rejected, corrected, or accepted as provided in the Contract Documents.

- Conformance to manufacturer’s/supplier’s instructions—All materials and equipment shall be applied, erected, installed, connected, cleaned, used, and conditioned in accordance with instructions of the suppliers unless otherwise provided in the Contract Documents. However, no provision of any such instruction
shall be effective to assign to the CM, Designer or their agents any duty or authority to supervise or direct the furnishing or performing of the Work.

• Indemnification

- The Contractor shall indemnify and hold harmless the Owner, CM, Designer and other Contractors and their consultants, agents and employees from and against all claims, demands, suits, damages, including consequential damages and damages resulting from bodily injury or damages to property; cost, expenses, and attorney’s fees arising out of or resulting from the performance of the Work, provided that such claim, demand or suit are caused in whole or in part by the negligent acts or omissions of the Contractor or its team.

- In any claim against the Owner, CM, or Designer or any of their consultant, agents, or employees by any employee of the Contractor or its team, the indemnification obligation shall not be limited in any way by limitations on the amount or type of damages payable by or for the Contractor under Workers’ Compensation Act, Disability Benefits Act, or other employee benefit acts.

- To the extent permitted by law, the indemnity provided shall apply regardless of whether or not such claims are caused in part by any person or entity indemnified.

- The Owner shall indemnify and hold harmless the Contractor, subcontractors, the CM, the Designer and the officers, directors, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages arising out of, or resulting from, hazardous conditions uncovered or revealed at the site which were not within the Work scope.

• Obligations regarding notice—The Contractor shall give the CM timely notice of readiness of the Work for the required inspections, tests and approvals.

• Inspections and testing

- All inspections, tests or approvals other than those required by law or regulation, shall be performed by organizations acceptable to the Owner and CM.

- Inspections or tests performed exclusively for the Contractor’s convenience shall be the sole responsibility of the Contractor.

- If any laws or regulations of any public body having jurisdiction requires any work to be inspected, tested, or approved, the Contractor shall assume full responsibility, pay all costs in connection with the testing, and furnish the CM the required certificates of inspection, testing or approval.
• Duty to know the Work
  - The Contractor shall fully acquaint itself with the type and location of the Work, and shall be responsible for having carefully examined and inspected any existing facilities and structures and conditions that may affect the Work, including those which may affect transportation, handling, delivery and storage of materials, availability of labor, availability of water and electric, the availability/condition of roads and other access to the Work, weather conditions, types and location of surface and subsurface conditions, types and location of surface and subsurface utility lines at the site and adjacent to the site, other contracts to be entered into by the Owner relating to the project that may affect the Work and require coordination and scheduling efforts by the Contractor, and the type/availability of and storage of equipment, materials, and supplies used for performing the Work.

  - The Contractor shall determine and fully acquaint itself with all regulations, codes, ordinances and provisions of the law that affect the Work.

  - Certain informational data is shown or indicated in the Contract Drawings with respect to existing surface and subsurface conditions at or contiguous to the site. The Contractor is obligated to determine the adequacy of the information and shall conduct additional investigations that may be necessary to fully acquaint itself with existing conditions at the site.

• Right to rely on reports covering subsurface conditions—Depending on applicable law (which may vary significantly among jurisdictions), the Contractor shall be entitled to rely upon the accuracy of the factual data contained in reports of exploration and tests of surface and subsurface conditions at or contiguous to sites that have been used by the Designer in preparing the Contract Documents and have been furnished to the Contractor. If the Contractor believes that any factual data on which the Contractor is entitled to rely is inaccurate or any existing surface or subsurface condition encountered or contiguous to the site differs materially from material indicated or referred to in the Contract Documents, the Contractor is obligated, before performing any work, except in an emergency, to promptly notify the CM in writing of the difference.

• CM’s obligation regarding changed conditions—CM is obligated to review the pertinent conditions, consult with the Designer, determine the necessity for additional investigations, and advise the Owner in writing about the inaccuracy or difference. If the CM, in consultation with the Designer, determines that an existing surface or subsurface condition, facility or structure is materially different from that indicated or referred to in the Contract Documents, or the subsurface or surface condition at or contiguous to the site is one which the Contractor could not have
reasonably been expected to have been aware, the CM and Designer shall determine the extent to which the Contract should be modified. The Contractor may be entitled to a change in contract price or time. The Contractor shall be responsible for safety and protection of such conditions.

- Owner’s obligation regarding hazardous material—The Owner shall be responsible for any asbestos, PCBs, petroleum, hazardous waste or radioactive material uncovered or revealed at the site which was not shown or identified in the Contract Documents to be within scope of the Work. The Owner shall not be responsible for any such materials brought to the site by the Contractor or its team. The following action should be taken if such material is encountered:
  - The Contractor shall immediately stop all work in any area affected by the hazardous conditions and notify the Owner and CM.
  - The Owner shall promptly consult with the CM concerning the necessity for the Owner to retain a qualified expert to evaluate such hazardous conditions or take corrective action.
  - The Contractor shall not be required to resume work in connection with such hazardous condition until the Owner has obtained any required permits, delivered to the Contractor special written notice specifying that such condition and any areas affected have been rendered safe for resumption of work or specified special conditions under which work may be resumed safely.
  - If the Owner and the Contractor cannot agree on entitlement or extent of adjustment in the contract price and time as a result of the work stoppage or such special work conditions imposed by the Owner, an adjustment, if requested by the Contractor, shall be made as provided in Article 9 addressing change of contract price and change of contract time (i.e., “Time and Material” work).
  - If, after receipt of such special written notice directing the Contractor proceed, the Contractor does not agree to resume the Work based on reasonable belief it is unsafe, or does not agree to resume work under special conditions, then the Owner may order such portion of the Work that is in connection with such hazardous condition be deleted from the Contract.
  - If the Owner and Contractor cannot agree as to entitlement to or the amount or extent of any adjustments in contract price and time as a result of deleting the portion of the Work, then the dispute shall be referred as provided in Article 15 addressing disputes between Contractor and Owner.
- The Owner shall indemnify and hold harmless the Contractor and its Organization to the fullest extent permitted by law from and against all claims, cost, losses, and damage arising out of or resulting from such hazardous conditions.

Article 5: Safety and Protection of Property. The following provisions address the issues of safety on the project:

- Contractor’s safety plan
  - Prior to beginning the Work the Contractor is obligated to prepare and submit to the CM a safety program to implement all the Contractor’s safety responsibilities in connection with the Work at the site.
  - The Contractor is obligated to coordinate that program and its procedures and precautions with safety programs of other contractors performing the Work at the site.
  - The Contractor shall be solely responsible for initiating, maintaining, monitoring, and supervising all safety programs, precautions and procedures in connection with the Work and for coordinating the safety programs.

- Contractor’s duties and obligations
  - The Contractor should take all necessary precautions to prevent damage, injury, and loss to:
    - Contractor’s team/employees on the project.
    - Employees of other persons and organizations who may be affected thereby.
    - The Contractor shall submit to the CM a plan to protect property, work, material, equipment, and other property on or adjacent to the site, including trees, shrubs, lawns, walks, pavements, and underground utilities until final completion.
    - The Contractor’s duty and responsibility for the safety and protection of the Work shall continue until such time as the Work is completed and the CM has issued a Certificate of Final Completion to the Contractor.
    - The Contractor, in an emergency situation, is obligated to act to prevent threatened damage, injury, or loss to persons or property at the site or adjacent to it.
    - The Contractor shall give the CM prompt written notice if the Contractor believes that any significant change in the Work or variations in the Contract Documents have been caused by its actions.
• The Contractor is obligated to designate a responsible representative at the site whose duty shall be the prevention of accidents. This person shall be the Contractor’s superintendent unless otherwise designated in writing by the Contractor and accepted by the CM.

• Compliance with safety laws—The Contractor shall comply with all applicable laws and regulations of any public body having jurisdiction for the safety of persons or property and the protection of them from damage, injury, or loss. The Contractor shall erect and maintain all necessary safeguards for such safety and protection.

• Contractor’s obligation to notification—The Contractor shall notify owners of adjacent property and of underground facilities and utilities when the prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

• Contractor’s obligation to remedy property damage—All damage, injury, or loss to property caused directly or indirectly, in whole or in part by the Contractor or its team shall be remedied by the Contractor.

Article 6: Subcontractors and Suppliers. The following provisions address the award of subcontracts for portions of the Work:

• Right to object to use of a subcontractor
  - The Contractor shall not employ any subcontractor, supplier, or other person or organization against whom the CM may have reasonable objection.
  - The Contractor shall not be required to employ a subcontractor, supplier, or other person or organization to furnish or perform any work against whom the Contractor has reasonable objection.

  - If the Contract Documents require certain subcontractors or supplier be submitted for approval or acceptance by the CM, the CM shall either accept or reject the subcontractor/supplier proposed.

• In the event the subcontractor/supplier is rejected, the Contractor shall submit an acceptable substitute and there will be an appropriate adjustment to the contract time or price.

• No acceptance by the CM of any subcontractor/supplier shall constitute a waiver of any right of the Owner or the CM to reject defective work.

• Contractor responsible for its team—The Contractor shall be fully and solely responsible for the acts or omissions of its team, just as the Contractor is responsible for its own acts or omissions.
• Subcontract agreement requirements—All work performed for the Contractor or by subcontractors/suppliers shall be by an appropriate agreement between the Contractor and each subcontractor/supplier which binds the subcontractor/supplier to applicable terms and conditions of the Contract Documents and contains waiver provisions required under Article 12.

• Insurance proceed distribution—The Contractor shall pay each subcontractor/supplier a just share of any insurance monies received by the Contractor on account of losses under policies issued pursuant to Article 12.

• No contractual relationship created between Owner and subcontractors—Nothing contained in the Contract Documents is intended to create, nor shall it create, any contractual relationship between the Owner, the CM, the Designer and any member of the Contractor’s team.

• Contractor’s obligation to pay subcontractor
  - When the Contractor is paid by the Owner for subcontractors’ work, the Contractor shall promptly pay the subcontractors the amount each subcontractor is entitled to, and the payment retainage shall reflect only the percentage retained by the Owner.
  - The Owner may, at its discretion, furnish, upon request, to any subcontractor/supplier information regarding the percentage of completion of the Work or the amounts of any progress payment requested by the Contractor.

• Owner has no obligation to pay subcontractor/suppliers—Except as required by law, the Owner and the CM or Designer shall not have any obligation to pay any Contractor team participant performing work.

**Article 7: Work by the Owner or by Separate Contractors.** The following provisions address the Owner’s right to perform work and to award separate contracts to work on the site and imposes an obligation to coordinate with others.

• Work by Owner or others allowed
  - The Owner may perform other work related to the project at the site with its own forces, have work performed by utility owners or award other contracts. If the fact that other work to be performed was not specified in the contract, written notice shall be given to the Contractor prior to start of any such work.
  - If separate contracts are issued for portions of the Project or other work on site, the contractors who executed the separate contracts are referred to as “another contractor” or “other contractors” in the Contract Documents.
• Contractor’s entitlement to a change—If the Owner provides the Contractor notice that related work not specified in the Contract Documents will be performed, and the Contractor believes that it is entitled to a change to the contract price or time, the Contractor may request such a change.

• Contractor’s coordination and notice responsibility—With regard to responsibilities for site coordination:
  - The Contractor shall provide each “other contractor” and that “other contractor’s team” proper and safe access to the site and reasonable opportunity for delivery and storage of materials and equipment to the site.
  - The Contractor shall properly coordinate the Work with “other contractors” so that its work does not disrupt or in any way inhibit the performance of other workers or contractors at the project site.
  - If any part of the Contractor’s Work depends on proper execution of the work of “other Contractors” or the Owner, the Contractor shall inspect and promptly report to the CM in writing any delays, defects, deficiencies, in that work which renders it unavailable or unsuitable for proper execution, and failure of the Contractor to so report shall constitute an acceptance of the other work as fit and proper for integration with the Contractor’s work except for latent defects.
  - If the Contractor causes damage to the work, property, or persons of “other contractors,” the Contractor shall promptly attempt to settle and resolve the dispute.

• If a dispute exists between the Contractor and “other contractors” as to the responsibility for maintenance of the site or as to their responsibility to perform site work (cutting, filling, excavating, patching, etc.), the Owner may elect to perform such work and charge all contractors responsible in amounts the Owner deems equitable.

**Article 8: Commencement and Completion.** The following provisions address commencement and time of completion:

• Start of the contract period
  - Contract time shall commence on the date specified in the Notice to Proceed, or, if no date is specified, on the date of the Contract.
  - The Contractor shall start performing the Work within seven (7) days after the date the contract time commences.
- Within seven (7) days of the contract, the Contractor shall submit the following to the CM for review:
  
  • Preliminary schedule that conforms to milestones set out in the Master Schedule.
  
  • Preliminary schedule of submittals.
  
  • Schedule of values for all Work, including quantities and prices of items aggregating the contract price. Prices shall include the amount of overhead and profit applicable to each item of the Work.

- Within ten (10) days of execution of the Contract and before the Contractor begins the Work, a conference shall be held and attended by the Contractor, Designer and CM to discuss the work schedule, procedures for handling submittals, processing applications for payment and contract administration and communication.

• Completion of the Work—The date of final completion of the Work is the day determined by the CM in consultation with the Designer when all work is complete, accessible, operable and usable by the Owner, and all drawings, certificates, bonds, guarantees, and releases required by Contract Documents have been provided to the Owner.

• Time is of the essence—With regards to progress and completion:
  
  - All time limits stated in the contract are of the essence of the contract.
  
  - The Contractor is obligated to perform the Work expeditiously, in accordance with the Master Schedule for the Project and the Contractor’s Construction Schedule, with an adequate work force, in order to achieve substantial completion and final completion within the times stated in the Contract Documents.

• The Contractor’s schedule

  - The Contractor shall submit to the CM the Contractor’s Construction Schedule before submission of the first application for payment. The schedule shall be acceptable to the CM as an orderly progress of the Work within specified milestones and contract time, but acceptance of the schedule shall neither impose on the CM responsibility for the progress or scheduling of the Work nor relieve the Contractor of full responsibility.

  - The Contractor’s Construction Schedule shall be prepared in a critical path method (CPM) network format such that no activity duration is greater than twenty (20) days, a critical path is clearly indicated and the total contract price is
allocated among the schedule activities so that progress payments may be computed accurately from the updates of the CPM schedule.

- A schedule of submittals shall be incorporated into the schedule and shall have the appropriate prices allocated to the activities.

- In addition to the graphic plot of the network, the schedule submittal shall include reports sorting and listing the activities in order of increasing float, by early start dates and by late start dates.

- CM approval of the scheduling system is required prior to beginning preparation of the Construction Schedule.

- The CM will provide the Contractor with the results of its schedule review, and the Contractor shall revise as necessary and resubmit the schedule to the CM.

- No progress payment shall be processed or paid until the Contractor’s Construction Schedule has been properly prepared and submitted.

- The Contractor shall submit monthly schedule reports to the CM indicating the current status of the Work, incorporating into the schedule all change orders. The reports may include proposed adjustments to the schedule that conform to the Master Schedule and revised sequences necessary to meet specified milestones and final completion dates. No change in any activity or pricing allocation shall be permitted. Acceptance of the proposed adjustments shall be at the sole discretion of the CM.

- Float shall be for the benefit of the project and its completion.

- Contractor represents to the Owner that the Contractor will:
  
  • Prepare documents for its planning, scheduling, and coordination of the Work that are feasible and realistic.
  
  • Prepare schedule updates, revisions or reports that accurately reflect the Contractor’s actual intent and reasonable expectations as to sequences of activities, duration of activities, responsibility for activities, productivity or efficiency, expected weather conditions, the value of the work, completion of any work item or activity, projected actual project completion, delays or problems encountered or expected and specified float time.

- The Contractor shall furnish such employees, material, facilities and equipment and shall work such hours, including extra shifts, overtime operations and Sundays and holidays as necessary to insure the prosecution and completion of the Work in accordance with the Contractor’s Construction Schedule. If the Work
is not being performed in accordance with the schedule and it becomes apparent from the schedule that the Work shall not be completed within the contract time, the Contractor agrees that it will take some or all of the following actions to improve its progress:

• Increase the number of employees in such crafts to regain lost schedule progress.
• Increase the number of working hours per shift, shifts per working day, working days per week, the amount of equipment or any combination thereof to regain lost schedule progress.
• The CM may require the Contractor to prepare and submit a recovery schedule demonstrating the Contractor’s proposed plan to regain lost schedule progress. Should the CM find the plan not acceptable, the CM may require the Contractor to submit a new plan. If the actions taken by the Contractor or the second proposed plan are not satisfactory, the CM may require the Contractor to take any of the actions described above without additional cost to the Owner.
• Grounds for termination—Failure of the Contractor to substantially comply with the requirements of this section may be considered grounds for termination by the Owner for failing to prosecute the Work with diligence to ensure timely completion.

**Article 9: Changes.** The following provisions address the changes procedure:

• No cost or time changes—The CM may authorize minor variations of the Work that do not involve adjustment in the Contract price or time that are consistent with the overall intent of the Contract Documents.
• Owner’s right to change the Work scope—With regard to the parties’ rights and responsibilities regarding changes in the Contract price, cost and time the following provisions apply:
  - The Owner, at any time, may order additions, deletions, deductions or revisions in the Work without invalidating the Contract. These are authorized by change orders and shall only be issued once the CM approves the Contractor’s proposal or request submitted pursuant to the Contract’s Changes clause.
  - Upon receipt of a change order, the Contractor shall promptly proceed with the work involved.
  - The Owner may initiate the change order process by issuing a request for proposal to the Contractor. The Contractor is obligated, within the time period stated in the request for proposal, to submit detailed information concerning cost and time adjustments necessary to perform the proposed changed work.
- Requests by the Contractor to change the contract price or time shall be based on
  written notice stating the general nature of the request delivered to the CM within
  five (5) days after the beginning of the occurrence or event giving rise to the
  request. The requested cost and time adjustment, with supporting data, shall be
delivered thirty (30) days after the end of the occurrence and shall be
accompanied by a written statement that the amount requested includes all
known direct, indirect, and consequential costs incurred as a result of the
occurrence. Failure to comply with these provisions will be considered a waiver of
any and all rights the Contractor may have against the Owner.

- CM’s obligation to negotiate—The CM shall review and initiate negotiations for
  contract price or time adjustments.

- Contractor’s obligation to perform change work—If the Contractor and CM are
  unable to arrive at an agreement as to the change in contract price or time, the
  Contractor is obligated to proceed with the change if so ordered in writing by the
  CM. The value of the work in the change shall be determined as described below
  and a revision in the contract time shall be adjusted to the extent that the revised
  work results in a change in duration of the critical path indicated in the Contractor’s
  Construction Schedule.

- Contractor’s entitlement—The Contractor shall not be entitled to an increase in the
  contract price or extension in the contract time with respect to any work performed
  that is not required by the Contract Documents as amended, modified or
  supplemented.

- Contractor’s obligation to give surety notice—If notice of any change in the contract
  time or price is required by the surety providing a bond on behalf of the Contractor,
giving of any such notice shall be the Contractor’s responsibility.

- Determining the change order price—The value of any work included in the change
  order shall be determined in one of the following ways:
    - Application of unit prices to the quantities of the items involved, if appropriate;
    - By mutual acceptance of a lump sum that includes an allowance for overhead and
      profit; or
    - On the basis of the cost of the work plus a Contractor’s fee for overhead and profit.

- “Cost of the work” defined—The term “cost of the work” means the sum of all costs
  necessarily incurred and paid by the Contractor in the proper performance of the
  Work. This amount shall be no higher than that prevailing in the locality of the
  project and shall include only the following items:
- Actual payroll cost for employees in the direct employ of the Contractor which will include the audited cost of salaries and wages plus the cost of fringe benefits (i.e., social security contributions, unemployment, excise and payroll taxes, worker’s compensation, health and retirement benefits, bonuses, sick leave, vacation, and holiday pay). The Contractor’s employees shall include superintendents and foremen at the site.

- The expense of performing work after regular working hours, on weekends or on legal holidays shall be included in the above only to the extent authorized in writing by the CM.

- The cost of all materials and equipment furnished and incorporated in the Work including the cost of transportation and storage, and suppliers’ field services.

- All cash discounts shall accrue to the Contractor unless the Owner deposits funds with which to make payments. In that case, the cash discount shall accrue to the Owner. All trade discounts, rebates and refunds and all returns from the sale of surplus material and equipment, shall accrue to the Owner.

- Payments made by the Contractor to its subcontractors.

- Costs of special consultants.

- The term “cost of the work” shall not include any of the following:
  - Payroll costs and other compensation of the Contractor’s officers, executives, principals of partnerships and sole proprietorships, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks and other personnel employed by the Contractor whether at the site or at the Contractor’s principal or branch office for general administration of the Work, all of which are to be considered administrative costs covered by the Contractor’s fee.
  - Expenses of the Contractor’s principal and branch offices.
  - Any part of the Contractor’s capital expenses including interest on the Contractor’s capital.
  - Cost due to negligence of the Contractor and its team.
  - Other overhead or general expenses of any kind.

- The fee allowed to the Contractor for overhead and profit shall be a mutual acceptable fixed fee, or a fee based on the following percentages:
  - For costs incurred for payroll, materials, and equipment, the Contractor’s fee shall be 15%.
• A Contractor’s fee for subcontractor costs shall be 5%.

• If the subcontract is on a basis of cost of the work plus a fee, the maximum allowable fee for overhead and profit of subcontractors shall be 10%.

• No fee shall be payable for costs of taxes, deposits lost for cause, or losses, damages or related expenses not compensated by insurance.

• The amount of credit to be allowed by the Contractor to the Owner for any change which results in a net decrease in cost shall be the amount of actual net decrease plus an amount equal to 10% of the net decrease.

• When additions and credits are involved in any one change, the adjustment of the Contractor’s fee shall be computed on the basis of the net change in the contract price.

  - The Contractor shall submit in a form acceptable to the CM, the itemized cost together with supporting data as may be deemed necessary by the CM.

• Contractor’s obligation to get competitive bids—If required by the CM, the Contractor shall obtain competitive bids from subcontractors acceptable to the CM and shall deliver the bids to the CM who shall then determine which bid shall be accepted.

• Unit price work.

  - When the Contract Documents provide that all or part of the Work be unit price work, the estimated quantities of the unit price work are not guaranteed and are solely for the purpose of comparison of bids and determining an initial contract price. Determinations of actual quantities of unit price work performed by the Contractor shall be made by the CM.

  - Each unit price shall be deemed to include an amount adequate for overhead and profit for each separately identified item.

  - When the quantity of unit price work performed by the Contractor differs by more than 25% from the estimated quantity, the CM and the Contractor shall determine a mutually acceptable adjustment price for the changed item.

• Adjustment in contract time.

  - Contract time shall only be adjusted if an event occurs that changes the duration of the critical path indicated on the Contractor’s Construction Schedule, and that event is beyond the Contractor’s control. Such events include acts by the Owner or others performing work, fire, flood, labor disputes, epidemic, abnormal weather conditions or acts of God.
- No adjustment in contract time shall be allowed if the event does not directly affect the critical path indicated in the Contractor’s Construction Schedule.

- The Contract time shall not be adjusted for normal inclement weather. The Contractor must substantiate to the satisfaction of the CM that there was greater than normal inclement weather considering the full term of the contract time using a ten-year average of accumulated record mean values from climatological data compiled by the U.S. Department of Commerce National Oceanographic and Atmospheric Administration for the locale of the Project, and that such alleged greater than normal inclement weather lengthened the critical path indicated in the Contractor’s Construction Schedule.

- Delays beyond the control of both parties—When the delay is due to causes beyond the control of both the Owner and the Contractor, an extension of contract time in the amount equal to the time lost on the critical path due to the cause shall be the Contractor’s sole and exclusive remedy for such delay.

- Owner’s limited liability for delays—In no event will the Owner be liable to the Contractor or its team for damages arising out of or resulting from delays caused by the Contractor or its team, or delays beyond the control of the Contractor or the Owner.

**Article 10: Inspection, Testing and Correction of the Work.** The following provisions address the duties and obligations associated with inspection and correction of defective work.

- Work covered prior to approval—If work is covered without concurrence of the CM that work shall, if requested by the CM, be exposed for observation to verify performance in conformance with the Contract Documents at the Contractor’s expense.

- Right to require special inspection.

  - The CM may require special inspection or testing whether or not such work is already fabricated, installed or completed.

  - At the CM’s request, the Contractor shall uncover and make available work for observation, inspection or testing. If such work does not conform to the Contract Documents, the Contractor shall bear all direct, indirect and consequential costs of the uncovering, observation, inspection and testing. However, if such work is found to conform, the Contractor shall be allowed an increase in Contract price and/or an extension of time for this work.
• Contractor's obligation to promptly correct defective work.
  - If required by the CM, the Contractor shall promptly correct or remove work that has been rejected by the CM and replace it or reconstruct it at its expense.
  - If within one (1) year after the date of final inspection, or longer if a longer period is prescribed by law or the terms of the Contract for a special guarantee, the work is found not to conform to the requirements of the Contract Documents, the Contractor shall promptly correct such work.
  - If the Contractor does not promptly comply, or in an emergency where delay would cause serious risk of loss, the Owner may have the non-conforming work corrected and charge the Contractor for the costs.

• Start of one (1) year warranty period—If particular equipment is placed in a continuous service before substantial completion, the one year correction period for that item may run from an earlier date.

• Acceptance of non-conforming work—The CM, in consultation with the Designer, may recommend Owner acceptance of non-conforming work instead of requiring correction or removal and replacement. The Contractor shall pay for the CM's and the Designer's evaluations, and if such acceptance occurs prior to final payment, a change order shall be issued for a decrease in the contract price. If acceptance occurs after final payment, the amount of the decrease should be paid by the Contractor directly to the Owner.

**Article 11: Payment and Completion.** The following provisions describe the method of payment to be used during construction:

• Cost loaded schedule—Once accepted by the CM, the allocation of the prices to the schedule activities shall not be changed by the Contractor as part of any schedule revision.

• Payment application process.
  - The CM shall review and process all applications for payment made by the Contractor as follows:
    • At least five (5) days before each monthly progress payment, the Contractor will submit a report documenting the status of the work as of the date of application and supporting documentation. The Contractor shall prepare construction schedule reports comparing actual progress with scheduled progress. Progress payments shall be based on the construction schedule reports.
If some of the payment requested is for materials or equipment stored off site, the CM may require bills of sale, invoices or other documents warranting the Owner has received the materials and equipment free and clear of all liens and that the materials and equipment are protected by appropriate property insurance.

- Retainage shall be as stipulated in the Contract Documents.

- The Contractor shall warrant and guarantee title to all work, materials and equipment covered by the application for payment.

- The CM shall determine the actual quantities and classifications of unit price work performed by the Contractor. Should the Contractor disagree, the Contractor must provide written notice of its intent to appeal the determination within five days of the decision.

- The CM shall make a recommendation for payment to the Owner within fourteen (14) days after receipt of application for payment or return the application to the Contractor indicating in writing the reasons for rejecting the payment application.

- Payment does not release Contractor from its obligation to deliver conforming work—Recommendations by the CM concerning the application for payment shall not release the Contractor from its responsibility to perform all Work in strict conformance with the requirements of the Contract Documents.

- Contractor’s responsibility regarding liens.

- The Contractor agrees to keep the Work and the site on which the Work is to be performed free and clear of all liens for labor and materials furnished pursuant to the Contract Documents. The Owner may refuse to make payment if a lien is filed or there is any reason to believe that a lien may be filed during the progress of the Work. If evidence is not furnished by the Contractor within a period of five (5) days after demand, the Owner may discharge the indebtedness and deduct the amount required, together with costs incurred, from the sum due to the Contractor.

- Final payment may be withheld until the Work and the site on which the Work was performed is free and clear of any and all liens.

- Right to refuse payment.

- The CM may refuse to recommend payment, and the Owner may refuse to pay the Contractor because of the following:

- A portion of the Work does not conform to the requirements of the Contract Documents.
• The Contractor or any of its team has caused or there is evidence to believe it may have caused damage to the other contractors or the Owner.

• Progress of the Work does not comply with the Contractor’s construction schedule.

• The Contractor fails to make prompt and proper payment to employees, subcontractors or suppliers.

• Liens have been filed or asserted or reason exists to believe it is probable that a lien will be filed against the Work.

• Claims have been filed or asserted or it is reasonable to believe that they will be filed against the Contractor.

- When the Contractor remedies to the Owner’s satisfaction the reason for refusal to make payment, the Owner shall promptly pay the Contractor.

• Substantial completion.

- The Contractor shall notify the CM in writing that it considers the Work to be substantially complete and request a Certificate of Substantial Completion. The CM and Designer shall make an inspection with the Owner and the Contractor to determine the status of completion. If the CM determines the Work is not substantially complete, the CM shall notify the Contractor in writing giving the reasons. If the CM considers the Work substantially complete, the CM shall prepare and deliver to the Owner a Certificate of Substantial Completion along with a punch list of remaining Work to be completed before final payment.

- The Contractor shall be allowed reasonable access to complete the punch list items. Pending final payment, the CM shall recommend division of responsibilities between the Owner and the Contractor with respect to security, operation, safety, maintenance, heating, utilities, insurance and warranties which will be binding on the Contractor until final payment. This is delivered with the Certificate of Substantial Completion.

• Owner’s right to use prior to substantial completion.

- The Owner may use, prior to substantial completion, any finished part of the Work which the Owner, CM and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by the Owner without significant interference with the Contractor’s performance of the remainder of the Work. The CM will make the request for partial use and the Contractor and the CM shall make an inspection of that part of the Work to determine its status of completion.
- Occupancy, use or operation by the Owner of part of the Work cannot occur without first receiving acknowledgement from the insurers providing property insurance that the necessary changes in coverage have been made.

- Final completion—The CM, in consultation with the Designer, shall determine when the Work is finally complete. Upon written notice from the Contractor that the Work is complete, the CM shall make a final inspection with the Owner and the Contractor, and notify the Contractor in writing of any portion of the Work that does not conform to the requirements of the Contract Documents. The Contractor shall immediately take the necessary measures to remedy the deficiencies. A Certificate of Final Completion and final payment will not be issued until such items are remedied.

- Final payment.

  - After the Contractor has completed all Work to the satisfaction of the CM and delivered all final submittals (i.e., maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, marked-up record documents, etc.) required by the contract, the Contractor may make an application for final payment. The final application for payment shall be accompanied by complete and legally effective releases or waivers of all liens.

  - The CM shall, within ten (10) days after receipt of final application for payment, present to the Owner a written recommendation and issue a Certificate of Final Completion. Thirty (30) days after presentation to the Owner of the application for final payment and Certificate of Final Completion, the amount recommended by the CM shall become due and shall be paid by the Owner to the Contractor.

  - If through no fault of the Contractor, final completion of the Work is significantly delayed, and the CM confirms this delay, the Owner may, upon receipt of the Contractor’s final application for payment, without terminating the agreement, make payment of the balance due for the portion of the Work completed.

  - Making and acceptance of final payment shall constitute the following:

    • A waiver of all claims by the Owner against the Contractor except for unsettled liens, for defective Work appearing after final inspection or for failure to comply with Contract Documents or with the terms of any special guarantees.

    • It shall not constitute a waiver of any rights of the Owner with respect to the Contractor’s continuing obligation under the Contract Documents.

    • A waiver of all claims by the Contractor against the Owner.
• The Contractor’s obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. No recommendation and/or release of payments, issuance of Certificate of Substantial or Final Completion, any use or occupancy of the work by the Owner, or review and approval of submittals shall release the Contractor from its obligation to perform the work in accordance with the Contract Documents.

Article 12: Liability and Property Insurance. The following provisions address the Contractor’s required insurances.

• Contractor’s team defined for insurance purposes—The Contractor shall maintain general liability and other insurance as appropriate for the Work being performed. The insurance are required for the Contractor’s team and shall provide coverage for anyone directly or indirectly employed by the Contractor or any of its subcontractors or by anyone for whose acts any of them may be liable:
  - Claims for Workers Compensation.
  - Claims for damages because of bodily injury, occupational sickness or disease by Contractor’s employees.
  - Claims for damages because of bodily injury, sickness or disease by any person other than the Contractor’s employees.
  - Claims for damages insured by personal injury liability coverage that are sustained by any person for any reason.
  - Claims for damages due to injury to or destruction of tangible property including loss of use.
  - Claims arising out of the operational law or regulations for damages because of bodily injury or death of any person or for damage to property.
  - Claims for damages because of bodily injury or death of any person or property damage arising out of ownership, maintenance or use of any motor vehicle.

• Required insurance coverages and policy provisions.
  - The insurance shall include specific coverages and be written for not less than the limits of liability provided for in the Contract Documents or required by law, whichever is greater.
  - Commercial general liability insurance shall include completed operations insurance.
- All insurance policies shall contain a provision or endorsement that coverage afforded shall not be canceled, materially changed or have renewal refused without at least thirty (30) days prior written notice to the CM by certified mail.

- All insurance shall remain in effect until final payment and at all times when the Contractor may be correcting, removing or replacing defective Work.

- Commercial general liability insurance required by the above paragraph shall include contractual liability insurance applicable to the Contractor's obligations under the terms of the Agreement.

- The Contractor shall purchase and maintain property insurance for the Work to the full insurable value thereof.

- The Owner, CM and Designer shall be listed (named) as additional insured parties.

- Builder's Risk insurance shall be an “all risk”, “open peril”, or “special causes of loss” policy that shall at least include insurance for physical loss or damage to the Work, temporary building, false Work, and Work in transit. It shall insure against at least the following perils or causes of loss: fire, lightning, theft, vandalism, malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of laws and regulations, water damage, and such other perils that are specifically required in the supplemental conditions. It shall also include expenses incurred in the repair or replacement of any insured property, included but not limited to fees and charges of the CM and Designer. It should also cover materials and equipment stored at the site or at another location that was agreed to in writing by the Owner prior to being incorporated in the Work, provided the materials and equipment have been included in the application for payment.

• Owner's obligation regarding insurance.

- The Owner shall not be responsible for maintaining any property insurance to protect the interests of the Contractor or its team.

- The Owner shall be responsible for purchasing and maintaining its own liability insurance.

• Delivery of proof of insurance—Before the Work can commence at the site the Contractor shall deliver to the Owner certificates of insurance.

• Waiver of subrogation—With regards to waiver of subrogation, the Owner and the Contractor waive all rights against each other for all losses and damages caused by any of the perils covered by these policies of insurance and also waive all such rights against the subcontractors, CM and its consultants, Designer and its consultants
and all other parties named as insured in such policies. The Owner intends that any insurance policy provided shall protect all the parties insured and provide primary coverage for all losses and damages caused by the perils. Accordingly, such policies shall contain provisions to the effect that in the event of payment of any loss or damage, the insurer shall have no rights of recovery against any of the parties named as insured or additional insureds.

**Article 13: Termination.** The following provisions address Owner and Contractor Termination for Convenience and Owner Termination for Default.

- **Contractor termination for convenience**—If, through no act or fault of the Contractor, the Work is suspended for a period of more than 180 days by the Owner, or if the Owner fails to pay the Contractor for a period of 60 days, the Contractor may, upon seven (7) days written notice to the Owner, terminate the Contract and recover from the Owner payment for all work executed and any expenses sustained, plus reasonable termination expenses.

- **Owner termination for convenience.**
  - With seven (7) days written notice to the Contractor, the Owner may without cause and without prejudice to any rights or remedies elect to abandon the Work and terminate the Contract.
  - In the event of termination the Contractor shall be paid for all work performed. Expenses sustained shall be limited to the cost of such work plus reasonable termination expenses.

- **Owner termination for default**—The Contract may be terminated by the Owner for default upon the occurrence of any of the following events:
  - If the Contractor commences a voluntary action under the United States Bankruptcy Code or takes any equivalent or similar action by filing a petition.
  - If a petition is filed against the Contractor under any Chapter of the United States Bankruptcy Code.
  - If the Contractor makes a general assignment for the benefit of creditors.
  - If a trustee, receivership, custodian or agent of the Contractor’s is appointed.
  - If the Contractor admits in writing an inability to pay its debts as they become due.
  - If the Contractor persistently fails to perform work in accordance with the Contract Documents including but not limited to failure to supply sufficiently skilled workers, suitable materials or equipment or failure to adhere to the construction schedule.
- If the Contractor disregards laws and regulations of any public body having jurisdiction.
- If the Contractor disregards the authority of the CM.
- If the Contractor otherwise violates in any substantial way any provisions of the Contract Documents.

• The Owner may, after giving the Contractor and its surety seven (7) days written notice, terminate the Contractor, exclude the Contractor from the site, and take possession of the Work and all the Contractor’s tools, appliances, construction equipment and machinery at the site without liability for trespass or conversion. In such case the Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the contract price exceeds the direct, indirect, and consequential costs of completing the Work, including fees and charges of engineers, architects, attorneys and other professionals, such excess shall be paid to the Contractor. If the costs exceed such unpaid balance, the Contractor shall pay the difference. When exercising any rights or remedies under this paragraph the Owner shall not be required to obtain the lowest price for work performed.

• Payment due the Contractor for termination.
  - If the Owner terminates the whole or part of the Contract due to the Contractor default, the Owner shall be liable to the Contractor for those costs identified below. No fee shall be paid to the Contractor.
  - If the Owner terminates the whole or any portion of the Contract for its convenience, the Owner shall be liable for the Contractor for those costs specified below plus a fee of 10% on the actual costs allowed.
  - If the Owner terminates the Contract the Owner shall pay the Contractor the amounts determined by the CM as follows:
    • Amount for supplies, services or property accepted by the Owner not previously paid for and to the extent provided in the Contract.
    • The total of the costs incurred in performance of the Work terminated, including initial cost and allocatable preparatory expense.
    • The cost of settling and paying claims arising out of the termination of the Work.
    • The reasonable costs of settlement, including accounting, legal, clerical, and other expenses reasonably necessary for the preparation of settlement claims and supporting data.
- For a termination for convenience, the total sum to be paid to the Contractor shall not exceed the contract price.

- If the Owner terminates the whole or part of the Contract for default, the Owner may procure in such a manner as the CM may deem appropriate, supplies and services similar to those terminated, and the Contractor shall be liable to the Owner for any excess cost for those services. The Contractor shall also continue performance of this Contract to the extent not terminated.

- In arriving at a amount due the Contractor, the following shall be deducted:
  • Unliquidated advances or other payments made to the Contractor applicable to the terminated portion.
  • Claims that the Owner may have against the Contractor.
  • Amounts as determined by the CM to be necessary to protect the Owner against loss because of outstanding or potential liens or claims.
  • The agreed price or the proceeds of a sale of materials, supplies, or things acquired by the Contractor or sold pursuant to the provisions above.
  • Contractor's obligation upon receiving a notice of termination.

- Upon receipt of a Notice of Termination from the Owner, the Contractor shall:
  • Stop work on the date and to the extent specified in the notice of termination.
  • Place no further orders or subcontracts for materials, equipment, supplies, services or facilities for the Work terminated.
  • Terminate all orders and agreements for subcontractors and suppliers to the extent they relate to the performance of the Work terminated.
  • Assign to the Owner all rights, titles and interest of the Contractor under the orders and agreements so terminated, in which case the Owner shall have the right to settle and pay any and all claims arising out of the termination of such orders and agreements.
  • Settle all outstanding liabilities and all claims arising out of the termination with the approval of the CM.
  • Transfer title and deliver to the entities designated by the CM, at the time and to the extent directed by the CM, portions of the Work that have been terminated, including fabricated and unfabricated work, work in progress, tools, dies, parts, jigs, other fixtures, completed and partially completed plans, drawings and information.
- Use the Contractor’s best efforts to sell, at prices authorized by the CM, any property identified by the CM and approved for sale by the CM.
- Complete performance of such Work not terminated.
- Take action required or directed by the CM for protection and preservation of the property.
- The Contractor shall preserve and make available to the Owner all of its books, records, documents, and other evidence bearing on the costs and expenses of the Contractor relating to the Work terminated.
- Owner’s right to audit—The Owner, at its option, may have the reimbursable costs audited and certified by an independent certified public accountants.
- Contractor’s entitlement limited—The Contractor’s entitlement is limited to damages and relief provided in this article of the Contract.
- Owner’s rights not limited—When the Contractor’s services have been terminated for Owner’s convenience or default, the termination shall not affect any rights or remedies the Owner has against the Contractor.
- Retention of monies due does not release Contractor from its obligation—Any retention or payment of monies due the Contractor by the Owner shall not release the Contractor from liability for performance of the Work.

**Article 14: Disputes Resolution.** The following provisions address the alternative dispute resolution process that is used in lieu of litigation.

- Mediation—The Owner and the Contractor shall submit unresolved claims, disputes, controversies, and other matters arising out of or relating to this contract, to mediation prior to either party initiating against the other a demand for arbitration. If the Owner and Contractor cannot agree, the dispute shall be submitted to mediation under the then current Construction Industry Mediation Rules of the American Arbitration Association.

- Binding Arbitration
  - If the dispute remains unresolved, it shall be decided by binding arbitration. The Owner and Contractor can either agree as to the identity of the arbitrators and the rules and procedures of the arbitration, or if no agreement is reached, the arbitration shall be under the then current Construction Industry Rules of the American Arbitration Association.
  - Arbitration may be commenced when sixty (60) days have passed after the written decision of the CM has been rendered. A notice of demand for arbitration
shall be filed in writing by one party with the other party and with the arbitrators. No arbitration can be filed if the statute of limitations would bar legal or equitable proceedings.

- The arbitration shall not include by consolidation or joiner the CM or Designer except by written consent of the Owner, CM and Designer.

- The decision rendered by the arbitrator shall be final, the judgment may be entered in any court having jurisdiction, and the award shall not be subject to modification or appeal. There shall be no interlocutory appeal of an order compelling arbitration.

**Article 15: Other Provisions.** The following provisions are included to address miscellaneous issues.

- The Contract and the Contract Documents are governed by the laws of the state where the Project is located.

- The Owner and the Contractor each bind itself, its successors, assigns and legal representatives to the terms of the Contract.

- Neither the Owner nor the Contractor shall assign or transfer its interest in the Contract without written consent of the other.

- Whenever a provision of the Contract requires written notice, it shall be deemed validly given if delivered in person to an individual or member of the firm for whom it is intended or if sent by registered or certified mail.

- Disputes relating to the acceptability of the Work or the interpretation of the Contract requirements shall be referred to the CM in writing, and the CM shall render a decision within a reasonable time.

- The CM’s written decision is a condition precedent to the exercise by the Contractor of such rights or remedies provided by the Contract Documents or laws and regulations in respect to any dispute.

- The Contractor shall continue to perform the Work and adhere to the Contractor’s Construction Schedule during disputes or disagreements with the Owner.

- The Contractor shall furnish performance and payment bonds each in an amount equal to at least the Contract price. These bonds shall remain in effect until one year after the date when final payment becomes due.

- If the surety on any bond furnished by the Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any
part of the Project is located, the Contractor within five (5) days shall substitute another bond and surety acceptable to the Owner.

- Failure of the Owner or the CM to insist in any one or more instances upon strict performance of any one or more of the provisions of the Contract, or to exercise any rights contained in the Contract, shall not be construed as a waiver or relinquishment of such provision or right to subsequently demand such strict performance or exercise its rights.

- Monies not paid when due shall bear interest at the legal rate at the place of the project.

- The meaning of the terms used shall be consistent with the definitions expressed in CMAA Standard Forms of Agreement, Contracts and General Conditions. References made in the singular shall include the plural and the masculine shall include the feminine or the neuter.

- If any paragraph in the agreement is held as a matter of law to be unenforceable or unconscionable, the remainder of the Contract shall be enforceable without the paragraph.

- The Contract represents the entire agreement between the parties and incorporates all prior agreements and understandings in connection with the subject matter. This Contract may be amended only in writing, signed by the party against whom enforcement is sought.
4.0 CM LEGAL ISSUES

4.1 LEGAL OBLIGATIONS OF THE CM
CMs face many of the same types of potential liabilities to owners, regardless of the nature of the legal relationship between the Owner and CM. This section focuses on areas of a CM’s potential liability, both to the Owner and to other project participants, including contractors and on-site workers.

Liability for Design Defects
As many CM contracts require the CM to provide some input into the design of the project, the CM may be exposed to liability for damages resulting from design defects. The CM is not expected to replace the Designer, but may review the Designer’s plans and drawings and provide recommendations as to construction feasibility, selection of materials, building systems, and equipment, and time requirements for installation and construction.

In assessing the CM’s potential liability for design defects, the amount of control that the CM has over the design is the primary factor. The CM’s potential liability does not appear great due to the CM’s limited control over the final design. The CM’s common design-related role in providing only advice and recommendations generally will not vest sufficient control in the CM so as to render it liable for design defects. The CM should not be liable for making suggestions or recommendations that result in design changes or for prescribing alterations to the design unless the contract documents require that such suggestions or recommendations be followed or give the CM some right of supervision such that the Designer is not entirely free to do the work its own way.

A related source of potential liability for the CM arising from defective design is the CM’s failure to discover a design defect or other design problem. The liability in this situation would not arise from the defect itself, but from the CM’s failure to discover the defect. Although the Designer retains ultimate responsibility for project design, the CM may be expected to review the plans and drawings and to coordinate the documents. The CM’s failure to properly perform these services may cause the Owner to incur delays and excess costs arising from design defects that the CM’s proper review would have discovered. The CM may, therefore, be liable along with the Designer for certain design defects.

Liability for Cost Estimates
CM contracts commonly shift project cost estimating responsibilities, in whole or in part, from the Designer to the CM. To the extent that the CM assumes the Designer’s responsibilities, the CM faces the same liability as similarly situated Designers.
The first step in evaluating the CM’s liability is to determine whether the parties have established a fixed limit of construction cost and whether the CM has warranted its cost estimate. In the absence of both a limit on construction costs and a warranty for the accuracy of the cost estimate, the CM, like the Designer, may be able to receive its fee despite project cost overruns. Designers generally have been found entitled to their fee where no “design-to-budget”, i.e. fixed limit of construction cost, has been established as long as the difference between the estimate and actual cost is not excessively unreasonable. Where the CM has agreed to a fixed limit of construction cost, the CM may nevertheless be entitled to its fee as long as the actual costs do not exceed the fixed limit by a substantial amount. Some courts have in the latter situation, however, denied the Designer its fee where the actual construction costs exceed the fixed limit by any amount.

Forfeiting its fee is only one risk the CM faces for underestimating construction costs. The CM also is potentially liable to the Owner for foreseeable damages if actual costs exceed the fixed limit or, if no limit has been established, if actual costs are not reasonably within the non-guaranteed estimate. Similar actions by Owners against Designers have met with varied levels of success.

**Liability for Scheduling and Coordination**

The CM’s performance of its scheduling and coordination of work responsibilities may expose the CM to liability to the owner for delay. The CM may be liable for delay suffered directly by the Owner or for delay damages incurred by trade contractors for which the Owner may be liable. See *Riva Ridge Apts. v. Robert G. Fisher Co.*, 745 P.2d 1034 (Colo.App. 1987).

Both types of delay damages involve similar issues. The CM’s liability depends on the degree to which the Owner has delegated scheduling, coordination, and enforcement to the CM. The amount of delegation varies widely from the CM merely advising the Owner on scheduling and coordination of the work to delegating to the CM full responsibility for the timely completion of the project.

Where the CM acts only as the Owner’s adviser, its liability is generally limited. Liability likely would result only from the preparation of faulty schedules, a failure to detect scheduling or coordination of work problems, or a failure to notify the Owner promptly of such problems so the Owner could minimize any losses and correct and enforce the schedule. Where the CM has been delegated greater scheduling and coordination of the work responsibilities, the CM’s liability to the Owner for project delay will likely extend to delay for any cause except *force majeure* or defaults of the Owner or of the Designer.
Liability for Inspection

Services provided by CMs may include inspection. The extent of inspection responsibilities can range from limited “construction observation” to determine, in general, that the work is being performed in accordance with the requirements of the contract documents, similar to the service typically provided by Designers, to full inspection and testing services. The CM’s liability increases based on the extent of its inspection responsibilities. When providing construction observation services, the scope of this service and its attendant liability to the CM closely resembles that of the Designer. The CM is expected to exercise reasonable care and diligence. Failure to perform to this standard of care may expose the CM to liability to the Owner for any damages proximately caused by the CM’s breach.

Although the CM’s inspection may be comparable to the Designer’s, the CM’s obligations may be greater. The CM’s general inspection obligations may place it in greater contact with the actual construction work than a similarly situated Designer. Therefore, although the CM, like the Designer it replaces, is generally not required to conduct exhaustive or continuous inspections of the work, it is arguable that the CM’s inspection duties and liability exceed those of the Designer.

The critical issue in judging the CM’s performance is whether the construction defect or nonconformity should have been discovered by the CM in the exercise of reasonable care and diligence. As with Designers, the CM is not held to a standard of performance that would require it to discover every defect or nonconformity, but only those that are reasonably discoverable. The CM is generally liable to the Owner for damages arising from its failure to detect obvious defects or nonconforming work regardless of the frequency or level of inspection or examination conducted. The CM who fails to perform minimal inspections will not be able to avoid liability to the Owner where the damage incurred by the Owner arises from defective or nonconforming work that would have been obvious to the CM had the CM minimally performed its contractual duties. See First Nat’l Bank v. Cann, 503 F.Supp. 419, 436 (N.D. Ohio 1980) (discussing inspection duties of the architect).

An interesting paradox may exist for the CM who performs more than the minimal inspections just to satisfy contract requirements in that a CM who conducts frequent regular inspections may be held to a higher standard than the CM who only performs the minimal inspections. The CM may be held to a higher standard because through its more extensive or more regular on-site investigations, it may reasonably be expected to detect less obvious problems that the other CM would not be expected to detect.
This does not mean, however, that the CM should minimize its inspection services to avoid some nebulous higher standard of care. The CM may still be held liable for its failure to detect obvious defects that would have been discoverable by only the minimum exercise of its duties to satisfy its contractual obligations. This determination of what level of performance is reasonable is difficult. The best advice is to exercise reasonable care and diligence without regard to the possibility of liability for ramifications for exceeding minimum contract requirements. A cost-benefit analysis clearly weighs in favor of exceeding minimum contract requirements rather than risking falling short of the applicable standard of care by not discovering obvious defects.

Finally, the liability of the CM for inspection will also depend upon other entities with inspection responsibilities on projects with full-time, third party inspectors, the CM’s liability for inspection will be significantly reduced since there is an entity, independent of the CM, which is dedicated to the function of inspection.

Liability for Review or Certification of Contractor Payment Applications
The CM often replaces or assists the Designer in reviewing Contractor applications for progress payments and final payment. The CM’s potential liability arising from performance of this duty arises from the CM’s failure to act in a manner consistent with what the CM knew or should have known about the realities of the project compared to the payment application. For example, if the CM knows or should know that the Contractor is not current on labor or material bills on work already performed and for which it has been paid, the CM would likely have a duty to inquire further and resolve the problem before issuing a certificate for payment.

As is true with other aspects of the CM’s services, legal principles applicable to Designers are equally applicable to the CM in the performance of this service. But as was mentioned above in the discussion of inspection services, the CM’s obligations and liability may exceed those of the Designer considering the CM’s alleged expertise and closer proximity to the work. It has been suggested that risk allocation analysis shows that the CM is in the best possible position of all construction team members to make the ultimate determination on payment applications. (W. Sneed, The Construction Manager’s Liability, in Construction Litigation 379-80 (K. Cushman ed. 1981).)

CM—Third Party Liability Issues
The third parties to whom the CM may owe various duties and to whom the CM may be liable for breach primarily are trade contractors and construction site personnel. CM liability to these parties may exist despite the absence of any contractual connection between them and the CM.
Contractor Claims Against CM for Project Coordination and Scheduling. CMs acting as Owner’s agent and those at-risk both face potential liability to trade contractors arising from performance of project coordination and scheduling duties, albeit from different legal theories. The basis of the liability of the at-risk CM who contracts with the trade contractors is for breach of contract with the trades. The agent CM who has contracted only with the Owner and lacks privity of contract with the trades is potentially liable to the trades only in tort (negligence) or, in some instances, in contract if the trade contractor is an intended third-party beneficiary of the Owner-CM contract. Recovery by a trade contractor from a CM under a third-party beneficiary theory is difficult, as Owner-CM contracts commonly include express provisions stating that the CM’s contractual obligations are solely for the benefit of the Owner.

The most common basis of CM liability to a trade contractor with whom the CM has no contractual relationship is negligent performance of the CM’s project coordination duties as contained in the Owner-CM contract. In most cases, the absence of a contract between the CM and the economically injured Contractor will not bar the Contractor’s tort action against the CM arising from the CM’s negligent performance of its contractual duties. The CM’s performance of contractual obligations may inure to the benefit of contractors with whom the CM has no privity of contract because the Contractors may be considered members of a limited class whose reliance upon the CM’s ability is foreseeable.

The CM’s coordination and scheduling duties may be broadly divided into three components:

- Preparing the schedule.
- Updating the schedule.
- Assuring compliance with the schedule.

The third component is the most likely source of claims by trade contractors against the CM.

In addition to recovering damages from CMs for negligent supervision and project coordination, contractors have also been successful in claims based on acceleration and interference by CMs. See Mobil Chemical Co. v. Blount Brothers Corp., 809 F.2d 1175 (5th Cir. 1987); John E. Green Plumbing & Heating Co. v. Turner Construction Co., 742 F.2d 965 (6th Cir. 1984).

The basis of a non-privity trade contractor’s claim being one in tort rather than in contract is illustrated by the following two cases. In Gateway Erectors v. Lutheran General Hospital, 430 N.E.2d 20 (Ill.App. 1981), the appellate court held that the trial court acted properly in dismissing a Contractor’s breach of contract claim against the CM. The court
held, however, that the trial court erred in dismissing the Contractor’s claim that the CM was liable to the contractor in tort for its negligent performance of its contractual obligations. The court found that, despite the absence of a contractual relationship between the Contractor and the CM, the CM owed the Contractor a duty to use reasonable care in the performance of its duties to avoid causing the Contractor to incur additional expenses in the performance of its work.

Similarly, a New York appellate court in *James McKinney & Son v. Lake Placid 1980 Olympic Games, Inc.*, 461 N.Y.S.2d 483 (A.D. 1983) held that a Contractor lacked a cause of action for breach of Contract against a project manager, but may have an action in tort. The court reasoned that the contractor had a potential tort claim because the project manager’s contractual obligations (as stated in its contract with the owner) could reasonably be expected to inure to the benefit of the Contractor as a member of a limited class whose reliance upon the project manager’s ability was clearly foreseeable.

Not all such third-party claims against CMs meet with success. For example, in *Bagwell Coatings, Inc. v. Middle South Energy, Inc.*, 797 F.2d 1298 (5th Cir. 1986), the Fifth Circuit Court of Appeals recognized, generally, the existence of a tort cause of action but found no liability for the CM to a trade contractor. The court held that liability of the CM toward a trade contractor, who incurred only economic losses, depended on there being a breach of a duty the CM owed the Owner. The Owner was held liable to the trade contractor for damages caused by the CM’s managerial decisions, but the CM was insulated from liability. The court observed that the CM was “the Owner’s agent and alter ego, and its role was clearly to act for the Owner, indeed as the Owner, across the board; the Owner, in practical effect, simply disappeared, and [the CM] took its place for purposes of effectuating the construction.” Id. at 1311, n. 19.

A second possible bar to a contractor’s recovery in tort from a CM is by application of the “economic loss rule.” In some jurisdictions, a party is unable to pursue a tort action against a second party for the recovery of damages for purely economic losses. Under this rule, tort actions are confined to situations involving physical harm or property damage, as distinguished from purely economic loss for which a breach of contract action would be appropriate. In the absence of privity of contract, however, no breach of contract action would be possible.

In the CM context, the application of this rule may bar actions for purely economic losses by Contractors against the CM with whom they lack privity of contract. Such economic losses may occur where the CM’s alleged negligence causes Contractors to incur additional construction or overhead costs. The economic loss rule would bar the contractors’ tort action; and the absence of privity of contract between the CM and the contractors would generally bar any breach of contract action. See *Anderson Electric, Inc. v.*
Ledbetter Erection Corp., 479 N.E.2d 476 (Ill. App. 1985), aff’d, 503 N.E.2d 246 (Ill. 1986) (subcontractor was denied recovery in tort of damages from a construction supervisor for economic losses it incurred allegedly arising from the supervisor’s negligence).

A third legal barrier may prevent a Contractor’s recovery from the CM. The presence of a no-damage-for-delay clause in the Owner-Contractor contract may bar a Contractor’s recovery of damages from a CM even though the CM is not a party to that contract. For example, in L.K. Comstock & Company v. Morse/UBM Joint Venture, 505 N.E.2d 1253 (Ill.App. 1987), the court held that the no-damage-for-delay clause in the Owner-Contractor contract was intended to benefit the CM in order to allow the CM to use its best judgment for the owner’s interest. The court stated that, if the Contractor could bring a claim for delay damages against the CM, the CM would likely seek indemnification from the Owner, thus, defeating the purpose of the no-damage-for-delay clause.

The no-damage-for-delay clause may not in all cases bar the Contractor’s recovery of delay damages from the CM. The Illinois court in L.K. Comstock upheld the application of the no-damage-for-delay clause to the contractor-CM dispute, but also recognized exceptions to applicability of the clause. The court noted exceptions for CM actions taken in bad faith and for delays of unreasonable duration, and allowed the contractor to pursue claims against the CM that were within these exceptions.

In another case, a court restricted the application of a no-damage-for-delay clause by classifying the Contractor’s damages as “hindrance damages” rather than delay damages. In John E. Green Plumbing & Heating Co. v. Turner Construction Co., 742 F.2d 965 (6th Cir. 1984), the court distinguished between true delay damages and damages arising from the hindrance of the Contractor’s performance. According to this court, “delay” meant time lost when the Contractor could not perform for some reason out of its control, and the damages incurred were in the nature of the cost of an idle work force. What the Contractor in this case sought to recover, however, was for damages allegedly caused by obstacles created by the CM that did not stop the Contractor’s performance, but made it more costly and difficult to perform.

Construction Personnel Claims Against CM for Personal Injury. The CM, because of its central role in both the planning and management of the project, is positioned to address and assume some responsibility for jobsite safety. Courts increasingly have been willing to hold CMs liable for injuries to construction personnel based on the CM’s negligent performance of its contractual safety services, the CM’s assumption and negligent performance of these services in the absence of any contractual safety obligations, and the obligations imposed by statute.

This topic is addressed further in Section 4.4 Construction Site Safety.
4.2 EMPLOYMENT PRACTICES & LABOR RELATIONS

Introduction

Employment-related issues have become among the most difficult issues United States businesses currently face. Today’s employees are much more cognizant of their legal rights than in generations past.

As a result, it is incumbent upon all business managers to become familiar with and attentive to the laws and issues affecting employment practices. This section explains the fundamentals of some of the most significant laws and issues, concentrating on their requirements, their policies, and how CMs should comply with them. It is not intended to represent the full spectrum of employment-related issues that a CM may be confronted with during the course of its practice. Moreover, no attempt has been made to integrate herein any local or state law requirements, which could be significant.

Employment Discrimination Laws

There are a variety of federal laws that regulate equal employment opportunity in the workplace so as to preclude discrimination from taking place. It is important to remember that discrimination in and of itself is not illegal. The question is whether the discriminating practice is made on the basis of illegal criterion—such as race, sex or age.

Title VII of the Civil Rights Act of 1964. This statute prohibits an employer from discriminating against an individual on the basis of race, color, sex (including decisions based on pregnancy, childbirth or related medical conditions), national origin and religion with respect to hiring, discharge, compensation, promotion, classification, training, apprenticeship, referral for employment, or other terms, conditions, and privileges of employment. Title VII, which is enforced by the Equal Employment Opportunity Commission (EEOC), applies to both private and public employers with 15 or more employees, labor organizations and employment agencies. The title also applies to United States citizens working abroad for American-owned or controlled companies.

To demonstrate discrimination, an individual must establish a causal relationship between the employment condition or decision and a prohibited factor—such as race, sex, etc. Although there has been much litigation over recent years refining how to prove this relationship, it is generally demonstrated by pointing to individual instances of different treatment based on prohibited criteria or neutral policies or practices which have a much harsher, adverse effect upon a protected class. The plaintiff has the initial burden of establishing a case of different treatment by either producing direct or circumstantial evidence of the employer’s motivation or demonstrating that s/he was forced to leave employment because of intolerable and discriminatory working conditions.
If an applicant or employee establishes discrimination, an employer may rebut the plaintiff’s case by showing that the plaintiff was not treated any differently from other employees. If, however, an employee was treated differently, the employer must provide evidence that the reasons for the different treatment were legitimate and nondiscriminatory. The burden remains on the plaintiff to prove that bias was the employer’s motivating factor.

It is important to note that Title VII does not prevent discrimination if there is a bona fide occupational qualification (BFOQ). In some instances, sex may be a BFOQ where it is necessary for the employee’s job that an employee be of a particular sex, such as requiring an actress to play the part of a female in a play.

Title VII also impacts what criteria an employer may use in hiring—inasmuch as an applicant’s race, color, sex, age, national origin, religion or disability are off-limits. The CM must have a careful and thoughtful basis for interviewing—being careful not to ask an applicant impermissible questions which relate to protected areas. This is not to say that you can never be afforded access to such information—it just cannot be used to obtain information during the hiring process that could be discriminatory.

For example, the question, “What is your age?” is impermissible and should more appropriately be phrased, “If you are hired, can you show proof of age?” Instead of asking, “What is your mother tongue?” the application should provide space for the languages that the applicant reads, speaks and writes. Further, instead of asking, “Do you have any physical disabilities or handicaps?” the application could state that an offer may be made contingent on applicant passing a job-related physical examination.

The issue of sexual harassment is one that should be carefully reviewed, inasmuch as it is covered by Title VII. Sexual harassment is defined by the EEOC as “unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature.” Such requests, advances, or sexual conduct constitute harassment when submission to such conduct is (a) made a term or condition of employment, (b) is used as a basis for employment decisions affecting the individual, or (c) has the purpose or effect of unreasonably interfering with an employee’s work performance or creating an intimidating, hostile or offensive working environment.

**The Americans With Disabilities Act of 1990.** This statute prohibits both public and private employers from discriminating in employment against persons with physical and mental disabilities. The Act, administered by the EEOC, requires employers to make reasonable accommodation to the needs of disabled applicants and employees, as long as such accommodation does not result in undue hardship to the employer’s operations. Under the Act, a person with a disability is a person who has (a) a physical or mental
impairment that substantially limits one or more major life activities, (b) a record of having had such an impairment, or (c) is regarded as having such an impairment.

The ADA applies to job application procedures, hiring, advancement, discharge, compensation, job training and other terms, conditions and privileges of employment. It applies to employers engaged in an industry affecting commerce who have 15 or more employees, as well as to labor organizations, employment agencies and joint labor-management commissions. The Act also applies to United States citizens working abroad.

Employers are prohibited from participating in any contracts or arrangements which have the effect of discriminating against disabled employees or from discriminating against any employee because that employee is known to have a relationship or association with a disabled person. This latter provision is meant to protect applicants or employees who associate with or are related to persons with AIDS. The ADA also prohibits employment tests, qualifications standards or other selection criteria that screen out, or tend to screen out, an individual or class of individuals with a disability, unless the criteria are proven to be job-related for the position in question and consistent with business necessity.

Some employers are specifically exempted from coverage—including the federal government and government-owned corporations. However, these entities are generally covered under the Rehabilitation Act of 1973. The ADA is one of the first federal programs established to assist handicapped individuals in assuming a full role in society with its express purpose being to promote and expand employment opportunities in the public and private sectors for handicapped individuals.

The Age Discrimination in Employment Act of 1967. This Act prohibits discrimination on the basis of age against employees aged 40 or older and is applicable to employers employing 20 or more employees, as well as labor organizations, employment agencies and apprenticeship and training programs. An employer is prohibited from discriminating on the basis of age with regard to hiring, discharge, compensation or other terms of employment. In addition, the Act prohibits employers from discriminating on the basis of age between two individuals who are both within the protected age group. The Act is enforced by the EEOC and applies to United States citizens working abroad.

In addition to the above prohibitions, an employer cannot single out older workers and require them to pass medical examinations as a condition of employment. On the subject of promotions and demotions, an individual’s age cannot provide the basis for a refusal to select a candidate for promotion. Employers are prohibited from requiring employees within the protected age group to retire because of their age. Further, the EEOC has stated that an employer must consider rehiring retired workers if they reapply for employment, including those workers who voluntarily left employment under early retirement incentive programs.
The Act contains five specific exemptions to its prohibition against age discrimination. It is not unlawful for an employer:

- To take any action where age is a bona fide occupational qualification (BFOQ) reasonably necessary to the operation of its business.
- Where the action is based on reasonable factors other than age.
- Where the action is in observance of a bona fide seniority system.
- When the action is in observance of a bona fide employee benefit plan.
- Where the employer has good cause to discipline or discharge the employee.

**The Equal Pay Act of 1963**. This act is part of the Fair Labor Standards Act and provides for the payment of equal pay for equal work by both sexes working in the same establishment. The Act prohibits discrimination on the basis of sex with respect to wages paid for equal work on jobs which require equal skill, effort and responsibility and which are performed under similar working conditions. The Act allows unequal pay, however, where the disparity is made pursuant to a seniority system, a merit system, a system which measures earnings by quantity or quality of production, or a differential based on any factor other than sex.

**The Civil Rights Acts of 1866 and 1871**. These acts were adopted following the Civil War to help effectuate the purposes of the 13th Amendment to the Constitution and continue to form the basis for today’s employment practices and rights. Section 1981 of the Act provides that all persons shall have the same right to make and enforce contracts as is enjoyed by white citizens. Section 1983 provides that individuals who deprive others of their civil rights may be sued and held personally liable for the harm caused by such deprivation. While the Acts cover race discrimination, courts have applied the Acts to prohibit national origin discrimination as well.

**The Immigration Reform and Control Act of 1986**. This statute has as one of its principal purposes the goal of stemming the tide of illegal immigration. To accomplish this goal, the Act imposes penalties on employers who hire unauthorized aliens. Additionally, this Act makes it an unfair immigration-related practice for an employer to discriminate against any individual because of such individual’s national origin, or in the case of a citizen or an intending citizen, because of such individual’s citizenship status.

**Executive Order No. 11246, The Rehabilitation Act of 1973, The Vietnam Era Veterans’ Readjustment Assistance Act of 1974**. Each of these three acts are requirements for all employers who have a contractual relationship with the United States government, or employers who perform services or provide goods to a federal contractor which services or goods are necessary to the performance of a federal contract. Because of
the breadth of the coverage, they have been found to apply in power generation construction contracts, sewage treatment facilities and other projects where the government has provided some funding or regulatory compliance.

Executive Order No. 11246 ties into Title VII, requiring that every federal contractor and subcontractor agree not to discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin, and to take affirmative action to ensure that all applicants and employees are employed without regard to those classifications. Contractors and subcontractors having 50 or more employees and a contract or subcontract of $50,000 or more must develop written affirmative action plans. These obligations are enforced by the Office of Federal Contract Compliance Programs.

The Rehabilitation Act of 1973 prohibits federal contractors and subcontractors, as well as recipients of federal financial assistance, from discriminating against handicapped individuals. Finally, the Vietnam Era Veterans’ Readjustment Assistance Act of 1974 provides certain employment rights to veterans.

Drug and Alcohol Abuse in the Workplace

Many employers have turned to drug and alcohol testing in an attempt to combat widespread use and abuse of drugs and alcohol. Pre-employment drug testing has become a generally accepted practice. Most employers can require an applicant, as a condition of hiring, to successfully pass a pre-employment examination that includes drug screening. However, several state and federal statutes restrict the use of pre-employment drug testing, and pre-employment testing has been challenged in the courts.

Federal courts and some state courts have approved of testing as part of annual or periodic physical examination. However, under the American with Disabilities Act, the physical examination must be voluntary or job-related and consistent with business necessity. Moreover, under some state laws, an employee can refuse to consent to the release of medical information, leaving the employer to only inquire of the examining physician whether the employee is able to perform his or her job duties.

Although no testing program is immune from legal attack, well-designed testing programs which are limited to “reasonable suspicion” situations generally withstand judicial scrutiny. “Reasonable suspicion” may be present where a supervisor, based on specific, personal observations that can be articulated concerning the appearance, behavior, speech or body odors of the employee, reasonably suspects that the employee is under the influence of or impaired by drugs or alcohol. However, the mere fact that an employee associates with another employee believed to be involved with drugs does not provide an objective level of reasonable suspicion that permits testing.
Most courts have upheld post-accident testing where an employer has reasonable suspicion that the employee involved in the accident was under the influence of drugs and/or alcohol. In addition, courts have approved post-accident testing if the accident is a serious accident, regardless of the fact that the employer does not have reasonable suspicion that any particular employee involved in the accident was under the influence of drugs and/or alcohol.\textsuperscript{14}

Cases upholding random drug testing usually involve employees in specific, narrowly defined job classifications or professions which may be categorized either as part of a pervasively regulated industry, or where their positions are critical to public safety or the protection of life, property or national security.

A number of state constitutions, including Alaska, Arizona, California, Florida, Hawaii, Illinois, Louisiana, Montana, South Carolina and Washington, protect individual privacy. Lawsuits challenging drug testing have been based on these state constitution provisions. However, for the most part, the Constitutional provisions have been found to apply only to governmental actions, not to the actions of private employers. Apart from potential constitutional and common law challenges, employers must also be aware of federal, state and local regulations, which may require them to institute drug testing programs or policies, or which may place limitations on their ability to engage in drug screening. As legal challenges to invasive methods of drug testing proliferate, employers have turned to less invasive methods of drug violation detection which do not involve drug testing such as gathering samples of breath, saliva, hair, sweat, and tears, as well as monitoring the way a pupil responds to light and testing for the employee’s motor coordination skills.

**Federal Compensation Law**

Wage and hour regulations dictate when, where, and how much an employee must be paid. It has been increasingly difficult to find an employment relationship which is not subject to both state and federal wage and hour laws. The principal source of wage and hour regulation is the federal Fair Labor Standards Act\textsuperscript{15} (FLSA), which establishes a minimum wage and a 40-hour weekly overtime standard for covered employees. The FLSA is administratively enforced by the Wage and Hour Division of the United States Department of Labor. Special minimum prevailing wage obligations are imposed under the Davis-Bacon Act for employers who are engaged in federally financed construction, the Walsh-Healey Act for employers who are supplying goods or materials to the federal government, and the Service Contract Labor Standards Act for employers who have contracted to provide services to the federal government.

As most CMs know, the Davis-Bacon Act\textsuperscript{16} requires contractors and subcontractors to pay laborers and mechanics at wage rates determined to be “prevailing” in the area.\textsuperscript{17} This
law, along with others, regulates the work hours of employees and requires contractors to submit certified payrolls to the government, along with weekly statements of compliance. Many states duplicate the federal public construction laws and in some instances have stricter requirements. Local counties and cities may impose prevailing wage requirements on their government funded projects as well.

The Act applies to contractors and subcontractors performing contracts in excess of $2,000 for the construction, alteration, and/or repair of public buildings or public works, including painting and decorating, where the United States or the District of Columbia is a direct party to the contract. The Secretary of Labor is responsible for determining the prevailing wage rate for each class of laborer or mechanic in a given locality. This is based on periodic wage surveys as well as information supplied by contractors, trade associations, and unions. If the Secretary determines that 50% of the employees in a given classification in the area are paid at a certain rate, then that rate will be deemed to be “prevailing.” Failure to comply with the above law can result in heavy back pay liability, civil and criminal penalties, bad employee relations, and possible debarment from government work.

**Parental and Family Rights and Accommodations in the Workplace**

A variety of issues arise from the changing composition of the work force today. An issue which has received considerable attention from both state and federal legislatures is family leave. On February 5, 1993, President Clinton signed the Family and Medical Leave Act of 1993 into law. The Act represents the most significant and sweeping family and parental rights legislation in this nation’s history. A significant number of states have also instituted family and/or medical leave legislation.

The Family and Medical Leave Act requires all employers who employ 50 or more employees to provide unpaid family and medical leave for a minimum of 12 work weeks, in any 12-month period, for either the father or the mother. The family leave portion of the Act allows leave because of the birth of an employee’s son or daughter, because of the placement of the son or daughter with the employee for adoption or foster care, or to care for a son or daughter. The medical leave portion of the Act allows leave because the employee has a serious health condition that makes him or her unable to perform the functions of the employee’s position, or to care for the employee’s spouse, son, daughter or parent if that family member has a serious health condition.

The Act is intended to balance the demands of the workplace with the needs of the family, to promote the stability and economic security of families, and to promote national interests in preserving family integrity. The Secretary of Labor is responsible for issuing regulations necessary to carry out the Act, including regulations concerning enforcement of rights created by the Act.
The Act provides that it is unlawful for an employer to interfere with, restrain or deny employees the right to exercise or attempt to exercise any rights provided by the Act. Employers may not lawfully discriminate against or discharge any individual for opposing any practice which is made unlawful by the Act. It is unlawful to discharge or otherwise discriminate against an individual for instituting proceedings or providing information or testimony with regard to any inquiry or proceeding related to any right provided by the Act.

Employee Privacy and Statutory Individual Rights
The recognition of employee privacy rights has restricted the amount and types of information available to employers. The most frequent areas in which privacy questions have arisen are interviewing, testing, and investigation of both applicants and employees.\(^{21}\) As a result, many areas of investigation can create problems for prospective employers’ inquiries into, including:

- Arrest records.
- Credit checks.
- Consumer investigative reports.
- Fingerprints and photographs.
- Physical examinations.

It should also be noted that the Employee Polygraph Protection Act was signed into law on June 27, 1988.\(^ {22}\) The Act prohibits the use of the polygraph for pre-employment screening by most private sector employers. However, polygraph examinations are permitted for employees of contractors and consultants engaged in work on behalf of the Department of Defense and Energy, the National Security Agency, the Defense Intelligence Agency, the Central Intelligence Agency, and employees and contractors to the Federal Bureau of Investigation.

Jobsite Labor Disputes
In 1959, Congress amended the National Labor Relations Act in significant respects to impose limitations upon a union’s right to picket an employer for organizational purposes.\(^ {23}\) Section 8(b)(7) prohibits picketing or threats of picketing where an objective of the picketing by an uncertified union is for recognition or collective bargaining. Secondary picketing has been the traditional weapon of construction industry unions. This picketing is engaged in by a union against a neutral employer or person with whom the union has an actual dispute. In 1947, Congress enacted Section 8(b)(4) to prohibit unions from engaging in such conduct.
Additionally, in the construction industry, jurisdictional disputes are common. For a jurisdictional dispute to exist, there need only be competing claims for the same work. Those competing claims may be between union and non-union groups of employees, as well as between employees represented by two craft unions. In order to resolve these disputes, the Act provides that the National Labor Relations Board (NLRB) may resolve the jurisdictional dispute by assigning the work. However, if the parties have an agreed upon method for the resolving of the dispute, the NLRB has no jurisdiction, and will decline to conduct a dispute resolution proceeding.

Conclusion
There are a variety of other labor-related issues that must be carefully examined by construction managers that are beyond the scope of this chapter. These include OSHA requirements for safe workplaces, how to avoid a wrongful discharge action, and other issues related to CM employment agreements with employees, confidentiality, non-compete provisions, etc. Because of the potentially disastrous consequences for being found to have violated any of the above-referenced laws and regulations, it is incumbent upon the CM to spend appropriate time monitoring its internal policies and employee handbooks and ensuring that a sound basis exists for hiring, managing, retaining and firing employees.

4.3 ENVIRONMENTAL REGULATIONS

Introduction
There are a myriad of environmental laws and regulations that affect the construction industry, most of which have been promulgated and administered by the Federal Environmental Protection Agency (EPA). Established in 1970, EPA has long been engaged in a process of first defining which problems warrant attention and then crafting regulatory and implementation efforts to address the problems.

At its outset, EPA focused on problems that were visible and apparent, such as raw sewage discharges, untreated industrial waste water, open dumpsites that were rodent-infested and sooty smokestack emissions. This resulted in the passage of, among other things, the Clean Water Act and its grant-funding program for the clean-up of the United States' rivers and streams. More recently, EPA turned its attention to controlling discharges and emissions of chemicals that may have chronic effects, even at low exposure levels, as well as the cleanup of hazardous waste sites across the country under the so-called Superfund program.

One of the key issues to recognize is that most of the federal statutes enacted in the environmental arena use a common regulatory approach. This approach contemplates the
establishment of minimum national standards and (where applicable) a national permit
program. States may seek EPA approval of state regulatory programs after parallel state
laws and regulations have been enacted. The federal programs exert control over the states
by (1) putting conditions on grant funds associated with any federal program, (2) having
the right to veto any state-issued permit and (3) invoking the federal statutory preemption
of any state regulation less stringent than the federal requirements. Note that even local
governments have the right to enact environmental laws which may have application to
the construction industry. As a result, it is critical for those working on a construction
project to have a clear understanding of the federal, state and local environmental
programs and regulations that could affect construction, to ensure that compliance is
being met. Consider, for example, New Jersey, which requires a full environmental
assessment and cleanup of most commercial properties as a condition to transfer of title, a
requirement not imposed under federal law.

Breaches of environmental requirements can result in significant exposure to both civil
and criminal penalties. Thus, regardless of whether one’s construction business directly or
indirectly involves environmental cleanup or construction, it is critical to have a general
understanding of what the most significant environmental laws require and to develop
environmental compliance policies.

CERCLA/Superfund
The federal law of perhaps greatest concern to the construction industry is the
Comprehensive Environmental Response, Compensation, and Liability Act but generally referred to as Superfund). Under CERCLA, the federal government has been
authorized to clean up hazardous wastes and toxic pollutants in the water, air, and on land
and to recover the costs of these cleanup actions from the parties responsible for the
pollution (known as potentially responsible parties or PRPs). The classes of PRP’s under
CERCLA include owners and operators of facilities contaminated by or containing
hazardous substances; persons who arranged for disposal or treatment of hazardous
substances; and persons who accepted hazardous substances for transportation or
selected the disposal facility. Importantly, §107 of CERCLA creates strict, joint and
several liability on the part of these PRP’s.

Discovery of “hazardous substances” as defined by CERCLA on a construction site
could create major potential liability problems for all parties involved in the project. The
project Owner would automatically fall into one of the categories of PRP’s under §107.
Recent cases also show that Contractors can be held liable if they are within the category
of “operators” or “transporters” at a contaminated site. For example, in Kaiser Aluminum &
Chemical Corp. v. Catellus Development Corp., a grading contractor unknowingly moved
contaminated soil from one area of a site to another. The court ruled that the grading contractor was an “operator” of a facility and a “transporter” of hazardous wastes under CERCLA.

The author is not aware of any cases where Designers or CMs have been found to be PRPs under CERCLA by merely being involved on the project. It should be noted, however, that it may be possible for liability to be asserted under the portion of CERCLA which states that liability is imposed on persons:

[W]ho by contract, agreement or otherwise arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment, of hazardous substances.31

This language could be used to impose liability on a CM who is responsible for coordinating or supervising, in any capacity, the environmental remediation efforts.32

CERCLA also requires that any releases of hazardous substances that are above “reportable quantities”be reported within 24 hours. The telephone number for the National Response Center is 1-800-424-8802. For liability purposes, it may be best for the Owner of the project site to be the actual party to make the notification.

Given the extensive liability for violations under CERCLA, it is critical for the construction manager to carefully consider its involvement on any project involving environmental remediation of hazardous substances. Strong efforts should be made to obtain appropriate indemnification from the Owner, although it should be remembered that given the joint and several liability associated with CERCLA, this will not relieve the CM if the Owner does not have the resources to stand behind an indemnification.

Resource Conservation and Recovery Act
The Resource Conservation and Recovery Act (commonly known as RCRA) was originally passed by Congress in 1976 and was significantly amended in 1980 and 1984.33 RCRA regulates the generation, treatment, storage and disposal of hazardous and solid waste. Importantly, RCRA also regulates underground storage tanks34. Among those who are covered by this statute are those who generate, transport and dispose of hazardous and solid waste.

Contractors and CMs should pay particular attention to RCRA, since construction and demolition debris—to the extent that it contains toxic compounds and hazardous substances—is included under the umbrella of RCRA35. As a result, it is critical for those dealing with waste disposal to properly classify waste and determine, first, whether it meets the broad statutory definition of solid waste and, if so, whether the waste is hazardous. Generally, a waste is hazardous if it exhibits a characteristic of hazardous waste
or contains a substance listed by the USEP A as a hazardous waste. This would include such
toxic components as lead paint, varnishes, adhesives or plywood treated with
preservatives containing formaldehyde.36

It is critical for the CM to recognize that many states and local governments have their
own statutes and ordinances controlling the disposal of solid waste. This could lead to the
situation where there are gaps in the coverage, creating major potential liability for the
construction manager. As with CERCLA, liability can be both civil and criminal.

Clean Air Act
The Clean Air Act,37 as amended in 1990,38 is the primary federal statute governing air
emissions. This act created a complex dual federal and state program for the enhancement
of air quality and the control of air pollution. Regulation under the act falls into three
main areas:39

• **Detailed system of regulation for pollutants regulated under the National Ambient Air
  Quality Standards.** The pollutants covered are sulfur dioxide, particulates, carbon
  monoxide, ozone, nitrogen oxide and lead. Emissions are controlled through a
detailed system that can affect construction of sources and installation of
equipment.

• **Hazardous air pollutants.** Over 200 chemicals, including asbestos, are regulated
  under this portion of the Act. Many of these can affect those who perform
  construction or demolition.

• **New source review program.** If the construction project is one which would require
  new source review, the owner of the source must comply with statutory
  requirements. Failure to do so can create penalties by USEPA or a stop work order.

Clean Water Act
The Clean Water Act, also known as the Federal Water Pollution Control Act,40 is one of the
major environmental laws affecting virtually every construction project. Its purpose is to
regulate discharges into navigable waters by requiring, among other things, those who
seek to (1) discharge directly into a water body to secure an NPDES41 permit or (2)
discharge into a publicly owned treatment facility to meet appropriate pretreatment
requirements. USEPA was provided with broad powers to regulate and develop programs
that would achieve these goals.

In addition to the above requirements, CMs should pay close attention to several other
aspects of the Clean Water Act program. These include:

• **Permit requirements for storm water discharge**42—which can be impacted by runoff
  from construction operations.
• *Wetlands regulation*\(^{43}\) — which requires certain permits before construction activities can start.

These permit requirements can create some major issues that will affect the ability of the project to be completed in a timely manner. Care must be taken to thoughtfully review these requirements before the project starts.

**National Environmental Policy Act of 1969**\(^{44}\)

NEPA, as this Act is commonly known, was the first major federal environmental statute and remains critical to the construction process. NEPA generally requires federal agencies to prepare a detailed environmental impact statement (EIS) for any “major Federal actions significantly affecting the quality of the human environment.”\(^{45}\)

While the requirements for an EIS seem restricted to a narrow range of projects, the reality is that this requirement can have a major effect on projects in the private sector.\(^{46}\) This arises because many projects are (1) financed in whole or in part by federal money, (2) require federal permits, or (3) dependent upon certain federal activities taking place — such as a highway or sewage treatment system.\(^{47}\) Thus, if an EIS is required, this can have a significant effect on the project’s timing, to the point that the project is abandoned. For this reason, it is essential for a CM to have a strong understanding, in advance of contracting, as to whether NEPA is applicable to a project and to identify what happens if delays occur as a result of problems associated with NEPA or the EIS process.

**Toxic Substances Control Act**

Congress passed the Toxic Substances Control Act\(^{48}\) (commonly called the “TSCA”) to develop data on the effects of chemical substances and to regulate those that present an unreasonable risk. TSCA authorizes EPA to regulate, among other things, the testing, use and disposal of chemical substances that pose such risks. Among the chemicals that are specifically dealt with by TSCA are polychlorinated biphenyls (PCBs) and asbestos.

With respect to PCBs, although they are no longer manufactured, there are still sources of PCBs in existence, such as electrical transformers, hydraulic systems and waste. The TSCA regulations have requirements for how such materials must be labelled, inspected, stored and disposed. With respect to asbestos, TSCA addresses, among other things, the inspection and abatement of asbestos containing materials in school buildings, as well as requiring accreditation of contractors performing the abatement proceedings.\(^{49}\)
Other Statutory Requirements

There are a variety of other statutory requirements to which CMs should be attentive. These generally include the following:

- **Emergency Planning and Community Right-to-Know Act** — This statute imposes additional notice requirements in the event of a release of an “extremely hazardous substance”. It also establishes a nationwide reporting system to track releases into the environment.

- **OSHA’s Hazard Communication Standard** — related reporting requirements include this standard, issued under OSHA and commonly referred to as “HazCom”. This regulation requires all contractors to educate their employees about the hazardous chemicals they are exposed to in the workplace and the methods necessary to protect themselves, including having a Material Safety Data Sheet (MSDS) for every hazardous substance used and developing a written hazard communication program for the company.

- **Pollution Prevention Act of 1990** — This statute sets a national policy for preventing or reducing pollution in all different types of media, including air, soil and water. Its existence gives rise to the strong potential for additional regulation which would call for targeted approaches to waste reduction, recycling and reduced usage of toxic chemicals on construction projects.

- **Endangered Species Act** — This statute imposes requirements for each federal agency to consult with the U.S. Fish and Wildlife Service to ensure that endangered or threatened species covered by the act will not be jeopardized by their actions. It is similar in effect to the NEPA and, thereby, covers private projects as well.

Conclusion

This section has presented a cursory look at some of the major environmental laws and regulations that could affect a CM in its day-to-day activities. However, two key points must be remembered. First, state and local laws can have a significant effect on overall liability and responsibility. The CM should take great care to ensure that it understands what is required under these other laws and how compliance needs to be obtained. Second, in the event the CM has any active responsibility for permitting or dealing with hazardous waste remediation, it is critical to understand what its contract rights may be and to ensure that there is appropriate insurance coverage and technical understanding of how to complete this portion of the work, since this is clearly a risk-laden area.
4.4 CONSTRUCTION SITE SAFETY

Introduction
Injury is the leading cause of death for those 44 and younger in the United States. Costs associated with injuries exceed $100 billion annually. An average of 32 workers die daily on the job, and 5,500 suffer a disabling injury.

Injury and death are tragic facts of everyday life in the construction industry. Thorough steps must be taken to ensure the safety of workers. This chapter explores the legal sources of liability for safety and provides a legal perspective for understanding the benefits and risks of taking a proactive role in safety matters during construction. It further explores risk management options and procedures.

Definitions
The term “CM” as used in this section generally refers to an independent professional acting as the Owner’s agent. It is assumed in this section, unless otherwise noted, that the CM does not hold the construction subcontracts and is not responsible for construction means and methods.

The term “proactive approach” as used in this section applies to those activities through which the CM meets the safety liability risk head-on with a “proactive approach,” positively acting to provide such services as:

- Preparing the project safety and health program.
- Training contractors and their workers about safety matters.
- Monitoring and inspecting the Contractor’s compliance with safe working procedures.
- Maintaining safety records for the project.
- Notifying, or “whistle blowing” with respect to unsafe working conditions.
- Advising the Owner regarding disciplinary action necessary to correct unsafe conditions.

Legal Sources of Safety Liability
The liability for personal injury of an employee is primarily based in negligence, and, increasingly, is imposed by statutes such as the Occupational Safety and Health Act. It is critically important to recognize that the most carefully drafted contract may not immunize the CM from liability to the injured worker, for the simple fact that the worker has not personally signed off on the exculpatory contract.
Most personal injury actions against a CM will involve traditional negligence analysis of whether the CM owed a duty of care to the worker, whether the CM breached its duty, and whether the worker was proximately harmed by the breach. The fact that most actions are based on negligence does not mean the contract between the CM and the Owner is unimportant. To the contrary, the contract with the Owner is usually the best evidence of the duties the parties intend the CM to undertake with respect to safety. As the reported legal cases show, the most common sources of evidence on this issue are (1) the CM’s contract, (2) the CM’s actions (or inactions), and (3) obligations imposed by statute. By understanding these sources of liability, and actively managing the drafting of contracts and performance in the field, CM may exercise some control over its liability for safety.

**Contractual Services that Affect a Construction Manager’s Duty to Injured**

In *Wenzel v. Boyle Galvanizing Co.*[^51], the Eleventh Circuit, applying Florida law, determined that a CM who had contracted with an Owner for professional construction management services was liable to a contractor’s injured construction workers. The workers were injured in a fall from scaffolding. The particular location where the workers were operating was extremely constricted and would not permit a safety net, although safety nets were used at other locations on the site. The workers also were not using safety belts.

According to the contract, the CM was required to provide, implement, and administer a site safety and health program consisting of, but not necessarily limited to, the following elements:

- Develop a project safety manual that will establish contract safety guidelines and requirements.
- Review the Contractor’s safety programs for compliance with the project safety manual.
- Provide daily surveillance of Contractor work areas for compliance with the safety program.
- Develop and invoke procedures for advising Contractors of safety violations and deficiencies.
- Develop and invoke procedures for initiating corrective action by the Owner and back charging the Contractor, if the Contractor does not comply with safety violation directives.

To fulfill these responsibilities, the CM had the authority to issue notices of safety violations, insist that a particular employee be removed from the job, and stop the work of a particular contractor.

[^51]: Wenzel v. Boyle Galvanizing Co.
In *Wenzel*, the court held that a CM owes a duty of care for safety to on-site workers if its contract mandates that it provide, implement, and administer a site safety and health program. The duty obligates the CM to perform with the diligence and skill of a reasonable CM under similar circumstances. Further, the court held that the traditional exculpatory clauses in professional construction management contracts imposing responsibility upon the construction contractor for “means and methods” does not protect the professional CM from liability for an injury to a third-party worker arising from a safety violation.

The court determined that the CM had acted negligently because the CM had contract responsibilities for safety, had superior knowledge of safety measures and knew of the danger of an unprotected platform and untied safety belts. The court determined that the CM should have exercised its contractual rights to insist that safety nets be installed at every work site.

Cases such as *Wenzel* illustrate that the determination of whether a duty of care exists with respect to safety usually begins with a reference to the contract documents. The greater the contractual responsibility assumed by a professional CM for project safety, the greater the probability the CM will be deemed to have a duty of care to insure the safety of the workers.

It is possible to interpret cases like *Wenzel* as imposing safety liability upon the CM because the CM held the affirmative power and authority to stop work and was culpable for not exercising this power to avoid a known risk. The affirmative power to stop work has long been a source of liability for administering architects. Fear of this risk may well be the principal reason why modern editions of AIA Documents B141 (the Owner/Architect agreement) and A201 (the General Conditions) have deleted the Architect’s power and authority to stop the work.

For example, in addressing the application of OSHA construction standards to work performed by a design professional, the Occupational Safety and Health Review Commission in *Secretary of Labor v. Simpson, Gumpertz & Heger, Inc.*, held that the design firm was not subject to the construction standards because it did not exercise substantial supervision over the construction work. The Commission declined to create an exception to the longstanding principles governing construction work sites by holding that design or engineering firms could be held responsible simply because their activities were related to the overall construction project, without regard to the extent to which they actually performed or supervised the construction work.

In a similar vein, Designers have often been found not to have been “in charge” of the construction work and, therefore, not liable under state safe workplace statutes. For example, a Designer hired to “observe the construction for the purpose of determining
what is [on site] is generally in agreement with the documents” does not so involve the Designer with the construction work that it could be considered in charge of the work. It is more prudent, however, to recognize that the contractual power to stop work is one of several factors considered by the courts. The courts also note that the CM’s superior skill, position, and construction experience gives the CM the professional ability to foresee harm.

The broad range of administrative and management services typically exercised by the professional CM, including control of the scheduling and review and monitoring or implementation of safety programs, logically suggests that the professional CM is inescapably involved with safety, is chargeable with knowledge of job-site danger, and has powers to exercise to avoid danger, even if it lacks the express authority to stop the work.

This is especially the case where the professional CM takes a proactive approach to safety. In other words, for purposes of assessing risks of safety liability, there may be little distinction between the express authority to stop work and the responsibility and authority to advise the Owner, forcefully if necessary, to order a work stoppage. A breach of either duty by the professional CM can impose liability under the reasoning of current cases.

The prudent professional CM must recognize that courts are disposed to find a duty and breach where a professional CM was continuously on site, with knowledge of an unsafe condition and the skills to correct it, yet the accident was not avoided. Courts are generally not sympathetic to contractual language limiting the CM’s responsibility. Courts are interested in contractual language exhibiting the CM’s participation in safety issues and affording the CM opportunities to cause the correction of unsafe conditions. In sum, the CM’s contract exposes the professional CM to liability when it requires services related to safety, but may not immunize the CM from liability when it contains exculpatory language.

The CM has been found subject to OSHA Construction Standards despite an absence of the CM’s performance of actual construction work. Typical is the Kulka case in which the Occupational Safety and Health Review Commission held that the CM substantially supervised actual construction so as to subject it to the OSHA Construction Standards. The CM’s contract with the Owner required the CM to “provide recommendations and information to the Owner and the Architect regarding the assignment of responsibilities for safety precautions and programs [and verify] that the requirements and assignment of responsibilities are included in the proposed Contract Documents.” The CM also reviewed the safety programs of each of the trade contractors. The CM made statements which indicated its assumption of safety-related duties. In addition, the Owner depended upon the CM to maintain safe working conditions at the site. In similar cases, the Commission
has held that, although CMs perform no actual construction tasks, they have considerable authority over the performance of the work and the safety measures implemented by the contractors.\textsuperscript{58} The CM’s contractual administrative and supervisory functions are often inextricably intertwined with the actual physical labor performed on the jobsite.

Although individually tailored agreements may have a variety of provisions addressing safety, the most common standard form contracts treat safety issues in similar ways. In general, the standard form contracts provide for the CM to advise and/or to coordinate and report on safety issues, but make the Contractor primarily responsible for maintaining a safe site. The standard form contracts do not articulate the extended scope of services provided by some CMs engaging in a pro-active approach. The standard form contracts do not address additional compensation for safety-related services.

For example, AIA Documents B801/CMa (1992 edition), the Owner/Construction Manager Agreement, specifically provides in paragraph 2.3.12 that the CM is to review Contractor safety programs and to coordinate these programs for the project. This provision, unfortunately, conflicts with Article 10 and paragraph 4.6.6 of the AIA General Conditions, Document A201/CMa (1992 edition). The General Conditions provide that the Contractor must initiate, maintain, and supervise all safety programs, and that the CM will not be responsible for construction means, methods, techniques or safety precautions and programs.

It is difficult to reconcile the AIA disclaimer of responsibility for safety and the AIA requirement that the CM is responsible to coordinate the safety programs for the project. The requirement to coordinate is sufficient to raise a risk of exposure to liability under cases like \textit{Wenzel}, and suggests pro-active steps to coordinate. Yet the AIA Documents give no definition or limit to the services the CM is to perform to coordinate the safety programs. Safety services are compensated as a part of Basic Services under the AIA Documents.

The Associated General Contractor Documents, AGC Doc. No. 8/500 d2.2.8.1 (1980 edition), requires the CM to review contractor safety programs and to make appropriate recommendations. Like the AIA Documents, the AGC Documents make it clear that the CM’s duties do not relieve the Contractor of final responsibility for safety. Unlike the AIA Documents, however, the AGC Documents give the CM the power to take necessary steps to ensure Contractor compliance with the safety program. The AGC Documents do not define the services necessary to satisfy the CM’s responsibilities, and do not provide for additional compensation for safety related services.

CMAA’s contract documents also address project safety concerns. Like other standard Owner/Construction Manager agreements, CMAA Document A-1 (2003 edition) gives the
CM authority to review the Contractor’s safety program, but does not make the CM responsible for implementation of the plan. Paragraph 3.5.1.12 of the Agreement provides:

The CM shall require each Contractor that will perform Work at the site to prepare and submit to the CM for general review a safety program, as required by the Contract Documents. The CM shall review each safety program to determine that the programs of the various Contractors performing Work at the site, as submitted, provide for coordination among the Contractors of their respective programs. The CM shall not be responsible for any Contractors’ implementation of or compliance with its safety programs, or for initiating, maintaining, monitoring or supervising the implementation of such programs or the procedures and precautions associated therewith, or for the coordination of any of the above with the other Contractors performing the Work at the site. The CM shall not be responsible for the adequacy or completeness of any Contractor’s safety programs, procedures or precautions.

The basic intent of this provision is reiterated in the CMAA General Conditions, Document A-3 (2003 edition). Paragraph 2.1.6 of Document A-3 expressly states that neither the Owner, the CM nor the Designer has responsibility for the Contractor’s means, methods, and techniques and “safety precautions and programs.” Paragraph 5.1.1 reiterates the basic intent that the Contractor shall be solely responsible “for initiating, maintaining, monitoring and supervising all safety programs, precautions and procedures in connection with the Work and for coordinating its programs, precautions and procedures with those of the other Contractors performing the Work at the site.”

In sum, it would appear that standard form agreements sufficiently involve the professional CM in safety matters so as to raise an exposure to liability under present case law. The standard form agreements require the professional CM to engage in a scope of positive action with respect to safety. Many CMs deem it prudent to address the reality of their positive involvement with safety, and to develop a detailed scope for safety-related services. These proactive services should be clearly articulated in the agency CM’s contract. Typically contract provisions in the at-risk CM’s contract require the CM to plan, control and ensure compliance with safety requirements. The element of control and implementation of safety obligations clearly increases the potential liability of the at-risk CM.

**Actions that Affect a Construction Manager’s Duty to Injured Workers**

In determining whether the CM owes a duty to an injured worker, courts look not only at the terms of the CM/Owner Agreement, but also at the action (or inaction) of the CM in performing its services. Regardless of the services required by the CM’s contract, if it performs acts associated with safety, it may be held to owe a duty to perform those acts with due care, or face liability to the foreseeable injured worker. Further, where a CM fails
to act when presented with an obvious safety hazard it has the power to correct, the courts may hold it liable for failing to exercise its power over the project to correct the hazard.

The chances are high that a court will find that the CM assumed a duty of care to an injured worker where the CM asserted a high level of control over the work site or gave instructions or orders involving safety matters. A proactive approach will increase the CM’s exposure to liability.

As shown in *Hammond v. Bechtel*, the court’s focus upon the acts of the CM usually accompanies an examination of contract language requiring safety-related services. For example, in *Plan-Tec v. Wiggins*, the CM had the contractual authority to direct that defective equipment not be used, and to suspend or terminate the job if a contractor did not comply with the CM/Contractor contract. The CM could stop workers to “inspect” equipment. Safety problems were reported to the CM.

In addition to these contractual responsibilities, the CM had appointed a safety director, initiated safety meetings and ordered certain safety precautions. The court held these actions to be sufficient evidence that the CM had assumed a duty for the overall safety aspects of the project. The court went on to state that once performance of safety measures is attempted, performance must be completed in the manner of a reasonably prudent person, or liability can be incurred.

Similarly, in *Phillips v. United Engineers & Constructors, Inc.*, the court held that there was sufficient evidence to present to a jury the question of whether a CM had assumed a duty for the overall safety aspects of the project. The CM “safety coordinator” held safety meetings bi-weekly for Contractors’ superintendents, conducted tours of the jobsite during which he noted safety violations or unsafe practices, and notified the violators advising them to remedy the problems.

Conversely, in *Everette v. Alyeska Pipeline Service Co.* an injured worker could not recover from a CM who did not retain the power to control safety procedures or revise job specifications. Here, the CM had only the right to direct the sequence of the Contractors’ performance, inspect the Contractors’ progress, and receive reports from the Contractors.

The conventional wisdom is that CMs are held to a higher standard of care, with broader duties, in this area than architects and engineers. However, even if CMs are judged by the same rule as A/Es, there is still significant responsibility if one recent case is exemplary, *Carvalho v. Toll Brothers & Developers*, 278 N.J. Super. 451, 651 A.2d 492 (App. Div. 1995). In *Carvalho* the Engineer had no contractual duties concerning the safety of construction workers, but the contract (and the construction contract) gave the Engineer the authority to stop the work for safety violations. More importantly, the court determined that the Engineer had a professional responsibility and therefore owed a duty
to foresee and prevent the risk of harm to the deceased workman. The court determined that the Engineer was fully aware of the inherent risk and likelihood of harm. The court found that the lack of contractual duty and existence of exculpatory provisions in the engineer’s contract would not provide a defense to the Engineer; the Engineer was found liable for the damages due to the death of the workman.

**Liability Imposed by Statute**

There is a growing general awareness that construction is one of our most dangerous industries. The U.S. Department of Labor and National Safety Council statistics indicate that construction employees sustain 250,000 to 300,000 lost-time injuries and 3,000 work-related fatalities per year. This accounts for 12 percent of all occupational injuries and illnesses and 20 percent of all work-related fatalities. The cost to the construction industry of these accidents and fatalities exceeds $10 billion per year.

State and federal legislatures have responded to this danger by enacting safe work and construction safety legislation, and by beefing-up the enforcement of such legislation both in terms of the size of fines and the class of persons cited for violation. In general, state and federal safety legislation falls into two categories: (1) safe work place acts, which impose a general duty on the project owner and contractor to provide their own employees with a safe work site and (2) specific-duty legislation such as “scaffolding” or structural work acts, which impose upon owners and contractors the duty to implement and maintain specific safety precautions for all workers engaged in work covered by the act.

Safety legislation presents the risk of fines or even imprisonment. Also, violation of a safety statute may impose strict civil liability. At a minimum, violations of a statutory duty may be admissible as strong evidence of negligence in a civil action by an injured worker.

One of the most difficult issues concerning safety legislation is the determination of who is a party intended by the legislation to be responsible for safety, and thus subject to fines or the adverse evidence of a safety violation. Most safety legislation imposes duties upon “Owner” and/or “Contractors.” It is critically important, however, for the CM to review the statutory definition of these terms to determine if the CM falls within the definition. This is particularly true of specific-duty legislation, which commonly defines the responsible party in terms of control of the workplace and opportunity to comply with and enforce the statutory requirements. Either the CM’s contract or the CM’s actions may exhibit sufficient control and opportunity to impose liability, even where the CM is not the “Contractor” as that term is intended by the contracting parties or understood in the industry.
State Safety Legislation
Courts are showing a willingness to find that the CM falls within the definition of a responsible party. In *Carollo v. Tishman Construction & Research Co.*, the court found a CM liable for the personal injuries of a subcontractor’s employee pursuant to state safety law. The safety law defined Contractor as “one who coordinates and/or supervises the project for an Owner, assuming the on-the-job responsibilities of the Owner as its alter-ego.”

The CM was found to be a Contractor for safety law purposes because of the duties it had contracted to perform. The CM was responsible for design consultation, monitoring of project costs, scheduling of design and construction phases, and reviewing the design of the project. The court held that the CM was to a great extent responsible for carrying out of the entire job and that the CM therefore could not escape responsibility.

In *Nowak v. Smith & Mahoney*, the court found a CM liable to an injured electrical worker under a state law requiring the Owner or Contractor to provide a safe construction site. The court found that the CM was not a “Contractor,” but was nevertheless liable because the duty arising under the statute was based upon contractual or other actual authority to control the activities that brought about the injury. The CM had the contractual authority to enforce safety standards and to choose responsible contractors.

OSHA
Although many states have work-site safety legislation, the best known, and most generally applicable legislation is the federal Occupational Safety and Health Act, first enacted in 1970. This Act imposes safety and health standards upon industry, including the construction industry, through the promulgation and enforcement of regulations by the Occupational Safety and Health Administration (OSHA). Each state has the option of enacting its own job safety and health plan, to be operated jointly with OSHA, provided the state plan is at least as stringent as national OSHA standards. The CM must check to see if the state in which the project is located has enacted more stringent OSHA regulations.

OSHA Regulations
OSHA regulates safety on the construction work site through regulations requiring:

- Establishment of safety and health programs for the project.
- Implementation, monitoring, and enforcement of the programs.
- Reporting and communication between employers and workers, and employers and OSHA.
- Imposition of fines and/or imprisonment for violations of the above requirements.
The applicability of OSHA regulations to the at-risk CM is not in doubt. The considerable authority over the performance of the work and over the safety measures implemented by subcontractors allows for the application of OSHA regulations. A CM-at-risk performs administrative and supervisory functions that are inextricably intertwined with the actual physical labor used to erect the improvement and is so directly and vitally related to the construction being performed that it is engaged in “construction work” within the meaning of OSHA Construction Standards.

On the other hand, if it is accepted that an agency CM provides professional services, then that CM should be subject to the same rules, interpretations of rules, and cases as are architects and engineers. Unfortunately, the Review Commission does not now distinguish between agency CMs and at-risk CMs. If the Review Commission applied the same logic to agency CMs as it did for Architects and Engineers in the *Simpson, Gumpertz and Heger* case, then the agency CM would have significantly reduced responsibilities for safety on multi-employer worksites.

**Risk Coverage, Immunity, and Indemnity**

Although the CM’s risk of liability to the injured worker may be high, protection is available. Professional errors and omissions insurance is available to the professional CM to cover claims and the cost of defending claims. Under certain facts, statutory immunity may be available under state workers’ compensation laws. Contractual indemnity, while not avoiding the worker’s lawsuit, may provide reimbursement for sums paid to the worker.

**Insurance**

Given the risk of loss posed by safety-related claims, CMs are advised to purchase insurance that provides coverage for job safety responsibilities. Special care should be taken to ensure that the insurance obtained will cover the risks presented by construction management work and, in particular, safety liabilities.

As it grows and becomes more established as a discipline, construction management is increasingly recognized as a professional service. The courts view the liability of a CM for safety as based in negligence. A CM will also likely be held to a professional standard of care in the discharge of its duties and undertakings. Broadly speaking, this means that in order to recover on a legal claim against a CM, a party will have to demonstrate that the CM negligently violated the standard of care required of a reasonable CM acting under similar circumstances. The liability of a CM is, then, analogous to that of other professionals such as architects, engineers, doctors and accountants.

The insurance industry recognizes this fact by endeavoring to cover construction management activities under a professional liability policy. Frequently, construction
management, to the extent it is insured for, is listed among the professional services provided for under an architects’ and engineers’ policy. Under such an arrangement, professional liability coverage for construction management is contingent upon the professional CM qualifying for architects’ and engineers’ insurance. To do so the professional CM must possess a professional license and be otherwise eligible for the underlying A/E policy under this arrangement.

Architects’ and engineers’ underwriters take different approaches to construction management as an activity covered under a policy in force. Some policies may not provide coverage for professional CM activities. While other common wordings do extend coverage for construction management, insurers often issue policies containing conditions and other terms that may affect the work done or approach to management practiced by the insured.

Policy exclusions and special endorsements can also impact construction management activities. The provisions in the professional liability policy of insurance should be carefully read by CM and their counsel to ensure that coverage exists for the safety-related activities that will be undertaken on a project.

Until the mid-1990’s, non-architect/engineer construction management firms experienced difficulty obtaining insurance coverage for professional construction management activities. Lacking a professional license, such a firm was unable to obtain the standard architects’ and engineers’ policy to cover construction management work. Professional liability coverage is now available from a number of sources for construction management firms lacking professional licenses. This group of insurers was led by certain underwriters at Lloyds of London which, at CMAA’s urging, first offered a policy designed for the non-architect/ engineer construction management firm. As a result, professional liability coverage has become more readily available to the non-architect/engineer firms engaged in construction management, and will assist those companies in dealing with safety responsibilities and liability. The requirements for underwriting and the coverage available from Lloyds of London and other carriers varies significantly and should be carefully compared.

It is critically important for the CM to recognize that typical comprehensive general liability insurance does not provide coverage for professional activities such as construction management.70

**Can Workers’ Compensation Laws Immunize the Construction Manager from Liability to an Injured Worker?**

Generally, workers’ compensation acts seek to balance the interests between a worker and his/her employer, and to avoid costly negligence litigation. The acts accomplish this
balance by holding the employer strictly liable to the worker for job-site injuries, but limiting the worker to statutorily scheduled compensation for his injuries. Provided the employer purchases workers’ compensation insurance, it is liable only to provide insurance proceeds to pay statutory compensation, and is immune from a civil action in damages.

It appears that a professional CM may not be successful in claiming immunity as the “statutory employer” of an injured worker, simply because the CM is outside of the contractual chain of employment between the Owner and the injured worker.71

The immunity afforded the “statutory employer,” however, generally is shared by all of its “statutory employees,” who are deemed “statutory co-employees” of the injured worker. The law of the governing jurisdiction must, of course, be reviewed for modifications to this general scheme.72 If the CM enjoys the status of statutory co-employee of the injured worker, the CM may be immune from a negligence action by the worker.

“Employer” under workers’ compensation acts is not limited, generally, to the company that actually hires and pays wages to the injured worker. Rather, the statutory employer, for worker’s compensation purposes, is the party whose trade, business, or occupation is that in which the worker is engaged.73 Accordingly, for example, where an Owner is a land developer whose trade and business is construction, the developer may be the statutory employer of a contractor’s worker, liable to the worker to assure payment of workers’ compensation benefits. The developer, and those under it, including the CM providing services for the project may be immune from the worker’s suit.74

On the other hand, a textile corporation’s principal trade and business is not construction, despite the corporation’s continuous involvement with the construction and renovation of textile mills and plants. The corporation, generally, will not be deemed the statutory employer of construction personnel. The corporation, and the CM under contract with the corporation, will not enjoy statutory immunity.

A different analysis often is applied to public agencies, such as water, sewer, and transportation authorities created under statutory mandate to engage in construction. In this case, even though the agency may have no direct employees actively engaged in construction, the courts nonetheless find that the statutory mandate to construct compels a finding that the agency is in the trade or business of construction, and is the statutory employer. Under these facts, an agent CM under contract to such an authority may enjoy statutory immunity from liability to an injured construction worker.75

Where a CM believes it is engaging in a private project for an Owner whose principal trade, business, or occupation is construction, or a public project for an agency statutorily
mandated to construct, he can advise that certain steps be taken to maximize the potential that all parties involved in the project will share the workers’ compensation immunity. For example, the CM may recommend that the statutory employer/owner acquire a wrap-up workers’ compensation policy insuring the CM, the architect, the general contractor, and all subs. Although the Owner’s purchase of a wrap-up policy may not be necessary to afford immunity, it can be strong evidence that the Owner is the statutory employer, and may be the most cost effective and efficient method of providing workers’ compensation coverage for the project.

In *Washington Metropolitan Area Transit Authority v. Johnson*, the WMATA purchased a wrap-up policy for the Washington Metro project. WMATA was deemed the Contractor for the project because of its statutory mandate to construct the Washington Metro. By acquiring the insurance coverage, WMATA, and all parties under contract with WMATA for construction of the project, enjoyed statutory immunity from the civil claims of injured workers. (Note that Bechtel Associates, the safety engineer and “agent” for WMATA, was immune from liability under a section of the compact that created WMATA, providing that WMATA was exclusively liable for the torts of its agents.)

The Owner’s purchase of a wrap-up policy, however, will not operate to “buy” immunity where the Owner is not a statutory employer. For example, in the *Wenzel* case, discussed earlier in this chapter, injured workers on the Curtis H. Stanton Energy Center, owned by the Orlando Utilities Commission (OUC), sued the CM and safety consultant for job-site injuries. Not only had the OUC purchased a wrap-up workers’ compensation policy, but also the Florida Workers’ Compensation Act expressly granted immunity to the statutory employer’s safety agent.

The court “commended” the OUC for purchasing the insurance, and the CM for assisting in safety matters. The court, however, denied the CM immunity because the OUC was not the statutory employer, and had no statutory duty to obtain the insurance. In short, OUC had volunteered in obtaining the insurance, and could not “buy” immunity that was not provided by statute.

**Is the Construction Manager Entitled to Indemnity for Safety Liability?**

Indemnity is a party’s right to compel reimbursement when it discharges an obligation for which another would otherwise be liable. Indemnification differs from contribution in that indemnity is the shifting of the entire loss from one party to another party which should bear the loss. Contribution is the distribution of the loss among the negligent parties by requiring each to pay a share of the injured party’s loss.

Indemnity may be implied as a matter of law, or be express as part of a contract. In implied indemnity, a party who is only passively negligent is reimbursed by the actively
negligent party. In the contractual indemnity, reimbursement is governed by the terms of the contract, provided the contractual terms do not run afoul of state law limiting the scope of indemnity to which the parties can agree. For example, a number of states have “anti-indemnity” statutes that control the right of contracting parties to shift the risk of loss among themselves.79 Some states limit the enforcement of indemnity clauses which require one party to indemnify the other parties’ own negligence.

Most standard form contract documents contain express indemnity clauses. As provided in the form contracts, indemnity is both a source of CM liability and a source of financial protection from the claims of injured workers where safety was the primary responsibility of a party other than the CM. For example, the CMAA’s Document A-1 (2003 edition), Article 9.5 provides that the CM, Owner, and Designer will indemnify the others from any claims for bodily injury for which the indemnitor is liable as a result of its negligent acts or omissions. Further, this Article provides that the Owner will indemnify the CM from claims caused by the Contractors or Designer. Also, the Owner will cause each Contractor to indemnify the CM from claims arising from the Contractor’s wrongful acts and omissions. The Contractor’s indemnity agreement is found in CMAA Document A-3 (2003 edition), Article 4.15.

The CMAA documents provide a system of mutual indemnity among the Owner, CM, and Designer, and unilateral indemnity by the Contractors in favor of the Owner, CM, and Designer. This system attempts to facilitate the shifting of risk to the most actively negligent party among the Owner, CM, and Designer, and to pass that risk to the Contractor if the injury arose from a wrongful act or omission of the Contractor.

In view of the fact that the CMAA documents impose primary responsibility for safety upon the Contractor (see, e.g., CMAA Document A-3 (2003 edition), Article 5), the CMAA documents do a good job of shifting the risk of personal injury to the Contractors. Thus, although the contract cannot avoid a personal injury action by an injured worker against the CM, the contract does provide a contractual vehicle for recoupment from the Contractor.

Final Perspective
Simply put, the combination of (1) the CM’s contractual responsibilities for safety, (2) the CM’s actual conduct in safety matters, (3) increased safety regulation, and (4) the courts’ propensity to find CMs liable, exposes the CM to risks of liability to injured workers on most jobs. The CM can either face this challenge or ignore it. However, no exculpatory clause will assure immunity from liability. Given this choice, the reasonable approach of many CMs is to recognize and take hold of the risks through a proactive approach, placing the CM in control of the circumstances which may create risks of worker injury.
The proactive approach may place the CM squarely in the path of liability. If conducted under a clearly defined and maintained contractual scope of services, for adequate compensation, and if insured and covered by the Contractor’s indemnity, the proactive approach gives the CM a more manageable risk of liability.
1. 42 U.S.C. § 2000e et seq.
2. 42 U.S.C. § 12101 et seq.
4. Note that degree requirements have not been held to constitute discriminatory conduct since the United States Court of Appeals for the Sixth Circuit determined that there is no correlation between age and college degrees.
11. International Brotherhood of Teamsters v. Department of Transportation, 932 F.2d 1292 (9th Cir. 1991).
15. 29 U.S.C. § 201 et seq.
19. 29 C.F.R. § 1.
22. Public Law 100-347.
27. See Footnote 2.
29. There are some so-called “innocent landowner” exceptions under CERCLA, but they have been narrowly construed.
30. 976 F.2d 1338 (9th Cir. 1992).
34. 42 U.S.C. §6991. It should specifically be noted that, with some exceptions, this statute regulates all underground storage tanks that are 10% or more beneath the surface of the ground.


37. 42 U.S.C. §7401 et seq.


39. See Kowalski, supra at Footnote 1.

40. 33 U.S.C. §1251 et seq.

41. National Pollutant Discharge Elimination System.


43. 33 U.S.C. §1344.

44. 42 U.S.C. §4321 et seq.

45. 43 U.S.C. §4332(C).


47. See, generally, Kowalski, supra.


52. 42 U.S.C. §13101 et seq.

53. 16 U.S.C. §1531 et seq.

54. 920 F.2d 1178 (11th Cir. 1991).


60. 443 N.E.2d 1212 (Ind.App. 1983).


69. States, territories, and commonwealths that have enacted their own plans include Alaska, Arizona, California, Connecticut, Hawaii, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Nevada, New Mexico, New York, North Carolina, Oregon, Puerto Rico, South Carolina, Tennessee, Utah, Vermont, Virginia, Virgin Islands, Washington, and Wyoming.
72. Many states have statutory or case law exceptions to workers’ compensation immunity. In general, the exceptions take two forms: (1) The imposition of civil liability upon the employer for an “intentional” or “willful” tort resulting in injury to the employee, and (2) various disparate treatment of the immunity afforded the fellow employee as compared to the immunity afforded the employer. For example, in Woodson v. Rowland, 407 S.E. 2d 222 (N.C. 1991), the court discussed the various exceptions under North Carolina law. The worker’s direct employer is entitled to immunity except for intentional torts, defined to be intentional misconduct accompanied by knowledge that it is substantially certain to cause serious injury or death. The worker’s co-employee is entitled to immunity, except for acts of willful, wanton, and reckless negligence. See also Mandolidis v. Elkins Indus., Inc., 246 S.E. 2d 907 (W. Va. 1978); Bizley v. Tortorich, 397 So. 2d 475 (La. 1981); Beauchamp v. Dow Chem. Co., 398 N.W. 2d 882 (Mich. 1986); Jones v. VIP Dev. Co., 472 N.E. 2d 1046 (Ohio 1984); VerBouwens v. Hamm Wood Prods., 334 N.W. 2d 874 (S.D. 1983). Many state legislatures have reacted to cases creating exceptions to the workers’ compensation immunity, generally to limit the scope of the exception. See, e.g., Mich. Comp. Laws e 418.131 (Supp. 1990); Ohio Rev. Code Ann. e 4121.80 (1990); W. Va. Code e 23–4–2 (1983).
75. See Garcia v. Pittsylvania County Serv. Auth., 845 F. 2d 465 (4th Cir. 1988) (County Service Authority deemed statutory employer and project engineer afforded immunity as fellow employee).
76. See Garcia v. Pittsylvania County Serv. Auth., 845 F. 2d 465, 468 (4th Cir. 1988).
5.0 CM RISK ALLOCATION AND MANAGEMENT

5.1 ALLOCATING RISK

Introduction
In general terms, risk can be thought of as the probability of an unfavorable outcome or financial loss. Obviously, owners undertake construction projects in anticipation of gainful outcomes rather than losses. However, risk is an inherent component in every design and construction project. Successful CMs assist project owners in identifying and assessing the sources of risk well in advance of critical project decision-making and then help the Owner manage risk throughout the project life-cycle. The objective is not to eliminate or cover up risk, but to manage it proactively, with an understanding of the divergent interests of all of the project’s stakeholders.

One of the primary strategies used in the construction industry for managing risk is a process commonly referred to as risk allocation. Risk may be allocated through contract language, generally recognized trade practices, or court decisions. Clearly, of these allocation methods, the most controllable is the allocation or assignment of risk through contract language. This section focuses on those principles and techniques of risk allocation, by contract, that have proven to benefit overall project performance as well as the working relationships among the parties. Other risk management strategies, such as risk transfer through insurance, are covered elsewhere in this document.

Risk Identification and Assessment
The first step in the risk allocation process for any project is the identification of the sources of risk and assessment of their probable impact on the project. Armed with this information, the Owner, with the advice of its CM and other consultants, can determine how best to allocate these risks. Although risks vary from project to project, the following are some typical sources of risk to consider:

- Site availability and access.
- Subsurface conditions.
- Defective design.
- Poor quality work.
- Jobsite safety and accidents (worker and non-worker).
- Timely performance.
- Labor availability and strikes.
- Governmental regulation.
• Economic conditions.
• Materials availability.

Risk Allocation

Many owners, particularly those least experienced with the construction process, try to allocate all risk to the other parties to the process, i.e., the Designers, Contractors, and CM. Sometimes they even allocate the same risk to several parties, resulting in confusion and finger-pointing. The other parties then attempt to allocate the risk to their lower tier consultants or contractors. The irony of this process is that it often results in the allocation of the greatest risk to those parties with the least bargaining power and the least ability to control the risk. Under this classic scenario, when risk events occur on the project, disputes and delays are likely. The end result is an increase in total project costs and a deterioration or break-down of the working relationships among the parties. Even when risk events do not occur on the project, it is likely that total project costs will have increased due to the creation of adversarial relationships among project participants and the addition of contingency allowances by each project participant, often to cover the same risk.

Other owners, usually more experienced with the construction process, recognize that a more rational approach to risk allocation results in better working relationships among project participants, fewer delays, and lower total project costs. Following the timely identification and assessment of risks, a rational approach to risk allocation can proceed based upon the following general principles:

• Risk should be assigned to the party who can best control it.
• Risk should be assigned to the party who can bear the risk at the lowest cost.
• Risk should be assigned to the Owner when no other party can control the risk or bear the loss.
• Assumption of risk by the other parties to the construction process results in increases in cost (visible or hidden) to the Owner.

The above principles are generally reflected in many of the standard contract forms used in the construction industry including those published by CMAA, the American Institute of Architects, and the Engineers’ Joint Contract Documents Committee. It should go without saying that if a party has the power to carry out its duties they have the opportunity to master the risks associated with those duties. Conversely, parties should not be allocated risks over which they have no control.

On many projects there is a disparity between the risk the Owner wants a party to assume and the amount of compensation available or the amount of control that party has
over the risk. Two common ways of addressing this situation contractually are: 1) limitation of liability and 2) indemnification. An indemnification provision, for example, may seek to protect the indemnitee against claims by third parties by obliging the indemnitor to pay for any liability incurred. A limitation of liability provision typically seeks to limit a party’s liability to the party’s client. Unlike indemnification, a limitation of liability provision has little effect on third party liabilities. Often, therefore, indemnification and limitation of liability are used in conjunction with one another. It should be noted that the courts are particularly leery of allowing professional service providers, such as CMs and Designers, to escape from, or limit, responsibility for their own fault or negligence. Before negotiating or agreeing to indemnification or limitation of liability provisions, it is recommended that CMs consult with legal and insurance counsel to determine what risks are being covered and whether the proposed language is legally enforceable in the applicable jurisdiction.

Conclusion
From the brief discussion provided above, it should be apparent that risk allocation is not an obscure or overly complex process. It should also be apparent that an informed, knowledgeable Owner is a critical ingredient if risk allocation is to benefit overall project performance as well as the working relationships among the project’s stakeholders. The CM is uniquely positioned to advise and assist the Owner in identifying, assessing and allocating risk—in the best interests of the project.

5.2 INSURANCE FOR CM SERVICES

Introduction
CMs are in many ways unique in terms of their exposure to liability and the types of insurance coverage for those risks. CMs have, for example, many of the same risks as general contractors, and as architects and engineers. The purpose of this section is to outline the risks associated with the practice of construction management, in an agency relationship, as those risks relate to insurance coverage. It is intended to review the requirements for insurance for the typical projects, but not to review all of the miscellaneous types of insurance coverage which may be required, like burglary, kidnap/terrorists, fidelity, watercraft and aircraft liability, foreign and Defense Base Acts coverage, railroad, directors and officers, or employee benefits coverage. Risk management for CM services, in general, is reviewed in other sections.

Traditional Insurance Coverage for CMs
There are five general categories of insurance coverage for liability risks of CMs:
- General Liability
Common Project Risks for CMs

Viewed from a different perspective, CMs are exposed to risks of liability from several different sources, for which insurance coverage may be available, as follows:

- Claims by workers (construction workers) and/or dependents for loss of income due to injury or death of worker, and lawsuits brought by injured employees or dependents, which can be insured by Workers’ Compensation coverage under state law, under Federal law (Longshoremen’s and Harbor Worker’s Act and Jones Act), and by Employer’s Liability insurance.

- Lawsuits brought by a member of the public or party to a construction contract for damages arising out of bodily injury, death or damage to property of others or personal injury, which can be insured by Commercial General Liability Insurance (including Contractual Liability coverage) and professional liability insurance.

- Lawsuits brought by a member of the public or party to a construction contract for damages arising out of a professional’s negligent act, error or omission, which can be insured by professional liability insurance.

- Lawsuits brought to recover damages for bodily injury or property to others arising out of the insured’s (CM’s) use of an automobile owned or non-owned by the CM, which can be insured by automobile liability insurance (with owned and/or non-owned coverage).

Other Project Risks

There may be projects which represent an inherent risk of exposure to liability for which special purchase and maintenance of insurance coverage is required, such as:

Pollution legal liability for claims arising out of (and to replace coverage usually excluded under the typical policies of insurance maintained by CMs) bodily injury or property damage arising out of the actual, alleged or threatened discharge, disposal, seepage, migration, release or escape of pollutants. Selecting appropriate insurance coverage for this risk requires careful analysis of project risks, and consideration of numerous versions of coverage available in the insurance marketplace. For example, it may require special coverage for transportation of wastes, air, water or groundwater contamination, products liability, and asbestos. This coverage is available in several different forms, requiring the advice of a highly qualified insurance broker or counsel.
Architect-engineer professional liability insurance can be purchased separately or as part of a CM professional liability insurance policy, for the performance of architecture or engineering services by the CM. It should be noted that virtually all General Liability Insurance policies exclude coverage for this type of risk, as do many CM professional liability insurance policies.

Specific Insurance Coverages
Specific coverages provided and excluded under traditional insurance coverage for CMs may be as follows:

Commercial General Liability (available on either occurrence or claims-made basis), usually covers:

- Premises and Operations Liability.
- Protective Liability.
- Completed Operations and Products Liability.
- Broad Form Property Damage Liability.
- Fire Legal Liability.
- Contractual Liability.
- Personal Injury Liability.
- Advertising Injury.
- Environmental/Pollution.

Limits of liability under CGL policies may be in amounts per occurrence, or per claim, and in the aggregate. Each policy in effect will have a separate deductible (also called self-insured retention) for each claim or occurrence. The amount of the deductible/SIR will directly affect the cost (premium) of insurance.

Specific coverage under CM professional liability insurance policies will be provided on a claims-made basis, that is, for claims made against the insured while the policy is in effect. Terms and conditions of the policy define the periods during which a claim must be made for coverage to attach, and for the applicable definition of a claim. Claims arising out of professional negligence are normally excluded from CGL policies’ coverage.

Professional Liability policies cover, in general, claims for damages arising out of the insured’s negligent act, error or omission in performance of professional services. These policies have specific definitions of key terms, like “claim” and “professional services” which must be carefully considered. They provide coverage on a claims made basis, and virtually all have annual aggregate limits which are eroded (or reduced) by claims and
claims expenses incurred. They usually have relatively high deductibles (or SIRs), which in some instances result in the insured being, in essence, self-insured for many smaller claims.

Most importantly, professional liability insurance policies for CMs, like those for architects and engineers, have a number of exclusions which can raise significant questions about whether or not insurance coverage may be available for a specific claim. These exclusions may include:

- Fraudulent acts.
- Equity interests (in projects).
- R.I.C.O.
- Projects specifically insured by other policies.
- Joint ventures.
- Bankruptcy.
- Failing to advise on insurance matters.
- Discrimination.
- Workers’ Compensation types of claim.
- Automobiles.
- Watercraft.
- Express warranties or guarantees.
- Copyright and patent infringement.
- Manufactured products/goods.
- Asbestos installation, specification, transportation, storage or disposal.
- Pollution.
- At-risk CM.
- Site safety.

Some policies also exclude coverage for cost estimating and scheduling, although the CMAA-commended policy underwritten by a Lloyd’s of London facility does not. That policy also provides for the separate “buy-back” of coverage for pollution, “at-risk”, site safety, and design (A/E) services and has become standard for many policies.
Umbrella and Excess Liability
These policies provide for the more economical purchase of higher limits of coverage. Their coverage (i.e. their limits) becomes available only upon exhaustion of other (underlying) coverage which they supplement. These policies “follow form,” that is, they insure activities identical to the underlying policy or policies, subject to the identical exclusions. There are no standard forms of coverage, terms or conditions to these policies, but they usually do not apply to claims related to Workers’ Compensation and professional liability.

5.3 INSURANCE REQUIREMENTS FOR PROJECTS

Introduction
This section covers the types and amounts of insurance coverage which may be maintained by the project Owner and the Contractor(s) during the time the Work is being performed, or for some other time as determined by the Owner.

It is important for the CM to be generally familiar with the types of insurance which may be available for projects, and how they relate to the risks insured. The general, and some specific, types of insurance are reviewed in Section 5.2 Insurance for CM Services, and in the following paragraphs. However, the CM must understand a few important principles concerning this insurance:

- The types of insurance and coverage limits may vary widely within a few basic categories.
- Terminology used to describe insurance is extremely significant, and is subject to misunderstanding and/or miscommunication by even experienced insurance professionals.
- The Owner, not the CM, must decide (in conjunction with Owner’s insurance professional) which types and amounts of coverage are to be provided by Owner, Contractor(s) and others. A trained insurance professional typically must recommend to the Owner the overall nature of the insurance program for all concerned to avoid potential gaps and overlaps in coverage.
- The CM is not and should not agree to act as Owner’s insurance advisor. This is because few CMs have the necessary expertise to provide competent advice to the Owner, and because the CM rarely has liability insurance for claims arising out of its providing advice about insurance to the Owner.
Insurance Provisions in Standard CMAA Documents

The CMAA Document A-3, General Conditions of the Construction Contract, includes standard provisions for insurance to be provided by Owner and Contractor. These typical provisions may or may not be appropriate for a specific project, as determined by Owner. The CM should determine that once approved by the Owner these provisions are consistent with the requirements and provisions of the Agreement between the Owner and CM.

The CMAA documents provide, in general, for the Contractor’s provision of the following insurance coverage types:

- Commercial General Liability
- Workers’ Compensation
- Employer’s Liability
- Contractual Liability
- Automobile Liability
- Property

The CMAA documents provide, in general, for the Owner’s provision of the following insurance coverage types:

- Property insurance (including Builder’s Risk)
- General Liability

Special types of coverage may be required, depending on the nature of the project (and its risks) and Owner’s requirements including:

- Umbrella/Excess Liability
- Environmental/Pollution
- Professional (Designer/CM) Liability

Tailoring Insurance Coverage to Owner’s Requirements

Each project’s Contract Documents should be tailored to the specific requirements for that project. The Owner, on its own or with advice of its insurance advisor, should determine the specific types of special risks which may exist or arise and the specific requirements for insurance needed to address those risks. These specific requirements will include types and amounts of coverage, and whether they are to be provided by Owner, Contractor or others including subcontractors such as design firms for design-build projects.
In order to determine Owner’s requirements, the CM should request from the Owner specific instructions as to those requirements. The engineering societies have published standard letters to Owners requesting instructions regarding coverage types and amounts, and specific language to revise, add to or delete from the standard general conditions. The CM’s request to the Owner should include a request for instructions about the following coverages of the Contractor:

- **Workers Compensation**
  - State (statutory)
  - Employer’s Liability
  - Applicable Federal (Longshoreman’s or Jones Act)
- **Comprehensive or Commercial General Liability**
  - General Aggregate
  - Products - Completed Operations
  - Personal/Advertising Injury
  - Each Occurrence (Bodily Injury and Property Damage)
  - Medical Expense (per person)
  - Personal Injury arising out of employment
  - Exclusions of property in Contractor’s Care, Custody or Control
  - Property Damage, for Explosion, Collapse, and Underground
- **Contractual Liability**
  - Aggregate
  - Occurrence
- **Automobile Liability**
  - Bodily Injury
  - Property Damage
- **Liability Coverage Endorsements**
  - Additional insureds/Named insureds
  - Separate Protective Liability Policy
- **Excess/Umbrella Liability**
• Other Liability Insurance
  - Professional
  - Environmental/Pollution—transit, environmental impairment, etc.

Owners of very large projects and more sophisticated owners frequently utilize special programs for insurance, usually referred to as “wrap-ups,” Owner-controlled insurance programs (OCIP), or project policies. These policies may provide coverage for all (or only some) project participants, including the CM. These policies require an unusually high level of expertise of the Owner’s insurance advisors, as well as for contractors and perhaps the CM. They should be prepared only by the Owner’s insurance advisor.

5.4 ALTERNATIVE FORMS OF DISPUTE RESOLUTION

Introduction
An important element of a CM’s role is project and contract administration. These tasks and the responsibilities of the CM, as well as those of the Owner, Contractor(s) and Designer(s), are delineated in the various contract documents. The CM as part of its standard duties is often in a position to recommend, review or even draft proposed contract documents or provisions in the various contractual agreements that are used to implement a project. This can encompass determination of methods of resolving disputes.

Further, the CM has a major role in preventing disputes. The CM’s role is to implement a successful project to be completed within pre-established schedules and budgets. Unfortunately, and occasionally in spite of the CM’s best efforts, construction projects often end up in litigation. Given the complexity of construction, involving numerous separate contracts (subcontractors, suppliers and manufacturers) and the litigious nature of our society, it is not surprising that there are disputes, some of which result in litigation.

Litigation is a judicial resolution of a dispute between parties. A dispute may be the result of a contract action or a tort claim, namely an allegation that one of the project participants was negligent.

Alternative Dispute Resolution (ADR)
Because of the complexity of construction disputes and the voluminous factual documentation required in litigation, participants in construction projects often make efforts to avoid litigation. Fortunately, there are numerous different procedures for resolving disputes outside the traditional court system, the most familiar of which is arbitration. Some procedures are entered voluntarily as disputes arise while others are contractually mandated. Some occur pre-litigation, others post-litigation. Some are binding, others non-binding or advisory. ADR clauses can be incorporated in contract documents or they can be drafted during the life of a contract when a dispute occurs.
Others do not need formal documentation, but can be agreed to by the parties as a vehicle to put negotiations back on track.

There are numerous methods that fall under the general description of alternative dispute resolution procedures. These include:

- negotiation
- mediation
- early neutral evaluation
- dispute review board
- summary jury trial
- mini-trial
- arbitration
- “rent a judge”

The most commonly utilized procedures with which the CM will be involved are mediation, mini-trials, and dispute review boards. Mediation/Arbitration, although structured for the construction field, has been used infrequently. Some of these procedures are now routinely incorporated into a contract. Others are voluntary, and require the consent of the parties prior to their implementation.

**Arbitration**

The first alternative to litigation utilized within the construction industry was arbitration. In 1966, a committee of engineers, architects and contractors developed construction industry arbitration rules for use specifically within the construction industry to be administered by the American Arbitration Association (AAA). This committee, the National Construction Dispute Resolution Committee (NCRDC), remains in existence and continuously reviews and updates these rules. The AAA rules and procedures are the most commonly utilized within the industry. They are incorporated by reference in the majority of standard construction documents, including those issued by AIA and AGC as well as by CMAA.

Arbitration, like litigation, is an adversarial procedure. Parties contractually agree to submit their dispute to a single arbitrator or an arbitration panel whose decision is binding and court-enforced.

A typical contractual clause is as follows:

Any controversy or claim arising out of or related to this contract, or the breach thereof shall be settled by arbitration administered by the American Arbitration
Association in accordance with its construction industry arbitration rules, and judgment on the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof. 

Although arbitration is often effective in resolving some construction disputes, it is a formal and structured proceeding. In large cases, the time and cost of arbitration can be as great as that of a court proceeding.

The more than 50 AAA rules pertaining to construction disputes include how to initiate a claim; administrative conferences and preliminary hearings; the qualifications and appointment of the arbitrator(s); the required disclosures of the designated arbitrator(s); procedures on conduct of the hearing and the duties and responsibilities of the arbitrator including the award.

Although an arbitration hearing can be informal, it is a structured proceeding and in larger cases is comparable to a court hearing. However, arbitration hearings are not governed by rules of evidence as is a court proceeding.

Witnesses are sworn and testify under oath. Testimony of experts is utilized and provisions can be made for a stenographic record. Lacking, however, in an arbitration is the continuity of a trial, as hearings are scheduled to meet the schedules of the arbitrators and the parties. In a court trial parties and attorneys have to meet the schedule and calendar. In an arbitration the arbitrators have outside activities and the parties may have conflicting trial schedules which all have to be coordinated. As a consequence, there can be a passage of time between hearing days, resulting in delays in bringing the arbitration to closure.

Also, as contrasted with a court’s decision, an arbitration award is usually final and not subject to appeal. A court’s decision can be appealed to the next highest court based upon both the factual record and claimed errors of law. The grounds for appealing and overturning an arbitration award, recognized by the courts, are for very limited reasons, such as an arbitrator’s misconduct, fraud, or unethical conduct. This is the reason arbitration is often described as “binding.” A court rarely, if ever, re-examines the factual grounds for an arbitrator’s decision. However, because of its accepted historic usage, arbitration remains the most frequent alternative method of dispute resolution.

**Mediation**

Mediation is a voluntary process which requires that the parties to a dispute be willing (1) to seek a negotiated solution; and (2) to attempt an “alternate” approach, preferably prior to filing for arbitration or instituting legal action.

A third party, an impartial neutral mediator, assists the parties to resolve their dispute. The parties can seek mediation at any time during the life of a project or at any time
during an arbitration or lawsuit. It does not require a contract provision, because the essence of mediation is voluntary. The mediation hearing is conducted in private, and absolute confidentiality of all information disclosed to a mediator is observed.

The mediator does not impose agreements or settlement terms upon the parties. The mediator assists the parties in reaching an acceptable agreement on their own terms.

It is important that the selected mediator be not only a professional in the mediation field, but be knowledgeable in the construction industry. As contrasted with arbitration, the parties have full control over the selection of the designated mediator. In arbitration, parties can strike names from a proposed list of arbitrators, but final selection is by AAA under the AAA rules. Other selection methods in arbitration are for each party to select one arbitrator and those two designated arbitrators to select the third neutral party. In mediation the parties select the neutral party.

Another significant element of the mediation process is that all the information that is disclosed to the mediator during a proceeding is maintained in confidentiality. This is important and significant because if there is no negotiated settlement, none of the settlement offers, admissions or proposals made during the proceedings may be utilized in a later judicial proceeding.

Also, although it is desirable to include a clause in the contract providing for mediation, it is not necessary for the parties to agree to attempt mediation in the event of a post-contract dispute.

The CM may wish to recommend and incorporate a contract clause in the trade contract that is administered under the CM’s jurisdiction. Such a clause would read as follows:

If during this contract, the parties are unable to resolve the dispute or controversy among themselves, they shall at first endeavor to settle such a dispute in a non-binding, voluntary manner by referring same to (name of individual or dispute-resolution firm) prior to filing for arbitration or having recourse to a judicial forum.

In summary, the reasons mediation is utilized are:

- Negotiations fail.
- To gain agreement.
- Need outside influence, a catalyst.
- Gives both parties an idea how their position looks to a third party (impartial person).
• Proceeding is cost-effective.
• All disputes have to end sometime.

Mini-Trial
A mini-trial has been described as a structured settlement procedure. In a mini-trial proceeding, each side presents its case before a neutral advisor and/or senior executives of each of the parties involved in the matter. They either resolve the dispute or formulate a voluntary settlement. A mini-trial can be voluntary or contractually mandated. If successful, it will result in a negotiated settlement. AAA has formalized the procedure and the U.S. Army Corps of Engineers has used mini-trials with success for multi-party and complex cases.

The essential elements of a mini-trial are as follows:
• The mini-trial process is governed by a written agreement between the parties and consists of an information exchange and settlement negotiation. This agreement can be incorporated in the contract or can be developed as a separate document, in case the parties elect to use a mini-trial at a later date.
• Each party is represented by legal counsel who prepares and presents the party’s case at the information exchange.
• Each party is represented by a senior executive with settlement authority.
• The neutral advisor is involved at all times. The process can be structured with the trial being administered by a single neutral advisor or a neutral advisor with a senior-designated representative for each side (a panel of three).
• The neutral advisor is selected by both sides.
• The procedure and structure of the mini-trial including preliminary exchange of documents and the length of the hearing is as agreed to by the parties.
• After the presentations, the neutral advisor and senior-executive representative caucus and attempt to formulate a voluntary settlement.
• If there is no voluntary settlement agreed to by the parties, the neutral advisor renders an advisory opinion. The advisory opinion includes identification of issues of law and fact critical to the disposition of the case and recommendations as to resolution.

Mini-trials are a useful procedure in larger and complex cases, especially if there are several parties involved. They have been utilized with success by public agencies with pioneering use by the U.S. Army Corp of Engineers. They are a useful vehicle in which subcontractor claims can be incorporated as part of the dispute resolution process. If a
mini-trial is attempted early in a potential litigation situation, it can be cost-effective. Unfortunately, many times parties have already incurred substantial litigation preparation costs such as the taking of depositions and the preparation and answering of interrogatories before a mini-trial is attempted. Even then it can be a useful and viable process and procedure.

**Dispute Review Board**

Provisions for a dispute review board (DRB) are made in the contract between the parties. The DRB is growing in popularity as it has been successfully used on heavy construction projects such as dams, highways and transit work.

The DRB does not supplant the Owner’s contractual dispute settlement procedure. It is an earlier, non-binding, intermediate step directed at avoiding the need to resort to later, more expensive and more time-consuming procedures.

Each contracting party elects one member, and the third party neutral is either selected by these two members or is designated from a list pre-determined prior to the contract. All DRB members are selected for their knowledge and technical expertise and the type of project to be constructed. The rules governing the conduct, responsibility and power of the DRB are outlined in the contract documents.

The DRB is organized shortly after the contract is awarded. It is essentially a committee that is in place during project implementation to air disputes in an informal and communicative atmosphere and to provide recommendations for timely dispute resolution.

Normally the contract provides for the DRB to meet at the job site on a regular basis. The purpose of the meetings is for the board members to stay abreast of the construction activity. They are briefed by the project managers as to the progress of the work.

In the event of a dispute the parties cannot resolve, the dispute is presented to the DRB. The board does not make decisions, but gives the parties its recommendation.

Its recommendation is in writing and the reasons for the conclusions reached are included. In this manner, any dispute that occurs can be handled expeditiously.

Although the recommendations of the board are not binding, experience has shown that such recommendations are accepted in nearly all instances. Thus, just the existence of a DRB has acted as an encouragement to parties to resolve disputes between themselves without having to resort to arguing the matter before the impartial DRB.

The American Society of Civil Engineers (ASCE) in its publication *Avoiding and Resolving Disputes During Construction: Successful Practices and Guidelines*, documents projects where DRBs have been utilized. Of significance, in over 100 projects listed there is
a small number of disputes that were heard by a DRB. Also, no disputes resulted in litigation. The reason for the success of the DRB can be summarized as follows:

- Dispute can be resolved speedily.
- The neutral has construction expertise and is selected by the parties before any dispute arises; such pre-selection saves time.
- The timely nature of the hearings and dispute can be addressed while facts are still current.
- Recognition by bidders that an alternative dispute resolution procedure is in place.
- Early identification of issues and problems.
- Encouragement of communication and evaluation of issues.
- Heavy expenses of post-project proceedings are avoided and everybody saves money.

**Mediation/Arbitration (Med/Arb)**

Although not commonly utilized, Med/Arb is a procedure that is adaptable to construction disputes. Med/Arb combines elements both of mediation and arbitration. Normally, it is structured before work begins with a neutral being selected to hear disputes which may arise during the course of construction. This neutral acts as the mediator and functions in a similar manner as a dispute review board. The neutral, an expert in the construction field, will be familiar with the job progress and thus is in a position to work with the parties to resolve disputes when and if they occur.

Only if the mediation process fails does the designated neutral, by agreement of the parties, act as an arbitrator. As a consequence, the neutral makes a determination rather than a recommendation.

There are conflicting opinions on this procedure. In favor, it is argued that it is fair and cost-effective; the individual being familiar with the project and having been selected by the parties in the first instance is in the best position to make a reasoned decision if mediation fails. The opposing view argues that giving the same individual the powers of an arbitrator restricts the normal give and take found in a mediation. If the same individual is known to also have an arbitrator’s power (namely to make a binding decision), the parties could well be hesitant at making full disclosure or making their best offer during the mediation process.

One can readily visualize that there can be variations on this process. One approach would be that the designated neutral would only be given the final arbitration power if both parties agreed to it should the mediation fail. This would address one of the major objections to this process.
Conclusion
In summary, the CM has to be knowledgeable about the options to be utilized to resolve disputes if they occur. ADR is not necessarily a viable option or the best approach in all situations. There are, however, sufficient alternatives that the CM can recommend to its client, and, ADR is an option that results in cost benefits to the Owner.

5.5 PARTNERING

Introduction
In the construction industry, partnering is a collaboration among project professionals—the Owner, the Designer, the CM, Contractor and subcontractors—with each understanding and respecting the responsibilities and expertise of the others. Partnering is teamwork. It is both an attitude and a process. It involves a common commitment among professionals who depend upon each other to achieve a common goal.

Partnering relationships have been in existence for many years and cover a broad range of corporate arrangements. Such relationships, however, are relatively recent developments in the construction industry. The Construction Industry Institute (CII) Partnering Task Force defined partnering in its 1989 report as follows:

“Partnering is a long term commitment between two or more organizations for the purpose of achieving specific business objectives by maximizing the effectiveness of each participant’s resources. The relationship is based upon trust, dedication to common goals and an understanding of each other’s individual expectations and values. Expected benefits include improved efficiency and cost-effectiveness, increased opportunity for innovation, and the continuous improvement of quality products and services.”

What is Partnering?
Partnering is a process that attempts to establish improved working relationships among project participants who are often described as stakeholders. It does not establish a legal relationship, nor does it change any contractual obligations. Partnering is not applicable to all relationships and is not a cure-all guaranteeing that a project will be trouble free.

In its publication, Partnering: A Concept for Success, issued in September 1991, AGC lists seven key elements of partnering.

• Commitment. Partnering must have commitment from the top management of all the participants. Without such a commitment a partnering process cannot succeed.

• Equity. All of the parties (stakeholders) have to be considered in establishing mutual goals.
• **Trust.** Through development of personal relationships and communication, better understanding between the stakeholders can be achieved. The understanding leads to trust.

• **Development of Mutual Goals/Objectives.** At the partnering workshop, which is held following a top management commitment, stakeholders identify respective goals. This enables the stakeholders to ascertain which interests are overlapping and have commonality.

• **Implementation.** During the workshop the stakeholders, working together, develop strategies for implementing mutual goals.

• **Continuous Evaluation.** Following the initial workshop a plan for periodic joint evaluation of the mutually agreed goals is established.

• **Timely Responsiveness.** In the workshop the stakeholders develop mechanisms for encouraging rapid issue resolution and establish lines of communication for timely decision making.

**Why Use Partnering?**

A collaborative team approach helps maximize the value derived from the time and budget committed to a project. It can improve quality in construction through mutual dedication to complete and open communication among all project stakeholders. An additional benefit arises when the most qualified organizations and personnel within each group are used to mutually resolve issues.

In order to implement the process, partnering requires management commitment and an initial increase in staff and management time. This is an investment for the future.

AGC cites the following benefits to the stakeholders:

**Benefits to the Owner.**

• Reduced exposure to litigation in favor of open communication and issue resolution strategies.

• Lower risk of cost overruns and delays because of better time and cost control.

• Better quality because energies are focused on the ultimate goal and not misdirected to adversarial concerns.

• Potential to expedite construction through efficient implementation of the contract.

• Open communication and unfiltered information to allow for more efficient resolution of problems.

• Lower administrative costs because of elimination of defensive case building.
• Increased opportunity for innovation through open communication and element of trust, especially in the development of value engineering changes and constructibility improvements.

• Increased opportunity for a financially successful project because of non-adversarial, “win/win” attitude.

Benefits to the Contractor.

• Reduced exposure to litigation in favor of communication and issue resolution strategies.

• Increased productivity because of elimination of defensive case building.

• Expedited decision-making with issue resolution strategies.

• Better time and cost control over the project.

• Lower risk of cost overruns and delays because of better collective time and cost control.

• Increased opportunity for a financially successful project because of a non-adversarial, “win/win” attitude.

Benefits to the Designer and Consultants.

• Reduced exposure to litigation in favor of communication and issue resolution strategies.

• Minimized exposure to liability and cost impacts for document deficiency through early identification of problems, continuous evaluation, and cooperative, prompt resolution.

• Enhanced role in the decision-making process as an active team member in providing interpretation of design intent and solutions to problems.

• Reduced administrative costs because of elimination of defensive case building and avoidance of claim administration and defense costs.

• Increased opportunity for a financially successful project because of a non-adversarial, “win/win” attitude.

Benefits to the Subcontractors and Suppliers.

• Reduced exposure to litigation in favor of communication and issue resolution strategies.

• Equity involvement in project increases the opportunities for innovation and implementation of value-engineering in the work.
• Potential to improve cash flow due to fewer disputes and withheld payments.
• Improved decision making avoids costly claims and saves time and money.
• Enhanced role in decision making process as an active team member.
• Increased opportunity for a financially successful project because of a non-adversarial, “win/win” attitude.

The Partnering Process
Teams are made, not born. In almost every instance, the development of a superior functioning project team requires a formal team-building program.

The process starts with education. Each of the parties needs to educate its own organization. Understanding the process is essential and cannot be taken for granted.

Partnering is voluntary. Because of its voluntary nature, partnering can be initiated by any of the parties without having partnering included in the bid documents. However, if the Owner, wishes to encourage partnering, provisions can be included in the contract documents or bidding information that describe the process and the workshop. If a partnering program is to be implemented, costs can be shared or an allowance for program costs may be included in the bid price.

There are several approaches to the structuring of the partnering workshop. This is influenced by the size of the project, availability of parties and budgetary considerations. The workshop should be held at the earliest possible time at a neutral site. The players involved from each one of the stakeholders are those who will be involved in the contract performance and those with decision-making authority. Individuals participating will include executives, project managers, superintendents, architects, engineers, construction superintendents and foremen. In certain situations, prior to the workshop, interviews are held with some field representatives (the superintendent, the resident engineer, designer) at the job site. The interviews are conducted by the workshop leader(s) to identify objectives, goals, issues and prior relationships of the project participants. The data and information obtained at these interviews are confidential but are utilized during the workshop which is held shortly after the initial interviews.

A workshop can be structured over one or two days. If only for one day, the preliminary interviews are essential. Although an outside facilitator is normally utilized as the workshop leader, it is not essential to utilize an outsider. The designated leaders from the project organizations can share the duties of conducting the workshop.

A neutral facilitator, however, can play a meaningful role in structuring the workshop agenda and providing training for the workshop participants. A common approach is to start the workshop with team exercises addressing awareness, basis of agreement,
methods of communication and relationships. The objective is to develop a partnering charter at the conclusion of the workshop. This is not a contract or agreement, but is a definition of mutually developed objectives of the stakeholders. The charter addresses the commitment of each one of the stakeholders to the project. As the culmination of the workshop is the signing of the charter, it must be recognized that this is a “ceremonial” function, not the signing of a new agreement. All the common objectives developed in the workshop are consistent with the contract commitments of each of the parties.

As important as the workshop itself is, is the follow-up or evaluation of the project’s status. It is essential that the relationships and attitudes developed in the workshop are not lost. For this reason there have to be periodic reviews so the benefits of the workshop are not lost. On many projects, periodic partnering meetings are held. These meetings can include working sessions to resolve outstanding issues that have arisen since the last meeting where the input of multiple participants from each party can be helpful. The meetings can also include less formal reinforcement of the working relationships established initially through social activities or non-confrontational discussions of how communications can be improved on the project.

Partnering cannot be viewed as a panacea. Often, it is difficult for project participants to break free from typical roles and work hard to keep communication lines open even though difficult issues may arise. Occasionally, parties will attempt to use the word “partnering” manipulatively during negotiations on difficult issues without legitimately attempting to work collaboratively. However, when project participants invest the necessary time and attitude, the partnering process can be a “win/win” situation for all the stakeholders.