

Chapter 1: Welcome and Introduction

The Construction Management Association of America (CMAA) would like to welcome you to the first stage of career development as a professional construction management practitioner. CMAA defines construction management as a professional management practice applied to construction projects from project inception to completion for the purpose of controlling time, cost, scope, and quality. Since the 1980's, United States academic leaders have been at the forefront of developing specific construction management curricula, and delivering the educational experiences needed to succeed in this industry. In more recent years, educators around the world have achieved similar successes. While it is expected that you have done well in your academic training, which academic training, and education is just the beginning. Now the world of business and industry awaits you. CMAA and the Construction Manager Certification Institute (CMCI) have developed the tools and programs that will assist you in your development and recognition as a true construction management professional in the design and construction industry. We encourage you to take advantage of them.

Good management techniques and best practices are universally applicable in the design and construction industry, whether you are working for an owner, a construction manager (CM) consulting firm, a general contractor, a subcontractor, or the government. Roles and responsibilities will certainly vary, but understanding and reliance on new technologies, fair business practices, comprehensive budgets, accurate schedule forecasts, sound dispute resolution practices, rigorous safety programs, etc. should never vary, regardless of the sector of the industry you have chosen.

At this stage of your career you have probably chosen, or are in the process of deciding, which sector of the construction industry you want to enter, and that is a good thing. Do not fall into the trap of thinking that your decision is irrevocable and you will have to remain a general contractor, a CM consultant, or an owner's representative. One of the rewarding benefits about the construction management industry is that sound construction management experience and expertise gained in one segment of the industry have value in other sectors as well. For example, CM firms, and owners like to have people on staff who have actually been in the field and built construction projects. General contractors have

become some of the biggest users of technology, such as Building Information Modeling (BIM), which was once restricted to the CM or designer. Owners who are ‘repeat builders’ want it all. They are developing comprehensive program and project management staff in-house. So, choose the type of employer that seems right for you at this time. Whenever the opportunity presents itself, do not rule out learning something new about this industry just because you may not use it in your current workplace. Next year you could find yourself in an entirely different situation.

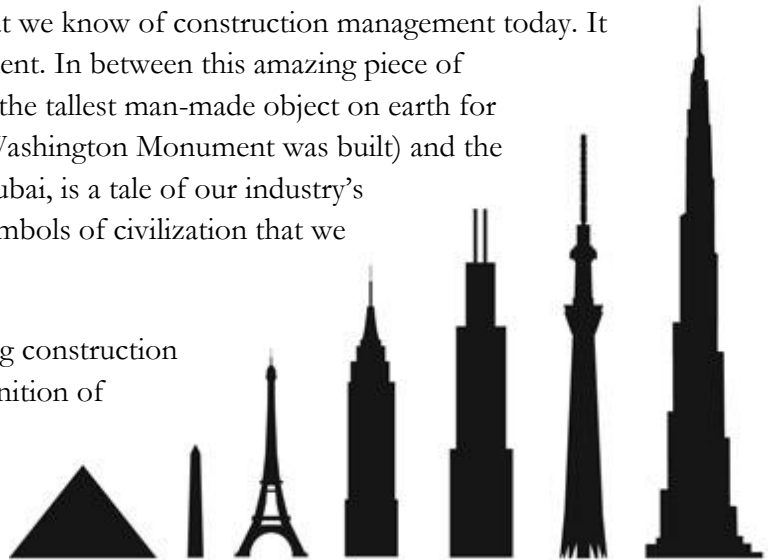
Welcome to our association, and welcome to your first step in achieving success as a professional CM.

Chapter 2: The History and Evolution of Construction Management

2.1. A Prelude

Since ancient times there has always been a need to ‘manage’ construction. A recent book (*How the Great Pyramid was Built*, by Craig B. Smith) describes how the Khufu pyramid was most likely built, based on what we know of construction management today. It certainly was not built by accident. In between this amazing piece of construction (which remained the tallest man-made object on earth for close to 4,500 years until the Washington Monument was built) and the more recent Burj Khalifa in Dubai, is a tale of our industry’s achievement in building the symbols of civilization that we see around us.

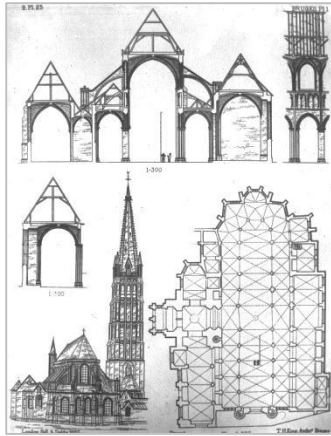
While the function of managing construction has always been with us, recognition of construction management as a separate and distinct profession has taken a long time, and this is its story.



EARLY TIMES

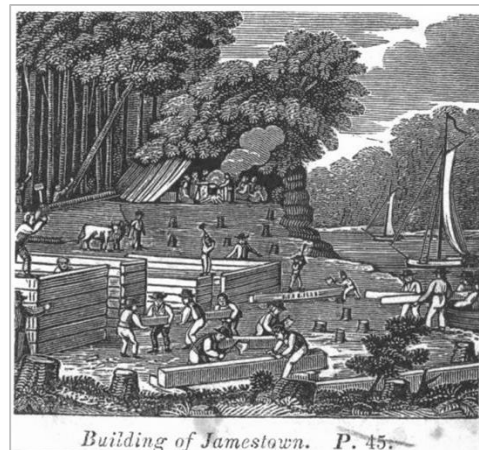
Other than the buildings and facilities themselves, very few records survived from early civilizations, up to and including the Roman Empire, which enable an understanding of the methods used to design and manage construction in those times. It is possible, however, to trace back a continuous thread of means and methods to the medieval period in Europe, which is where we begin.

The period 1100 to 1350 in Europe witnessed a burst of building that rivaled those of Greece and Rome centuries earlier. This was primarily driven by the spread of Christianity, population growth and relatively stable economic conditions, leading to a significant investment in ecclesiastical building of all kinds. In France alone over 80 cathedrals of the scale of Notre Dame de Paris and more than 500 major churches were built. This led to an organizational framework for building that had design and construction being led by master masons or master carpenters, with management of the process in the hands of the owners who saw to raising funds, purchasing materials, and arranging cartage, often with assistance from the lead master craftsman. Management challenges were minimal as time schedules were very relaxed.



For the next 400 years, very little changed in the methods used to design and construct, other than the slow emergence of the architect and engineer during the Renaissance, who were frequently drawn from the ranks of the craft trades. Initially the new design specialists worked closely with the trades who continued to devise detailing and construction solutions from simple design models. As architects and engineers proliferated, they moved increasingly closer to the client/owner, representing its interests in administering both design and construction.

In 1607, the first permanent settlement in North America was established at Jamestown, Virginia. Among the first contingent of 144 settlers were 6 carpenters, 2 masons, and a bricklayer. It is not known how many of this construction crew survived the first winter, but whoever they were they can be considered the fathers of the American construction industry. They brought with them their English-made tools and their practices varied little from contemporary English procedures inherited from medieval times. However, these had to be modified to suit the new environment – thinly settled with poor transportation links, extreme climate variations, and a heavily wooded landscape that dictated the use of timber to the exclusion of other materials, leading to the elevation of the carpenter as the lead mechanic of this early period.



Given the challenging conditions, a shortage of skilled labor, and a lack of organizational skills, owners began to seek individuals willing to undertake the functions of designing and

building their projects. Virtually every weekly issue of the Virginia Gazette in the 18th century carried one or more advertisements for project ‘undertakers’. The responding bidders tended to be either local gentry or one of the crafts, usually a carpenter. This approach at the time relieved owners of their construction management obligations. But there is also some evidence of enterprising immigrants offering their services as proto-construction managers.

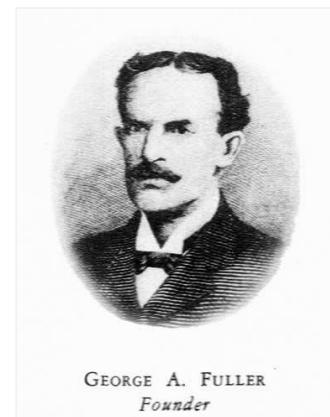
THE UNITED STATES TO WORLD WAR I

By the time of American independence, a few architects and engineers had emigrated from Europe to form the nucleus of these growing professions, who then took on responsibility for designing and managing construction works, arranging separate contracts with each trade.

Following the Civil War, the American industrial revolution transformed the economy and society bringing with it demands for higher levels of performance from the construction sector. The old method of contracting separately trade by trade coordinated by the architect or engineer was inefficient, slow, and resulted in final costs only being known at the end of the work. The new clients insisted that designs be completed in advance so that their projects could be bid competitively and a fixed price contract for construction awarded to a single party, who came to be known as the general contractor. They then assumed responsibility for managing the trades and completing the work on time. This development took place over a 50-year period leading to the formation of the Associated General Contractors of America (AGC) in 1918. It had the effect of significantly changing the role of the architect and engineer by requiring a clear graphic and descriptive definition of the work for the purpose of establishing a firm price. In addition, their construction management functions were much reduced to administration of the single construction contract.

THE 20TH CENTURY

The concept of construction management has been around since George Fuller, one of the early general contractors, pioneered this approach in the 1880s and has continued to flourish on commercial developments. The contracts frequently included some form of price guarantee and allowed the contractor to self-perform some of the work. Thus, on the Empire State Building for example, Starrett Brothers and Eken, the general contractors, had a fixed fee of \$500,000 and carried out the carpentry, bricklaying, masonry, lathing, concrete, and cement finishing work with their own forces.



General contracting, under a design-bid-build format, became the accepted project delivery system for most of the next half-century. However, the boom that followed World War II in housing and public works construction triggered unchecked union action and high levels of inflation. The contractors merely passed the increased costs along to the owners who eventually revolted. In 1969, the Construction Users Anti-Inflation Roundtable (CUAIR) was formed to challenge the industry's performance, and change was in the air. This dissatisfaction was reinforced during the 1970s by even higher levels of inflation driven by



the oil embargo, increasing levels of litigation, demands for more rapid completion, and a strong feeling that the construction industry needed to embrace new approaches to project delivery.

In the 1960s as owners grew dissatisfied with the general contractors, some private sector owners began to hire construction management advisors with the understanding that they would not carry out any of the construction work themselves. One of the earliest reported owners to use this construction management approach was the developer of New York City's 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 Johns 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; multiple school projects around the country; 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. The new approach began to attract considerable interest in all quarters of the industry. Many general contractors, architects, and engineers remained neutral and several regarded construction management with suspicion. However, others recognized that it offered opportunities to improve project delivery, especially when linked with fast track and the use of systems building and were able to convince their clients to try it. This was especially the case during the 1970s as inflation ravaged the industry and rapid time to completion became not just a priority, but also a necessity. Such firms were generally leaders in their fields dedicated to innovation but, as there were no barriers to entry, start-ups, real estate consultants, large accounting firms, and others soon joined them.

With the energy crises of the 1970s, the industry's dependence on nonrenewable sources was evident. In 1993, the US Green Building Council was formed to promote sustainable construction practices. The standards for Leadership in Energy and Environmental Design (LEED) were created in 1998. Other benchmark initiatives, such as Green Globes and Energy Star, soon followed. Today, sustainability is an integral part of the design and construction process that requires a new layer of construction management leadership.

2.2. Construction Management in the Public Sector

The General Services Administration (GSA) was one of the owners willing to pioneer construction management in the public sector and the first of several federal agencies to begin using it. This 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 with the private sector. GSA wanted to capitalize on the experiences of the private sector and to change the way it had been performing its design and construction business.

The study concluded that the sequential method of contracting being used by GSA 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. In addition, 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 Congress for separate construction appropriations, often after the design documents were completed. 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 using multiple prime trade contracts being coordinated by a CM acting as an agent. It began the program with great enthusiasm, anticipating dramatic timesavings of up 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. However, after awarding the contract, this assignment was delayed and ultimately canceled. As a result, the first actual application of construction management by contract was on the three Social Security Payment Centers located in Chicago, Philadelphia, and Richmond, California with a total contract value of \$97 million. However, 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 in 1975.

Other federal agencies, which followed the lead of GSA, included 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 resources was a major factor in these agencies considering the use of construction management.

2.3. Early Challenges with CM at the Federal Level

After implementing construction management on more than a dozen major projects, including several involving building systems concepts, GSA abandoned its use in the latter part of 1979. This decision was based on the belief that the benefits expected by GSA were not being achieved. The reasons given for the abandonment included:

- 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 had to take 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 1970s. 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-1970s. 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 and 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.

2.4. Construction Management and 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 construction management 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 project delivery method and/or 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 did present certain distinct advantages for some projects.

The American Institute of Architects (AIA) likewise recognized construction management as a viable alternative, and they too began work on a family of construction management documents, which were eventually published in 1976.

In August 1975 the National Construction Management Committees of AGC, AIA, and the American Consulting Engineers Council (ACEC¹) met together as a joint national Construction Management Council. A general statement and position paper was unanimously adopted by the council and ratified by the Board of Directors of AIA, AGC, and ACEC. These associations agreed to work together on a National Comprehensive Construction Management Program to include industry-wide standards, educational programs, and advice for both public and private owners. 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 had its own vested interest in the marketplace.

2.5. Founding the Construction Management Association of America



In the face of this lack of positive action, representatives of 37 firms practicing construction management met in October 1981 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 such an organization having the growth and development of the construction management profession as its primary focus. Meeting the challenges of critical issues raised within the construction management discipline—such as definition of scope of services, 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 this strong common interest, the Construction Management Association of America (CMAA) was formed and incorporated in 1982.

Initially, CMAA recognized two forms of construction management:

- The At-Risk variety whereby the CM first provided pre-construction advice and then reverted to the equivalent of a general contracting role with responsibility for construction performance.

¹ ACEC became the American Council of Engineering companies in 2001.

- The Agency variety where the CM acted as a professional advisor to the owner, managing both design and construction regardless of project delivery method.

At the time, advocates of the former tended to be contractors and supporters of the latter were usually professional firms from various backgrounds.

CMAA's first task was to develop standards of practice and construction guidelines for construction management. This was achieved by the end of the 1980s together with a statement of ethics of conduct. CM-at-Risk and Agency CM standards were produced and have been under constant review and update since.

By the mid-1990s membership had grown to 1,000 and the Association began to refine its focus away from that of a trade association representing CM as an alternative project delivery system, to one of a professional association, promoting CM as a professional project and program management practice or discipline. This led to an evolution in CMAA's membership especially among those members committed to CM-at-Risk, but it set the stage for what would be a significant influx of owner members and unprecedented growth for the Association.

The 1990s also saw Design-Build grow as an accepted project delivery approach, and the emergence of sustainability practices. CMAA members quickly recognized that these presented opportunities to promote project/program management where assistance to owners in determining the best delivery approach and then guiding them through implementation is a key part of the service. Consistent with this, the Association formally adopted a project delivery system neutral policy in 1999.

2.6. Standards of Construction Management

The lack of a definition for construction management in the past, coupled with the variable services that CMs offer, have 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 to reflect industry changes with respect to services, technology, and sustainability best practices. CMAA believes that its current *Standards of Practice, Guidelines*, and standard contract forms provide for the definition of professional construction management that the construction industry needs.

By definition, a standard establishes a criterion by which the performance of those who subscribe to it may be measured. The CMAA *Standards of Practice* 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 *Standards of Practice* and *Guidelines* are not intended to include any fixed rules of procedure, and they are not considered detailed procedures manuals. They do, however, establish the basis for the development of such a document for use on a particular project.

2.7. The Role of Education in Construction Management

From the early days when the first civil engineering school was established at West Point in 1802, the industry has drawn on civil engineering programs for candidates to manage and organize construction. Recruits from West Point went on to design and manage many of the early canals, railroads, and other internal improvements. The first private civil engineering program was set up at Rensselaer Polytechnic Institute in 1835 and by 1880 there were 85 civil engineering schools offering programs. By this time the new general contractors recruited heavily from these programs, especially those that included subject matter related specifically to construction.

Very few degree programs in building construction or construction engineering existed prior to World War II with the oldest being at the University of Florida, which began in 1935. After the war, several other programs were initiated, but were largely focused on turning out construction technicians. Under pressure from the industry, colleges, and universities began to re-orient their programs towards construction management during the 1950s with the University of Mississippi and Stanford University being pioneers.

2.8. CMAA Student Chapters

A recent development in CMAA has been the rapid expansion in the number of formal student chapters. Before 2004, there were a few informal chapters, mostly tied in with a regional chapter. In 2007, there were seven chartered student chapters, growing to 48 by 2013, and covering most of the country. A regional chapter and a local faculty member at the college or university support each student chapter. Students pay a nominal membership fee that includes access to all CMAA resources. The local chapter extends invitations to its events and usually provides scholarships and internship opportunities.

Students are encouraged to become a Construction Manager-in-Training (CMIT) in preparation for moving on to certification. CMAA's CMIT program provides important support for individuals making the transition from education into the workplace, including mentoring opportunities, and a variety of other resources.

For information regarding this program, visit CMAA's website: www.cmaanet.org/cmit

2.9. Certification of a Construction Manager

From early days of the Association the subject of some form of licensing, accreditation or certification was debated. The 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?

The scope of services rendered by a CM encompasses a broad range of professional skills, management knowledge, and experience. The fact that a CM may be 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 *to meet a standard*. With *Construction Management Standards of Practice*, standard contract forms, and an established body of knowledge, CMAA took the next step towards certifying CMs. In late 1986, CMAA's 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, in June 1993 the Board of Directors approved a program to certify individuals as construction managers, thus clearing the way for implementation of the current CM Certification Program. This certification is recognition that an individual has voluntarily met the 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).



Increasingly, CCM status is being recognized in the industry and a number of owners are now including it as a criterion in requests for qualifications. Realizing the value of the

CCM certification, in early 2006, the American National Standards Institute (ANSI) accredited the certification program, a significant milestone for both CMAA and CMCI. ANSI accreditation is recognized as the highest standard in personnel certification accreditation.

2.10. CMAA Today

CMAA provides a unified voice for the construction management community as North America's only organization dedicated exclusively to the interests of professional Construction and Program Management. Its goals include:

- Expanding the industry's understanding of CM and creating business opportunities for CMs.
- Setting standards of practice and developing contract documents.
- Supporting research and education to assess and advance construction management performance.
- Providing a network of information resources and business contacts.
- Advocating for construction management in government arenas.
- Certifying 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.

CMAA's continued commitment to education gained a valuable new dimension in 2013, when the Association became a member society of ABET, the pre-eminent accrediting body for engineering education programs. In this role, CMAA is leading the development of model curricula for CM programs and accreditation of institutions teaching CM.

The Accreditation Board for Engineering and Technology (ABET), established in 1932, is the recognized accreditor for college and university programs in applied science, computing, engineering, and technology, and is a federation of 33 professional and technical societies representing these fields. Among the most respected accreditation organizations in the U.S., ABET has provided leadership and quality assurance in higher education for 80 years. ABET currently accredits over 3,200 programs at more than 671 colleges and universities worldwide. More than 2,000 dedicated volunteers participate annually in ABET activities. ABET also provides leadership internationally through workshops, memoranda of understanding, and mutual recognition agreements, such as the Washington Accord. ABET is recognized by the Council for Higher Education Accreditation. For more information, visit www.abet.org.



The CCM program has been endorsed by the prestigious Construction Industry Institute (CII) of the University of Texas, whose members include many of the largest owners of capital construction programs in the world, in both the public and private sectors.

With 28 regional chapters, CMAA's membership is now more than 12,000 including individual CM/PM practitioners, corporate members, and construction owners in both public and private sectors, along with academic and associate members. In a globalized world since 1999, CMAA has been collaborating with CM organizations in Japan, Korea, Mexico, the Middle East, Spain, and the United Kingdom to encourage the expansion of construction management worldwide.

2.11. Types of Projects and Their Owners

There are many ways to categorize owners and their buildings. CMs must understand the salient characteristics of owners and their projects in order to deliver superior services to their clients.

There are two important dimensions by which one should categorize owners. The first is whether the owner is a public or private sector owner. The second dimension is whether the owner is a repeat builder or a one-time builder.

PUBLIC VS. PRIVATE SECTOR OWNERS

Public sector owners are involved in project development for federal, state, or municipal projects. These projects are funded through taxes or other public revenue such as through the issuance of municipal bonds. In addition to traditional public sector owners there are a number of semi-public institutions such as utilities, regional airport authorities, and educational and research institutions that receive public funds and that, for all practical purposes, conduct themselves as public sector owners. Public and semi-public owners spend close to 80% of all of the dollars for projects developed in the United States. The diversity, scope, and size of these projects is immense, ranging from large infrastructure projects such as highways, tunnels, and bridges to small single-room forest ranger stations in national parks. Public owners exert great influence in project development.

The Federal Acquisition Regulations (FAR) are applicable to most executive agencies in the federal government. These regulations have greatly influenced the acquisition process and execution of public sector projects for most other public and semi-public public



owners in the United States as well. These regulations define and differentiate public and private sector contracting.

Three principal differentiators of public owners include their open procurement process for the selection of a project team, their advantage in contract language, and their inclusion of socio-economic objectives in their contracts.

Open Procurement Process: Public sector owners procure consultant services (architects, construction managers, and construction contractors or design builders, etc.) through an open competitive process. Projects are generally publically advertised, the proposals are evaluated against pre-established, published criteria, and selection is based on price or best value considerations through which both technical and price components are considered.

Contracting Advantage: Contracts for all public projects have features that greatly favor the public owner. Some of these features include the ability to direct their consultants to do work beyond the original scope of work (subject to subsequent equitable adjustments), price data rights that allow the public owner to audit the service providers books at any time, and special provisions based on statutes that specify civil and criminal penalties for program fraud.

Socio-Economic Objectives: Public sector projects often include socio-economic objectives designed to enhance project participation of small, minority, women owned, and other disadvantage service providers. Semi-public owners include requirements that favor local labor participation and acquisition of goods and services with local vendors. Additionally, most publicly funded projects require that the general contractor or design builder provided payment and performance bonds for the projects.

Private sector owners are not bound by public acquisition regulations and are able to procure the services of their project teams and execute their projects with greater flexibility. Although private sector owners are subject to applicable federal, state, and local regulations such as building codes, zoning restrictions, and environmental requirements, private sector owners have the advantage of being able to procure project teams through relationships based on prior experience or other business motives. Additionally, contractual relationships that share project risks and rewards are easier to arrange. Only applicable contract law and the parties' willingness to participate in the project limit these arrangements.

To further complicate matters, in recent years we have seen the introduction of Public-Private Partnerships (P3s). This project funding and delivery method has emerged in response to federal, state, and municipal lack of funds to promote public projects. Public sector entities seek a private sector partner to fund, develop, and operate an infrastructure or facility project. In most instances, private sector partners provide design, build, operate

services, and are recompensed for their efforts via tolls or fees collected from project users. Public-Private Partnerships are highly customized and combine elements of both public and private sector procedures

REPEAT BUILDERS OR ONE TIME BUILDER

Repeat builders are entities that, in order to support their core business functions, are required to build on a regular basis to expand or renovate a building portfolio. They are in the project development business by necessity, not necessarily by choice. One-time builders are entities that will rarely develop a project to meet their business needs.

The primary differences between repeat builders and one-time builders are resources and level of sophistication. Repeat builders generally have in-house staff and other resources to support their project delivery efforts and because they develop project on a regular basis, they are likely to be more sophisticated and up to date on building trends, technology, and other relevant factors. Repeat builders also benefit from lessons learned from previous projects and can more readily improve their programs. Repeat builders include colleges and universities, government agencies, housing developers, the military, and many others. One-time builders are more likely to rely on outside consultants to help them develop their projects and are generally not as sophisticated as repeat builders. One-time builders include small area hospitals, local government centers, or entertainment, and sport facilities venues.

These categorizations apply to both public and private sector owners. Repeat builders are not necessarily more successful in delivering their projects than one-time builders or vice versa. Success is more often a function of leadership, having the right team and collaboration than whether or not the owner is a repeat or one time builder

OWNERS AND THEIR PROJECTS

Both public and private sector owners develop all manner of facilities to meet their functional and business requirements. Public and private sector owners develop many of the same types of projects: hospitals, housing facilities, office buildings, etc. However, there are some facilities that are almost exclusively developed by either a public or private sector owner. For example, public sector owners predominantly develop projects that support inherently governmental or public functions: highways, bridges, courthouses, military facilities, etc. (although this is not always the case due to the advent of P3s). Private sector owners predominantly develop facilities in the commercial arena such as hospitality, entertainment, and gaming facilities.

When considering building projects, the International Facilities Management Association (IFMA) and other professional associations have developed definitions of building types, however there is still no universally accepted definition. For purposes of code and zoning

regulations, buildings are categorized by their use or purpose: commercial, residential, educational, institutional, etc. Additionally, buildings are defined by their physical characteristics: high-rise, low-rise, masonry construction, etc. These definitions are muddled when an owner is developing a multi-use, multi-purpose facility such as a complex that includes residential, retail, office, and entertainment functions.

From a construction management perspective, the definition of the facility type is not necessarily as important as the attributes of the facility: its size, complexity, and technological content. Why? Both public and private sector owners consider past experience a key element for the selection of their project team. A CM is much more likely to be selected by an owner if its team can demonstrate successful past experience managing a project that share the same attributes with the owner's current project.

SUMMARY

Regardless of the project type or the type of owner (public or private sector, repeat or one-time builder), all owners share similar objectives; they want customized services to deliver their projects within their specified budget, schedule, and quality parameters. Increasingly, owners are looking for service providers to make the project development effort as easy as possible, avoiding conflict and risk.

It is the responsibility of the CM to understand the unique capabilities and needs of each owner and their proposed facility in order to provide the customized services that best satisfy the needs of the owner.