

**ARE FOXES WATCHING THE OWNER'S HEN HOUSE?**

An Examination of the Architect's and Construction Manager's Roles in Managing and Administering the Design and Construction Process

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## ABSTRACT

Since the introduction of construction managers into the traditional owner-architect-contractor triumvirate, the roles of each party have begun to blend together. The likelihood that a party will, without a blink of its eye, litigate already adds a sense of anxiety to the construction process. The architect and the construction manager struggle more with scope definition during the preconstruction and construction phases of a project than any other parties in the process. Hence, it is imperative that the scope of services for the architect and CM be clearly defined, and that services be delegated to the entity best qualified to provide them.

It has been more than 35 years since the construction manager became a recognized entity in the construction process. In this time, the architect has recognized the CM as the fourth member of the "team." However, the architects and other design professionals often sell, and the owner often buys, the services of the design professional in the role of construction manager. Likewise, the construction manager, under the banner of program or project management, is engaged by the owner to manage the process of design, and sometimes the design itself. Allowing the design professional or CM entry into the other's field of expertise triggers inherent conflicts. These conflicts are not as apparent as one would believe; otherwise the owner would take a different course of action. Complicating matters is the initiation of a fifth entity, the program manager. The technical and legal roles and responsibilities are now even harder to sort out, especially when something goes wrong.

This paper will examine the technical and legal implications of the respective roles and responsibilities of the architect, construction manager, and program manager during the preconstruction and construction phases. The intent of the paper is to instill a sense of urgency within the entire construction industry; a national consciousness – especially to owners – to evaluate these roles and universally define which party is technically and legally responsible, and who the owner should hold accountable.

## INTRODUCTION

Despite its longevity, with roots that can be traced back to ancient Greece, much is wrong in the construction industry. There are a whole host of issues that are exacerbated by the politics among the industry's chief participants. The construction industry is plagued with stereotyping, distrust, litigiousness, disputes and claims that are now ubiquitous, unfair competition, unsophisticated owners, unethical practices, and poor quality service. This is corroborated by the most often told joke regarding the industry's three primary metrics – time, cost, and quality: "Which two do you want?," because getting all three seems highly unlikely for the owner that has been promised, and led to believe it will receive, all three.

Owners look unfavorably upon the construction industry if project goals are not met, regardless of the reason. It causes them to question their decisions, and/or the abilities of the participants they engaged to look after for their best interests. But not only are the chief participants to blame, much of the fault falls on the owners' shoulders.

History has shown us that controversy, when brought to the forefront of debate (as in politics), can significantly influence change. This is what is required in the construction industry. Issues that are debated behind closed doors must be publicly examined and discussed. Although no project participant should be excluded, three participants must lead the charge – owner, architect, and construction manager.

Many problems subsist within the relationship of these three parties. A prime problem in the industry stems from the ambiguity over who owns and who is ultimately responsible for managing the design and construction phases of a project. A reading of owner-prepared *Requests for Proposals*, service agreements, pleadings, and expert testimony in construction lawsuits makes it apparent that owners,

architects, and construction managers don't have a lock on the answer. The mystery is not rocket science, nor is the solution beyond our abilities to resolve. Definitions must be universally accepted and an evolutionary introspective of the industry must be examined to unlock the mystery of clear accountability.

To better understand the industry, one must begin by understanding the definition of the four primary professions serving the owner. Adding to the ambiguity of defining roles and responsibilities, a separate distinction between the professions must be made when defining *project management*.

**Architecture** - The art and science of designing and erecting buildings<sup>1</sup>.

**Engineering** - The profession in which knowledge of the mathematical and physical sciences gained by study, experience, and practice is applied with judgment to develop ways to economically utilize, the materials and forces of nature for the progressive well-being of humanity<sup>2</sup>. Alternatively, the application of scientific and mathematical principals to practical ends such as design, manufacture, and operation of efficient and economical structures, machines, processes, and systems<sup>3</sup>.

**Program Management** - The practice of professional construction management applied to a capital improvement program of one or more projects from inception to completion<sup>4</sup>. A second definition is the management of resources and relationships to achieve an owner's desired result on a large project and/or a project with multiple facilities in different geographical regions<sup>5</sup>.

**Project Management** - The application of knowledge, skills, tools, and techniques to a broad range of activities in order to meet the requirements of a particular project. Project management is comprised of five phases – initiating, planning, executing, controlling and closing. It encompasses nine knowledge areas – Project integration, scope, time, cost, quality, human resources, communications, risk management, and procurement.<sup>6</sup> A second and similar definition is the process of planning, organizing, staffing, directing, and controlling the production of a system<sup>7</sup>.

**Construction Management** - A professional service that applies effective management techniques to the planning, design, and construction of a project from inception through completion for the purpose of controlling time, cost, and quality<sup>8</sup>.

For the purposes of this paper, the profession of project management can be considered synonymous with or embodied within either the roles of construction or program manager. Also, if read literally, a program manager is a construction manager on a large, complex, and/or multi-geographical project. Therefore, much of the discussion referring to construction or program managers is interchangeable.

### So, What Is A Fox?

Although I am tempted to define a fox as the carnivorous project team member known for being cunning and sly, as these may be the appropriate characteristics, the definition, for the purposes of this paper, will

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<sup>1</sup> [www.dictionary.reference.com](http://www.dictionary.reference.com)

<sup>2</sup> [www.asce.org](http://www.asce.org)

<sup>3</sup> Ibid.

<sup>4</sup> [www.cmaanet.org](http://www.cmaanet.org)

<sup>5</sup> *Program Management Procedures*, Construction Management Association of America, McLean, VA, 2003 Edition, Page 1.

<sup>6</sup> [www.pmi.org](http://www.pmi.org)

<sup>7</sup> [www.dictionary.reference.com](http://www.dictionary.reference.com)

<sup>8</sup> [www.cmaanet.org](http://www.cmaanet.org)

be limited to a clever and crafty person or company that may be operating outside their normal sphere of services for profit and notoriety.

The architect, construction manager, and program manager are each contractual agents of the owner. Each one is in a position to protect the owner's best interests, and is invited into the owner's inner sanctum as if literally one of its own (at least early on, before any problems arise). A fox can be included in this category, because it produces something tangible for the project. The design documents prepared by design professionals are tangible. So is the work, built and installed by contractors and suppliers. Other entities that could be considered foxes are geotechnical engineers preparing reports, material testing service companies, and inspection companies confirming that something tangible is correct. So why aren't construction and program managers considered foxes – or are they?

In the purest form, program and construction managers are supposed to be true *extensions of staff* of the owner. They are not to have conflicting (personal or financial) interest in the outcome of the project. They are to be fiduciaries<sup>9</sup>, facilitators, managers, and leaders. They should not prepare any design documents, purchase any of the materials/equipment, or construct any of the work. They should not be associated with anything physical on the project. These prerequisites remove the appearance of any conflicts of interest. But construction and program managers at times do put themselves in roles where they may be considered foxes. With these definitions understood, to identify who the foxes are and why owners should be concerned, we must scrutinize owners' goals and objectives.

### WHAT DOES AN OWNER WANT?

While the question could generate a multitude of answers, the goals and objectives of almost all owners are globally similar. First, owners want a structure built in a manner that satisfies the intended purpose of the undertaking. Second, owners want a) the total cost of the project to be what they were told it would cost, b) the project to be built within the schedule agreed upon, c) the materials and workmanship to be the quality they anticipated, and d) the process to proceed in the manner that they expected (i.e. performance of the parties involved).

To accomplish these goals, an owner, assuming it does not have the sophistication or resources to self-perform, engages an array of professionals to help it sort through the construction process. To assure that these professionals deliver the expertise the owner desires, the owner prepares, and has these professionals execute, service agreements (contracts) that outline their scopes of services and the conditions under which they are being hired.

For owners, this process is divided into two separate and distinct phases – design and construction. Under the traditional and most often used project delivery method of design-bid-build, an owner hires an architect to design the project, then the contractors to actually build it. As projects became larger and technically more complex, and owners wanted accurate information and guidance throughout the project's lifecycle, a fourth primary project participant was introduced – the construction manager<sup>10</sup>.

Only the owner could have anticipated that this addition into the existing triumvirate would have resulted in a new layer of protection and a new brand of project leadership. But the project participants, the associations that represent them, and the owner were all ill-prepared to deal with the new issues of confounding scopes of services, roles and responsibilities, and coordination among the participants. Assuming that adding to its stable of professionals would only increase the probability of project success, the owner is now confused over having conflicts and disputes during the process.

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<sup>9</sup> Acting for someone else's benefit while subordinating one's personal interests. *Black's Law Dictionary*.

<sup>10</sup> Berman, Gary, *The Morphing of the Architect's Role and How it is Impacting the CM*, Construction Management Association of America, Paper presented at National CM Conference, San Diego, CA, 2002, Page 6.

For many years, the construction process followed a logical sequence, where the role of each project participant was well understood. If evolution occurs to correct nature's imperfections, why is it that the advancement of the construction industry caused the problems to get worse? Do the problems lie within the process, or are the participants to blame?

## IS THE PROBLEM THE PROCESS OR THE PARTICIPANTS?

### The Traditional Design-Construction Process

Nothing may be more important to the success of a project than a good design. While the definition of a "good design" has become increasingly amorphous in modern-day discussions between those involved in the industry, everyone will agree that nothing will kill a project quicker than a "bad design."

Historically, the process started with the owner deciding that a project needs to be constructed. The owner then hired an architect to kick-off and design the project. This invariably included the management of the entire design process<sup>11</sup>.

One of the initial services of the architect was to prepare, through multiple discussions with the owner, a written program describing the needs and desires of the owner. The architect conceived of a concept that met the owner's programmatic requirements, and then began the process of designing the details. The evolution occurred through a system of three design sub-phases<sup>12</sup> – schematic design, design development, and construction, with each phase progressively adding to the detail and definition of the final project.

In the predominant project delivery system, design-bid-build, once the design was completed or approached completion, a fifth and final preconstruction phase would occur, referred to as bidding or procurement. During this phase, the constructor(s) would be selected, a price determined, and a schedule agreed upon before the construction phase would begin. It is during this phase that the architect's role is not universally defined, leading to some of the problems in the industry.

The aforementioned *historical process* does not account for fast-track projects, nor does it address other project delivery methods such as design-build, build-own-operate, CM at-risk, or the myriad of hybrid methods available to owners today.

### Contemporary Design And Construction

Some owners are sophisticated, some are not – but nonetheless, most think that they are. Architects are performing engineering. Engineers are performing architecture. Contractors are preparing designs. Architects are constructing. Construction managers are managing the design phase, architects are managing the construction phase. Architects are choosing the best contractors, and owners are often stuck with the low bidder. Owners are making architects and construction managers jointly and severely responsible for duplicative services and risks.

Owners think they are protected, yet lawyers are becoming standard members of the project team. We now have facilitators, mediators, arbitrators, judges, juries, special masters, and neutral advisors.

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<sup>11</sup> *AIA Document B141-1997*, The American Institute of Architects, Washington, DC, 1997, Page 2-2 (§ 2.1.1) *The Architect shall manage the Architect's services and administer the Project. The Architect shall... The Architect shall coordinate the services provided by the Architect and the Architect's consultants with those services provided by the Owner and the Owner's consultants.*

<sup>12</sup> *Ibid.* Page 2-4 (§ 2.4.2)

Indemnification provisions in service agreements are longer than the scope of services. Risk is often contracted with the party least likely to be able to control it. Construction costs are out of control. Construction scheduling has become so complex, we line trailer walls with hundreds of square feet of CPMs, only to really coordinate the work around the morning coffee pot. Specifications have become so rote, contracts so byzantine, that they are only referred to when there is a problem – because “we” know how to do it! No one bothers to read contracts anymore; they are too complex to understand. Safety and research are no longer hallmarks of the greatest of industries. And this is only the half of it.

The modern day construction process became so complex, it was only natural that the industry would need the facilitation of the construction and/or program manager. It seems that the owner's own problems have become the catalyst for projects fraught with conflict, disputes, and claims. Now who are the foxes?

### **Architects Performing Construction Management**

Architects and the services they provide are vital to a project's success. When the owner utilizes the services of a construction manager, the services of the architect are primarily limited to the design aspects of the project during the preconstruction phase.<sup>13</sup> When the owner does not employ a CM, the architect's role broadens greatly.<sup>14</sup> Architects have been the substance of criticism by all entities involved in construction – some of it warranted and some of it not.

For example, according to Richard G. Weingardt, PE in his monthly column in the February 2003 issue of *Structural Engineer* magazine, his survey regarding the biggest complaints engineers have about architects, yielded that they are “terrible business people,” “not good at coordinating the design team,” many are “unable to properly manage a project's scope, schedule, quality or budget when serving as the prime designer,” and “they don't have a handle on constructability or costs, so they design projects that come in over budget.”

Weingardt's survey also revealed that many architects fail to listen to their consultants' recommendations, especially concerning the practicality of the architectural design. Some respondents are frustrated by architects' attitude toward the engineers they work with. However, engineers are complimentary about architects' creativity, imagination, and ability to push the envelope.

The first fox emerges: Whether they are revenue-driven or motivated by the resurgence of the master-builder concept, architects want to be the entity managing construction. Prior to the mid-sixties, before construction management was popularized as a separate member of the project team, architects did provide more comprehensive professional services during construction, but rarely to the level of today's construction managers.

It might be argued that construction was easier then, and the expertise of today's construction manager was not needed. In fact, it was the size and complexity of projects that was the impetus for the birth of CM. So, the question remains: Should architects still be providing construction management services today?

During the construction phase, an architect has many important duties to perform that are associated with the design of the project. These include responding to RFIs; approving shop drawings, samples and manufacturer cut sheets; certifying payment applications; certifying that construction is being performed in accordance with the contract documents; and approving changes in the work. Construction managers should agree that some of these duties *must* be performed by the architect. The controversy extends over 1) to what degree should these services be performed, 2) who is the best qualified to perform certain

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<sup>13</sup> *AIA Document B141/CMa*, The American Institute of Architects, Washington, DC, 1992, Pages 2-3.

<sup>14</sup> *AIA Document B141-1997*, The American Institute of Architects, Washington, DC, 1997, Page 2-2 to 2-6.

construction phase services, and 3) which party is best at managing the risk associated with certain construction phase services.

Architects manage the construction phase under two scenarios, depending on whether or not they designed the project. Under the first model, the architect has an apparent conflict of interest when evaluating and approving changes to the work. Is the change occurring because the architect made an error or was there an omission in the design? In either case, the architect, during the construction phase, has the opportunity to misrepresent to the owner the root cause of the necessary change in work. While it is difficult to cover-up errors, especially when they are code violations, omissions in the design are often explained away by the architect as "this work is included in the scope the contractor bid."

Architects also play down the cost of the omission to the owner. They say that the omitted work would have been included in the bid had the omission not been made, so the argument is that the owner would have paid for it anyway. But it is common knowledge that there is a premium cost associated with buying work after the bid has been accepted; material, equipment, and labor cost more for changed work. Should the owner, who is not at fault, have to accept or bear the brunt of this unexpected cost increase?

Representatives of the architect in the field can conceal a change that needs to be made by arranging "deals" with contractors regarding the approval of future extras on this, or other, projects. Construction managers don't benefit from this type of arrangement, as they don't have a stake in the project's design.

Members of the same *fraternity* tend to look out for each other. When architects who have designed the project administer construction services, they have the ability to protect the interests of their colleagues if omissions and errors are discovered. Architects are not alone; the same *protection* applies to contractors that are hired to perform construction management, and are evaluating changes by their fellow contractors. Maybe they will approve a change without really checking the details, or perhaps they will side with the contractor against the architect and/or owner in arguing the merits of the change. It is human nature; people remain loyal to their own.

Since construction managers do not produce anything tangible on the project – they essentially facilitate the process – they are not loyal to the architectural, engineering, or contracting community and can truly serve as the independent and objective leader of the project.

Size and complexity are certainly factors in an owner's decision to engage a professional construction manager or utilize the architect to provide construction phase services. In residential home construction, the relationships, scope, and project procedures are very much understood by the parties and have not greatly evolved. On large industrial projects, complicated government buildings, and other projects of noteworthy size and intricacy, the roles and relationships are defined by the owner, and vary from project to project. This variance contributes too many problems in the construction industry.

### **Construction Managers Performing Design**

Examining association service agreements between owners and architects, and owners and construction managers, in past decades revealed a much clearer delineation between architectural and CM services in the design and construction phases. What events occurred to cloud the distinctions between services and the phases?

As Weingardt discovered in his survey, design professionals are not good at management and coordination, do not really understand construction means and methods, are ego-centric, and do not understand the ramifications of their design decisions on cost and schedule. These factors would drive any owner to seek an alternate in the process.

Initially, it seemed as if construction managers became more involved in preconstruction by assuring that the bidding process would be performed and managed efficiently and correctly. This was a natural first



transition for the construction manager. During the procurement phase, construction managers got involved with prequalifying bidders, conducting a bidder's interest campaign, preparing notices and advertisements, conducting pre-bid conferences, conducting the bid opening, conducting post-bid conferences, analyzing bids, and updating project costs and schedules.<sup>15</sup> In the next progression, construction managers were directly drawn into the design phase. The second fox emerges.

Owners recognized that the influence of construction experts on the design lessened the uncertainty and risk during construction that leads to cost and schedule creep as well as issues of scope and quality. Nothing confirms the CM's transition into the design phase more than the advent of the project delivery method called CM at-risk.<sup>16</sup> Here, a contractor [of some type] signs a contract that will *influence* the design while it is still "on the drawing board," so to speak, because it is commonly understood that changes during design are much less expensive to fix than they are during construction. At some transition point, a price for construction would be negotiated with the owner. The CM at-risk entity would transform itself from the owner's representative to a contractor. Hence, the entity acts like an agency CM during preconstruction and a contractor at-risk thereafter.

In another twist, the owners invite agency construction managers into the design phase. While many of the services being performed directly affected construction, they mainly entailed managing and coordinating the design process. Services included preparing a construction management plan; selecting design professionals<sup>17</sup>; preparing a master schedule and budget; establishing a management information system; monitoring designer compliance; reviewing design documents; coordinating information to regulatory agencies; monitoring the design phase schedule; and performing value analysis, among others.<sup>18, 19</sup>

To the architect, entry of the construction manager into their domain is nothing short of intrusive and bewildering. Ask any architect if they need help performing and managing the design phase, and the response will be apparent. For the owner, the question remains: Are they adding value by inviting the CM to participate in the design process? The CM's opportunity to be a fox is not without its risks . . .

### The CM's Risks During The Design Phase

The principal threat to construction managers performing design phase services entails services associated with the review of the design documents. CMAA, in their services agreement between owner and construction manager, describe the exact scope of services to be provided in the following provision:

*The CM shall review the design documents and make recommendations to the Owner and Designer as to constructibility, scheduling, and time of construction; as to clarity, consistency, and coordination of documentation among Contractors; and as to the separation of the Project into contracts for various categories of Work.*

In the next part of the same paragraph, the provision states how the CM is not assuming any liability or responsibility for the design, or that the CM has no control of the design. It states that the CM's services in this regard are "advisory only" to the owner and designer.

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<sup>15</sup> CMAA Document A-1, Standard Form of Agreement Between Owner and Construction Manager, 2002 Edition, Pages 8, 9.

<sup>16</sup> Strang, Warner, The Risk in CM "At-Risk", CM eJOURNAL, Construction Management Association of America, www.cmaanet.org, 2002.

<sup>17</sup> If the CM was engaged early enough.

<sup>18</sup> CMAA Document A-1, Standard Form of Agreement Between Owner and Construction Manager, 2002 Edition, Pages 5-8.

<sup>19</sup> AIA Document B801/CMa, Owner-Construction Manager Agreement (where the CM is not the constructor), American Institute of Architects, 1992, Pages 2-3.

In the AIA owner and construction manager agreement it states that

*2.2.4 The Construction Manager shall expeditiously review design documents during their development and advise on proposed site use and improvements, selection of materials, building systems and equipment, and methods of Project delivery.*

*2.2.7 The Construction Manager shall consult with the Owner and Architect regarding the Construction Documents and make recommendations whenever design details adversely affect constructibility, cost or schedules.*

The ambiguity or source of controversy may be in the owner's definitions and expectations regarding constructability and the construction manager's culpability, should anything be wrong with the design.

Without examining in great detail the concept of constructability analysis, construction managers are reviewing the drawings and specifications to determine whether the design can *reasonably* be built. It is only when something goes wrong during construction do owners and construction managers dispute the intent of this pseudo design review.

Owners, especially those with limited funding and time, or whose projects are revenue generators tied closely to project completion, believe that the CM should catch every error, omission, ambiguity, and/or inconsistency with the design documents prior to bidding. Design professionals performing quality control over the design – not the CM – should have the first line of responsibility for weeding out problems with the documents. But design professionals are not diligently checking and coordinating their own work, possibly assuming that construction managers will do it for them.

In reality, designers should review their designs (check their own work) to be sure that the designs are in conformance with the owner's program, local codes, budget, schedule, and with decrees from regulatory agencies having jurisdiction. Construction managers should review the designs to assure that the work can be correctly defined by a contractor for the purposes of pricing. The owner also wants to be assured that the designs will yield bid pricing within budget, project schedules that are within the ranges of the master schedules, and that the work can be constructed in accordance with the design documents.

Regardless of the language in the service agreements, owners do not dismiss, whether implicit or explicit, a construction manager's culpability because of construction problems caused by a design error, omission, or ambiguity. Owners often assume that constructibility reviews and design reviews are analogous. It is also important that they realize that no individual on a construction manager's staff may be an architect or engineer or, for that matter, ever "designed" any component of work during their career. Many practitioners of construction management do not even have college degrees or any level of certification. Owners need to be better educated on the differences between design and constructibility reviews and the roles of the professionals in each.

Construction managers should not be held accountable for the accuracy of the design. However, owners are turning to construction managers for cost estimating on projects. With both the AIA and CMAA service agreements in concurrence that construction managers are responsible for evaluating cost as design progresses, owners are asking another tough question regarding the relationship between cost estimating and the constructibility review.

### **The Owner's Issues With Cost Estimating**

Accurate cost estimating has a material impact on a project's viability. Owners have limited funding – either money in the bank or by statute, as is the case in a bond referendum or public budget vote. Some

projects may never get developed because a conceptual estimate of costs revealed the project was not financially feasible. Money is often an owner's most important metric.

Architects believe they provide very accurate project cost estimates, although many will agree that they do not want the liability associated with this. Most people involved in the construction industry believe that estimators working for general and trade contractors who bid at-risk work, as a matter of course, probably provide the most accurate cost estimates. Construction management firms, having hired many of these contractor-estimators, are now well-positioned to provide very accurate estimating services.

For the most part, when design professionals provide estimates, they rarely examine the work in detail to determine crew makeup, crew size, work duration, unit rates, labor rates, and current market material and equipment costs. Standardized estimating guides utilizing square foot pricing is used, as is data from the architect's last similar project. But despite superficial similarities, rarely are any two projects alike.

Cost estimating has a direct impact on the decision making process. An estimate may determine how much of the overall project gets built now, and how much later. It may determine the quality of the materials and equipment to be used. It may influence the duration of construction, the number and types of professionals the owner may use to complete the project, and the language used in the service agreements and general conditions. When the budget is tight, the provisions of all contracts are written to protect the owner, not the construction entity. Strangely enough, architects –who don't want the liability – still seem to be the dominant provider of cost estimates to the owner.

Issues stemming from design and constructibility reviews often surface when architects and/or construction managers perform cost estimates. If performed properly – to the degree warranted by the completion percentage of the design, cost estimators *should be able to* identify errors, omissions, and ambiguities in the design documents when preparing estimates. In fact, diligent cost estimators are essentially providing, although informally, an on-the-fly constructibility review as they prepare the cost estimate.<sup>20</sup> Anything that doesn't make sense, work that is discovered missing, duplications, and/or any piece of work that cannot be constructed as depicted on the drawings should be brought to the attention of the architect or construction manager by the cost estimator. The CM is providing an extra set of eyes, but the owner is still asking why there are so many errors, omissions and ambiguities.

Although cost estimators function as yet another set of eyes prior to the bidding phase, owners can complicate matters by having both the architect and construction manager provide cost estimates, pitting one against another. In this situation, the architect and construction manager are often compelled to point out the shortcomings of the other's estimates, causing resentment, and requiring the owner to referee the outcome.

### **How Do Program Managers Fit Into The Design and Construction Process?**

Program management can be performed by any entity. On large, complex projects it is oftentimes performed by large professional service companies with design and construction expertise, although neither is a prerequisite. The program manager, as illustrated on the organizational chart on page 14, serves as an additional layer of management between the owner and other project professionals.

Program management duties may mirror those of project or construction managers, but on larger, more complex projects, program managers may also get involved with project financing, public relations, legislation affecting the project, relocation services, operations and maintenance, and purchasing.<sup>21</sup>

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<sup>20</sup> Cost estimators often admit that their process of cost estimating is to build the project on paper, transforming two-dimensional instructions into a three-dimensional model illustrating the work to be estimated.

<sup>21</sup> *Program Management Procedures*, Construction Management Association of America, McLean, VA, 2003 Edition, Page 1.

Both construction and program managers sell “extension of staff” services to owners. In other words, if the owner does not have the correct quantity of staff and/or lacks certain expertise, the construction manager and program manager each have the ability to fill that gap. The issue becomes whether a program manager can truly act as an extension of the owner’s own staff, or is he merely a fox, cloaked as the pseudo-owner?

The more removed an entity is from the owner on an organization chart, the less likely it is looking out for the owner’s best interests. The program manager on large and complex projects is closest to the owner. On projects where a program manager is not required, the construction manager may be closest, or equidistant to the architect. Both circumstances are depicted in the following charts.



Program managers are also known to provide architectural, engineering, and construction management services. This brings to the forefront a number of distinctive issues that could negatively affect the project (or program).

Program managers can be involved in a number of different ways with the actual design of the project:

- ❖ Provide programming services only.
- ❖ Prepare conceptual plans only.
- ❖ Prepare conceptual and schematic plans only.
- ❖ Serve as the coordinating designer among many designers.
- ❖ Prepare construction documents for the entire project.
- ❖ Provide construction documents for only some project elements.

Additionally, design professionals on the project may contract directly with the program manager and not the owner. Likewise, all design professionals may contract with the owner separately and the program manager will be assigned to coordinate all design efforts.

When the program manager actually performs design work, it is considered one of the foxes on the project team. It can no longer be objective because it is a stakeholder, producing something tangible that is required for the project to be successful.

### **Another Dilemma: Can The Owner Truly Understand What He Is Buying?**

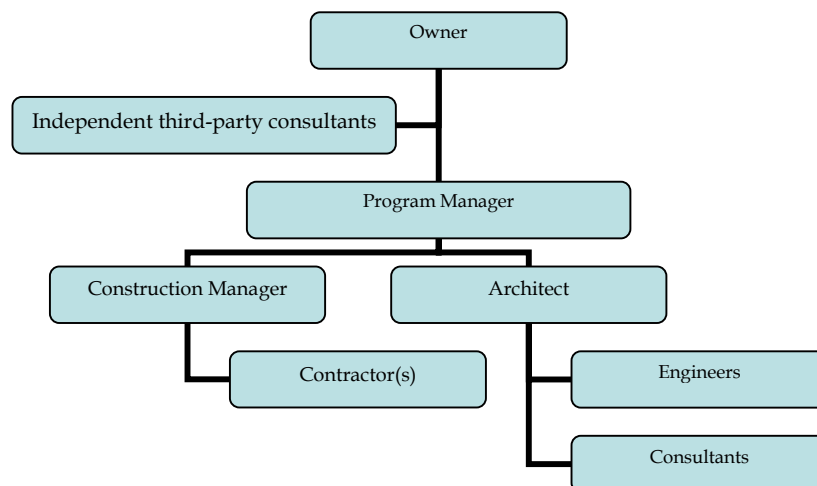
Architects are able to extract information about an owner’s goals and objectives in the formation of the design program. Every measure of usability is examined and documented by the architect – the *who*, *what*, *when*, *where*, *why*, and *how* of the project is dissected. The CM also describes and explains to the

owner the nuances of construction as it relates to the program requirements. Renderings, models, and virtual imaging help the owner to better understand the project, and what he is getting for his money. But it is not until an owner actually sees a constructed part of the work or the entire project that he *really* knows what he bought. When expectations differ, conflicts among the owner, architect, and construction manager are inevitable.

The program manager is often perceived by the owner as better equipped to understand goals and objectives and, therefore, becomes responsible for conveying this information to the design professionals and construction managers. But even in these situations, the owner can dispute compliance with the objectives, and hence, a third party is involved in the dispute. It is still unclear which party is technically and legally responsible: the architect, program manager, construction manager -- or the owner.

### WHICH PARTY IS TECHNICALLY AND LEGALLY RESPONSIBLE?

On larger and/or more complex construction projects, an owner will often engage multiple professionals to look after its interests. These projects can also employ more than one project delivery method. The apparent roles and responsibilities illustrated in the project organization chart below may trigger technical and legal issues the owner might not have expected. These issues may relate to project costs, schedule, quality, scope, and changes to the work.



### Project Cost

The ultimate cost of the project may be the most important project metric to the owner. Architects, CMs, and program managers always spend time and resources attempting to *control* costs. Reasonably, owners want the most scope for the least cost. Design professionals, CMs, and program managers pledge that they have the ability to accomplish this.<sup>22</sup> In the aforementioned organization chart, each participant not only influences the project's costs, but also may be involved in estimating costs at various intervals during the project's lifecycle. On large complex projects:

- ❖ Engineers will estimate the costs of their discipline and forward this data to the architect.

<sup>22</sup> In letters of interest, statement of qualifications, proposals and in the message delivered in selection interviews, design professionals, CMs, and PMs tout their abilities to minimize/control the costs of the project.

- ❖ Architects will estimate the costs of their discipline and combine this data with that of the engineers, or will perform independent cost estimates and forward this data to the construction manager.
- ❖ Construction managers may/will perform their own independent costs estimates or will check the architect's cost data for each project in the program and forward this data to the program manager.
- ❖ Program managers may/will perform their own independent costs estimates or will check the construction manager's data for each project in the program and forward this data to the owner.
- ❖ Owners may check the cost estimates with in-house personnel or engage independent third-party cost estimating firms to check the data.

Employing multi-layer checks and balances assures the owner that the project's costs are aligned with the initial objectives and that the project can continue to progress. Should the actual bids or proposals exceed the estimates, the owner will clearly be confused and angry, looking for (and deserving) an explanation. Who should be held responsible, technically and legally: the engineer, architect, CM, program manager, independent cost estimator, or the owner? Who is going to pay for changing the design and re-bidding, as well as the administration associated with this procedure? The answer should be contained in the owner agreements with each of these professionals, but often these agreements are silent or vague. And even if these issues are addressed, disputes still arise. The same outcome could transpire even on smaller, less complex projects, where an owner has engaged just an architect and a CM; any owner is prone. Costs should be managed and controlled by the party best equipped to do so.

The bottom line is that no entity can agree on which party is best equipped, and still none of these parties want to be held ultimately accountable – legally, technically, or otherwise. But they all want the scope in their contracts to increase revenues and participation.

### **Project Schedule**

The scenario: A design omission and error will delay the completion of a project, costing the owner millions of dollars. The error was made by the engineer, while the omission was a leave-out on the architect's plans. All parties agree that the omission and error occurred. Even with the input of all parties, including prime contractors and subcontractors, little can be done to mitigate the delay. But as the owner reminds us, *time is always of the essence*.

The architect selected and contracted with the engineer, and supposedly checked the engineer's drawings. The CM performed a constructibility review that included checking the contract drawings and specifications. The program manager worked with the owner to create the programmatic requirements of the project and also performed a design review. The owner's in-house technical staff reviewed the plans and specifications. The local building department reviewed the contract documents, approved them, and issued permits. Another regulatory agency did the same.

Which party is ultimately responsible for the error and omission – technically or legally? Neither happened intentionally, but the owner is accusing his professionals of negligence. The answer is very complex, and the service agreements rarely contain the answer.

### **Quality And Scope**

Quality of work is another metric that can originate questions of technical and legal responsibility, just like issues of cost and schedule. On this hypothetical project, a problem with the contractor's work was accidentally discovered, and was considered deficient and in nonconformance with the contract

documents. Unfortunately, follow-on contractors have completed their work in this area, and are in compliance. To modify and repair the nonconforming work, whatever was already installed and approved by other contractors must be ripped-out and later reinstalled. The costs will be significant. The owner has no additional funds and is looking to the contractor and his professionals for compensation. The owner is not concerned about where the money comes from, just as long as he does not have to contribute.

The owner's position is that the design professionals signed a contract indicating that they would examine the work in place to certify that it is in conformance with the contract documents, and that they would examine the work to certify contractor payment applications. The CM's agreement indicates that it would inspect the work to assure that it is in conformance, and that it, too, would certify contractor payment applications.<sup>23</sup> The program manager, although not often charged with inspecting the work, must insure that the design professionals and CMs performed their work in accordance with their respective agreements. Lastly, the local building department and a regulatory agency periodically visit the jobsite and verify that the work is being constructed in accordance with the permitted plans.

The owner has installed multiple layers of protection, but each professional is blaming the mishap on the other. The engineer and architect will each argue that it is only coming out to the site once or twice a week and is looking at the work in a general nature, expecting the CM to inspect the details of the work. The CM's position is that it has insufficient inspection staff to examine each item of work being constructed daily, and must use its judgment on what to inspect each day. The CM correctly states that each contractor has quality control responsibility, while it is only performing quality assurance. The program manager argues that his staff only randomly audits the work and does not inspect the details.

Each party agrees, except for the owner, that the contractor that built the non-conforming work is responsible, and should therefore pay the follow-on contractors to demolish and reinstall their work. The contractor argues that this work was approved by virtue of being paid, and that follow-on trades were allowed to proceed with their work. This puts the owner in a precarious position, where no entity is admitting fault, or can sufficiently explain how this debacle happened in the first place. Most importantly, no one can advise how to proceed. Quality issues such as this one can occur on jobs of all sizes and scope. Determining technical and legal responsibility for the owner is like a puzzle that can be expensive to put together.

### **Changes In The Work**

The last issue to examine is deciding which entity is technically and legally responsible for project change. Who owns the change? For example, a contractor on the hypothetical project submits a value engineering change proposal to allow for easier and faster installation of work. The cost savings is to be split between the owner and contractor.

The contractor submits formal paperwork to the CM, who sends copies to the architect and program manager. The architect forwards a copy to the engineer, who indicates that the change will not affect the structure. The architect agrees, and informs the CM that the change will have no impact on the project as designed. The CM does not see any constructibility issues. The program manager agrees that the change fits within the confines of the program, and does not impact the form or function of the project. With the approval of the owner, the CM prepares and issues the formal change order authorizing the work that reduces the contractor's contract amount. The work proceeds in conformance with the new design.

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<sup>23</sup> It is becoming increasingly common for both the architect and construction manager to "certify" payment applications. Owners are requiring both entities to sign the payment application signifying their approval.

Six months after beneficial occupancy, prefabricated panels come loose from the building caused by high winds, damaging property and nearly injuring passersby. The owner's lawyers contact each professional. The finger-pointing begins.

The engineer claims he only checked that the design would not affect the structure, and actually never checked the new design. The architect's response is the same. The CM, not having design responsibility, checked to make sure that the new design did not impact the work performed by other contractors, and the program manager just checked that the new design conformed to the program. Even though the contractor submitted shop drawings, no entity ever checked the detailed design of the change.

Who owns the design of a change proposed by a contractor? Design professionals shy away from this responsibility because it is not *their* design. They do not want to be held responsible for someone else's design. The owner questions what it is paying its design professionals for, as well as why the CM and PM did not make certain the design was checked by the engineers and architect.

The contractor argued that receipt of the formal change order was confirmation that his *back of the envelop* design must be adequate, or he would have heard from one of the professionals helping the owner. The owner must repair the problem, but is looking for someone else to pay for the fix. This is another situation where the owner employed multiple layers of protection through professionals with overlapping roles and services. This so-called "protection" is seemingly doing more harm than good.

Again, the issue of technical and legal responsibility is clouded. This issue is further exacerbated and complicated when employing other project delivery methods besides design-bid-build.

### THE EFFECT OF VARIABLE PROJECT DELIVERY METHODS

Now that the design-bid-build project delivery method is decreasing in popularity, architects and construction managers are assuming non-traditional roles as foxes, resulting in uncharted liabilities.

Architectural firms are being selected by owners as the prime contracting party on design-build projects. Designers are now responsible not only for management of the construction process, but for means and methods, something design professionals, and the associations that represent them, have gone out of their way to avoid for eons. The same is true for construction management [and program management] firms now taking the lead on design-build projects. To be successful, architectural and CM firms must either have the appropriate resources in-house or team with another firm to provide the expertise missing from their core business.

Whether in-house or subcontracted, this arrangement puts an incredible strain on relationships, especially when things go wrong, as they so often do. The architectural firm now responsible for the design and construction becomes defensive when its design is considered inadequate because problems have manifested during construction. Likewise, the design professionals attack the CM firm for mismanaging the construction process and allowing construction-related problems to unfold.

Design-build has existed for decades under different banners, but what the owner has successfully done is to shift risk by eliminating the design professional as its agent. This may appear to be a successful methodology for owners, but for prime and subconsultants/subcontractors, it's resulting in an increase in claims, disputes, and lawsuits.

Other project delivery methods, including CM at-risk, build-own-operate, multi-prime, build-operate-lease (or purchase), time and material (or cost-plus), build-own-operate-transfer, and the influence of fast-tracking, all have inherent possibilities for conflicts of interests and potential ethical breaches. For all of the project delivery options available to the owner today, a plethora of troubling issues still remain. Do these other methods generate or eliminate foxes?



## THE EFFECT OF THE PROCUREMENT PROCESS

The *Request for Proposal* (RFP) process is the standard method for owners to hire architects and CMs; a limited number of professionals are asked to submit a proposal, or the RFP is publicly advertised, and any professional is welcome to respond. Other procurement strategies could include a prequalification procedure and/or the additional step of firms submitting *Letters of Interest* as prerequisites to receiving an RFP. After the proposal submission, owners often create a shortlist of firms and invite them to an interview and presentation. Some owners then select the winning firm, or they create a second shortlist for a different group within their organization to interview.

The only wrinkle is the cost or fee proposal; when does it get submitted, and when does it get opened by the owner? Public procurement laws differ greatly from the private sector. Because of discrepancies in the definition of construction management, state jurisdictions' rules vary greatly on the engagement of a construction manager. At the federal level, the procurement process is somewhat consistent and governed by the *Federal Acquisition Regulations*.

Depending on how an owner conducts the procurement process, he may not be aware that he has hired a fox. Different owners write different RFPs. The names they give to various entities and the corresponding scope of services changes with each owner and project. This inconsistency is another issue that owners need to face.

### The Confusion In Requests For Proposals

Architects, program managers, and construction managers all want the same thing – profits. Increased competition and fewer viable leads have led to the erosion of market share for most professionals involved in the construction industry. As a result, firms have strayed outside their core business areas to reverse or slow this trend.

Architectural firms are offering engineering and construction management services, construction managers are offering design-related services, and program managers are offering everything.

Clearly, a crisis exists because owners are producing RFPs for architecture (encompassing all the engineering disciplines), construction management, project management, program management, and even construction administration. RFPs are even being generated for subsets and hybrids of these now-common service professions. These include services for entities referred to as clerk of the works, owner's representative, project administrators, resident engineers, construction engineers, architectural engineers, and contract administrators. Many of these, despite the term used in the RFP, are quite similar.

A firm's centralized marketing department could respond to five different RFPs, from five different clients, each wanting the same service, but calling it something different. This further confuses an industry that is desperate for defined roles and responsibilities. Owners must take the lead to codify a uniform system of procurement for construction professionals.

### Scope Of Services Matrix

An examination of more than 70 formal *Requests for Proposals* has revealed some insight into the owner's quest to hire professionals. The RFPs were issued over the past 18 months. They were prepared by private and public sector owners, mainly governmental agencies, municipalities, and state governments. The owners are located nationwide, with a large concentration in California, New York, New Jersey, Illinois, Florida, and Texas.

The following matrix analyzes the scopes of services that owners include in their RFPs for design professionals (architects and engineers), program managers, and construction managers. These services have been subdivided by the design, procurement, and construction phases. The purpose of examining the RFPs is to:

- ❖ Ascertain any interesting patterns.
- ❖ Identify any duplicative services.
- ❖ Discover any "leave-outs".
- ❖ Detect any unusual services.

Cells that have been highlighted indicate that the owner may have excluded a service customarily provided by that entity or that the owner included a service generally *not* performed by that entity. Because each project is different, this should serve to assist the owner in deciding which entity may be best qualified to provide a specific service, depending on the situation.

Scopes of Services by Phase in RFPs	Design Professional	Program Manager	Construction Manager
<b>Design</b>			
Architectural design	Yes		
Cash flow analysis		Yes	Yes
Chair project design meetings		Yes	
Civil design	Yes		
Code compliance review	Yes		
Computer-aided drafting	Yes		
Conceptual cost estimate	Yes	Yes	Yes
Conceptual plan development	Yes	Yes	
Condition assessments		Yes	Yes
Conduct executive briefings and/or attend hearings			
Constructibility review		Yes	Yes
Construction documents	Yes		
Coordination of all design professionals	Yes	Yes	
Coordinate design with property owner	Yes	Yes	
Cost modeling and cost-benefit analyses		Yes	Yes
Design development	Yes		
Design development cost estimate	Yes	Yes	Yes
Design professional selection	Yes	Yes	
Determine construction phasing		Yes	Yes
Develop and implement correspondence controls			Yes
Develop and implement cost control system		Yes	
Develop and implement MIS		Yes	

Scopes of Services by Phase in RFPs	Design Professional	Program Manager	Construction Manager
Development of a management plan		Yes	Yes
Electrical design	Yes		
Environmental design	Yes		
Environmental Impact Statement	Yes		
Feasibility study	Yes	Yes	Yes
Fire protection design	Yes		
Geotechnical engineering (Subsurface investigation)	Yes		
Interior design	Yes		
Landscape design	Yes		
Life safety design	Yes		
Long lead equipment/item planning		Yes	Yes
Maintain listing and contact information for Team		Yes	Yes
Master time schedules		Yes	Yes
Mechanical design (Plumbing and HVAC)	Yes		
Monitor design schedule		Yes	
Monitor EOE, DBE, MBE, WBE programs		Yes	
Preparation of grant and loan documents	Yes		
Prepare application for permitting	Yes		Yes
Prepare monthly progress report		Yes	Yes
Programming	Yes		
Project delivery method identification		Yes	Yes
Project design coordination		Yes	
Property appraisals and valuations	Yes		
Provide community/public relations		Yes	
Provide renderings and models	Yes		
Review design development drawings		Yes	
Review design professional cost estimates		Yes	Yes
Review drawings/specifications during preparation		Yes	Yes
Schematic cost estimate	Yes	Yes	Yes
Security design	Yes		
Site planning and assessment	Yes	Yes	Yes
Specification writing	Yes		
Structural design	Yes		
Surveying	Yes		
Systems evaluation	Yes		
Telecommunications design	Yes		

Scopes of Services by Phase in RFPs	Design Professional	Program Manager	Construction Manager
Value engineering review		Yes	Yes
<b>Bidding (Procurement)</b>			
Approve schedule of values	Yes		Yes
Bid evaluations			Yes
Construction market assessment			Yes
Contract document review			Yes
Contract negotiations			Yes
Contract preparation			Yes
Contractor interviews (Pre-award conferences)			Yes
Contractor pre-qualification			Yes
Contractor selection			Yes
Determine breakdown and prepare trade packages	Yes		Yes
Determine qualifications of apparent low bidders		Yes	Yes
FF&E procurement procedures			
Help owner engage a clerk of the works			
Interim life safety procedures			
MIS development			
Oversee bid advertising		Yes	Yes
Preconstruction conference			Yes
Utility shutdown procedures			
<b>Construction (&amp; Post Construction)</b>			
Answer contractor questions about documents	Yes	Yes	Yes
Approve samples	Yes	Yes	
Approve schedules	Yes	Yes	Yes
Approve shop drawings	Yes	Yes	
Approve suppliers and manufacturers	Yes	Yes	
Assemble written guarantees of contractors	Yes	Yes	Yes
Certify payment applications	Yes	Yes	
Conduct job meetings	Yes	Yes	Yes
Construction monitoring	Yes	Yes	Yes
Contract administration		Yes	Yes
Contract closeout		Yes	Yes
Coordinate and obtain building permits		Yes	Yes
Coordinate collection of close-out documents		Yes	Yes
Coordinate on-site testing		Yes	Yes

Scopes of Services by Phase in RFPs	Design Professional	Program Manager	Construction Manager
Detailed quantity surveys	Yes	Yes	Yes
Determine if work is in conformance with design	Yes	Yes	Yes
Develop occupancy schedule		Yes	
Development and monitoring of safety program		Yes	Yes
Inspect work for substantial/final completions	Yes	Yes	Yes
Inspections during warranty period	Yes		
Issue non-conformance notices	Yes	Yes	Yes
Maintain job-site project files		Yes	Yes
Manufacturer/supplier site visits/audits	Yes	Yes	Yes
Monitor and get as-builts delivered		Yes	Yes
On-site management of construction		Yes	Yes
Post-occupancy evaluation			
Preparation of operating and maintenance manuals	Yes	Yes	
Prepare and issue change orders	Yes	Yes	Yes
Prepare detailed daily construction log		Yes	Yes
Prepare monthly progress report		Yes	Yes
Provide community/public relations		Yes	
Quality assurance system		Yes	Yes
Review and approve change proposals	Yes	Yes	Yes
Review and respond to RFIs	Yes	Yes	Yes
Review shop drawings, sample and cuts		Yes	Yes
Solve problems during warranty period	Yes		
Witness and report testing results	Yes	Yes	Yes

This matrix emphasizes that owners are still using architects and engineers as their primary source for architectural and design work in all disciplines, and that they are requiring that program managers and construction managers be significantly involved in the design phase of the project.

Also illustrated is the fact that owners do not want the design professional and program manager involved during the bidding or procurement phase. Owners have recognized the benefit of delegating this phase to the professional closest to the actual construction.

The matrix confirms that owners are still asking design professionals to provide services in connection with the tasks listed in the AIA owner-architect agreements (with and without a CM). This includes involvement with submittals, payment applications, construction conformance, changes, and project completion.

Interestingly, the program manager is being asked to play a major role during the construction phase. The RFPs for program management revealed that in most programs, separate construction management firms would be hired for individual projects, but in a few cases the program manager would be also serving as the construction manager on these individual projects.

Whether the owner was being intentionally vague, or perhaps assumed that certain terms were industry norm, the scopes of services written in the RFPs did not always detail explicitly what the owner was seeking from the professional. This is clearly a source for conflict, should problems ensue on the project.

The matrix reveals that owners want the design professional, program manager, *and* construction manager involved in cost estimating. Although this “tripling-up” may seem like owners are creating a system of checks and balances, it is actually a source of conflict, obscuring technical and legal responsibility.

Owners that seem to agree with the results of Weingardt’s survey leave the development of management plans and implementation to the program manager and CM, not the design professional. The RFPs also task the program manager with managing the work of the design professionals, inclusive of both the design schedule and coordination. Tasks such as determining the best project delivery method(s), phasing the work, coordinating long-lead purchase items, and master schedules no longer seem to be performed by the design professional.

The program manager in the RFPs is being asked to review the drawings and specifications as they are being developed; a scope that could result in finger-pointing, should something go wrong. Correspondingly, the owner wants the program manager (and CM) to provide value engineering as a means to cut costs via changes in design. Shouldn’t the program manager be influencing the design to such a point that value engineering may not be necessary?

During the construction phase, this duplication of services is a source of concern, because it masks accountability. (One exception is for large programs, where the program manager serves in both capacities.) Most programs, according to the RFPs, employed independent firms for each role.

The list of services did not reveal any service scopes that would be out of character for any of the three professionals.

### **The Dilemma With Straying Outside Your Core Business**

Conflicts of interests and ethical issues could arise when professionals attempt to perform outside their core business. One scenario: A nationally prominent architectural/engineering firm expands its menu of services to include construction management. The firm is owned and managed by shareholders that are licensed architects. Although the shareholders are very knowledgeable of the construction process, they wisely decide to add several senior level construction management professionals to their organization.

They create internal procedures, develop contract documents, and hire other construction professionals for CM-related assignments. After several years, the firm is selling both design and CM services; it has successfully expanded its core design business.

The firm is providing design services on a project – both architecture and engineering – and the owner has engaged a third-party CM. An issue surfaces over which party prepares the trade packages for bidding. Apparently this service was left out of both the design and CM agreements by an unsophisticated owner.<sup>24</sup>

In a meeting between the owner, architect, and CM, a shareholder of the architectural firm declares that his company never prepares trade bid packages; this is always provided by other construction management firms. Further, he said that the CM group in his firm always includes this in their scope of

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<sup>24</sup> The owner would not share the design agreement with the CM before their contract was negotiated. But this would have not been a guarantee that this “leave-out” would have been discovered.

services when pricing a job, and never does the designer of record. A review of the design professional agreement, a modified AIA boilerplate, revealed that this architect was to "assist" in the preparation of the trade packages. The architect argued that since they were to "assist," someone else must have the primary responsibility. Who else but the CM could be held responsible?<sup>25</sup>

The independent CM agreed to step in and prepare the trade packages to keep the project on track. Subsequently, it was learned that the design firm, despite its claims, did in fact prepare trade packages for bidding on most of its projects. The firm's CM group, it was later found out, usually only prepared the scoping document describing the work to be included in each trade package.

Was the design professional misleading the others? Or is this a matter of role confusion; the design professional not really understanding what a CM does. Did the architect lie to avoid having to perform scope? If so, what was his motive, if one even existed?

Because professionals understand their own respective industries and the intricacies of how they work, it is difficult to ascertain whether a professional in another domain is adequately fulfilling its contractual requirements. Hence, how can an architect truly know if its construction managers are performing to its contract obligations and industry standards?

When a firm diversifies its portfolio of services outside its core business, the principals or shareholders must be able to distinguish how they are performing in that new role. If these shareholders are architects, they may find it difficult to evaluate the construction management services being performed. Likewise, program management firms, whose shareholders are mostly construction managers or non-industry participants, may find it challenging to assess its performance during the design phase and respond to clients when problems surface.

### **The Issue Of Fees In The Procurement Process**

The facts are indisputable: owner construction costs are rising, while owner fees being paid to design professionals and construction managers are plummeting. Owners want to reduce their costs (land costs, professional fees, costs of the work), yet they expect a certain level and range of service when they engage professionals to be their representatives. What is not mutually exclusive, but by circumstance has been made so, is the relationship between scope of service and fee.

The level of work a design professional actually puts into the design is diminishing, as increasingly more design work is being delegated to contractors and even material/equipment suppliers. Much of this design subsidy occurs during the shop drawing and submittal process.

Design professionals are inaccurately asserting that they are still managing, controlling, and completing the entire design process. In the past, when design fees, as a percentage of construction value, were higher than they are today, it was possible for an architect to earn 12 - 14 percent of the construction value for their fee, inclusive of all engineering. Today, with fees lingering between two and eight percent, design professionals cannot afford to provide the same level of service. The same is true for construction management firms. While CM fees are being diminished, owners are not asking for correspondingly reduced services, according to what is written in RFPs and service agreements.

With disproportionate fees and services, how can architects and construction managers deliver what the owner wants? This issue will usually only surface when something goes wrong on the project, meaning that the cost, schedule, and/or quality are negatively affected. Owners need to encourage their staffs to

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<sup>25</sup> Interestingly enough, the CM agreement also stated that the CM was to "assist" in the preparation of the trade packages.

examine the professional scope of services requested with what they want delivered. A completed project is not a confirmation of the delivery of services.

Architects and construction managers should not execute service agreements listing scopes of services they do not intend to perform. But while owners clearly dictate the process, it is a process very likely influenced by the professionals and associations that lobby for them.

### THE INFLUENCE OF INDUSTRY TRADE ASSOCIATIONS

The mission and vision statements of industry trade associations are peripherally very similar, but each has its own take on aiding humanity and its membership rolls.

- ❖ The American Council of Engineering Companies (ACEC) mission is to contribute to America's prosperity and welfare by advancing the business interests of member firms.<sup>26</sup>
- ❖ The National Society of Professional Engineers (NSPE) is the premier organization that promotes and defends the professional interests of all engineering professionals from all disciplines and promotes the ethical and competent practice of engineering, advocates licensure, and enhances the image and well-being of its members.<sup>27</sup>
- ❖ The American Institute of Architects (AIA) is the voice of the architecture profession dedicated to serving its members, advancing their value and improving the quality of the built environment.<sup>28</sup>
- ❖ The mission of the Construction Management Association of America (CMAA) is to promote professionalism and excellence in the management of the construction process.<sup>29</sup>
- ❖ The Project Management Institute (PMI) provides global leadership in the development of standards for the practice of the project management profession.

The main purpose of these associations is to promote their respective professions to those that buy their member's services. These associations also seek to define the standards of practice and to certify or license the practitioners.

Most of these associations have developed and periodically update a set of contract agreements. These contract documents create a standardized agreement between the practitioner and the client engaging their services. Not surprisingly, the association that created it wrote the provisions favorably for the profession it represents. (An example is reducing risk for its members by shifting liability to the owner or other members of the project team.)

The associations eventually created contract agreements for other parties involved in the construction process. For instance, not only does CMAA have an owner-CM agreement, but it has agreement for the owner-design professional and owner-contractor as well. Likewise, the AIA has agreements for architects and contracts for construction managers, contractors, subcontractors, and specialty consultants.

Developing multiple-party contracts within a single peer group association is problematic and is viewed with great caution by the non-member practitioners. But their reason for development must have been the coordination of the scopes of services between the various professionals.

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<sup>26</sup> [www.acec.org](http://www.acec.org)

<sup>27</sup> [www.nspe.org](http://www.nspe.org)

<sup>28</sup> [www.aia.org](http://www.aia.org)

<sup>29</sup> [www.cmaanet.org](http://www.cmaanet.org)



Complicating matters, owners often use agreements from different associations on the same project for each professional they engage. A universal problem in the construction industry is that intra-association and inter-association contract agreements are not seamlessly coordinated. This is another root cause of much conflict with owners and among professionals working on the same project.

The legal professions' influence has also aggravated this problem through the introduction of custom agreements that at times resemble the associations' boilerplate. The negative impact of using non-coordinated agreements is often overlooked by both the sophisticated and unsophisticated owner, and nothing hurts the project more.

These associations operate as not-for-profit. While an association seeks to cover its expenses, it needs to continually increase its revenues each year to cover operating costs. These revenues are mainly raised through increased membership fees. To do so, current and potential members need to realize a value. The more value an association offers its membership grows. Therefore, associations will aggressively protect and promote their profession and their members to add value.

Where does this aggressiveness lead? Members realize value when they experience an increase in revenues, which is the perceived value they seek. To increase member company revenues, associations seek to expand the services of the profession they represent and the marketplace in which it operates.

It is not inconceivable for the AIA to reintroduce the concept of the architect as the master-builder, responsible for the entire project from conception through completion. CMAA's promotion of program management essentially has construction management firms now managing the entire preconstruction phase, something once under the jurisdiction of a design professional. To date, associations representing the engineering professions are not advocating any sort of project dominating role for their members.

Firms diversify to increase revenues, and associations that represent them support this change. New roles for the architect and construction manager are blurring the distinction between who has technical and legal responsibility. This evolution is allowing foxes, disguised as owner representatives, agents, or extensions of staff, to watch out for the owner's best interests. But in reality, the nature of these scopes of services is where the conflict lies.

### **TRAINING AND EDUCATION**

Experience and academics are not reducing the ballooning problems that exist in today's construction industry. Even with technical courses on project management, construction law, scheduling, cost estimating, and contracting, students are not learning how the industry actually functions -- and what needs to be done to correct its shortcomings. Architectural, engineering, construction management, program management, and project management firms offer in-house training, but like our school system, nothing is being taught that will change the industry.

The notion of the architect versus the world and the world versus the architect has become perilously comical. Discussions of how architects and engineers are the bad guys, contractors always look to short-change owners, and construction managers only look after their best interests, are becoming hot topics among owners. And program managers haven't been around long enough to be figured out how they really fit into the scheme of things, let alone how they are to be held accountable. Experience is teaching us that no one is benefiting from lessons learned, but individual firms are teaching their staff how to protect their own best interests.

### **WHAT SHOULD THE OWNER DO?**

We should have learned that protecting the interests of the owner is hard, unpredictable, and never full-proof. The amount of words and legalese in service agreements cannot perfectly anticipate every eventuality that can occur on a drawing board, computer, or construction site. No program, project, or construction management plan can map out *who, what, when, where, and, why* issues might arise. So what is an owner to do?

Engaging multiple professions to perform duplicative tasks is not the answer, nor is it a source of extra protection for the owner. Owners should avoid the "exact" duplication of services at all costs. For example, as proven by the scope of services matrix, program managers and CMs on the same project should not be reviewing the same submittals. The most efficient system would be to have the CM collect, distribute, and track submittals and review them for constructibility. Design professionals should approve these submittals. Program managers should be providing quality assurance, looking over the shoulders of both the design professional and CM, and making sure they are satisfactorily providing these services; they should not be approving or reviewing the submittals. This would unfortunately reduce the scope of the program manager's contract, something these firms might resist. Also, owners might feel they have lost their system of checks and balances – meaning the reassurance of duplication is something they are willing to pay for, despite the consequences.

To facilitate project success, owners should engage professionals based on their core competencies. Owners should avoid the concept of "one-stop-shopping," regardless of the size and complexity of the project. If construction management firms are truly the "owner's representative," an "extension of the owner's staff," an "agent of the owner," able to look after the owner's best interests, then owners should trust them to deliver projects on time, on budget, within scope, and within the levels of performance standard in the industry. But in today's world, trust is hard to achieve when owners have been disappointed so often.

Owners should prepare service agreements between themselves and their professionals that are coordinated and not ambiguous<sup>30</sup> – meaning, buying each scope of service one time (no duplication) and eliminating the "leave-outs." Owners should exchange the design professional agreement with the CM and vice-versa prior to negotiating these contracts. Each professional is expert at identifying the duplication that leads to conflict, ambiguities, and leave-outs.

Owners need to write their service agreements with architects, engineers, construction managers, and program managers in such a way that clear technical and legal accountability is assigned for the metrics that concern the owner most – cost, schedule, quality, scope, and change.

Owners should join and/or get involved in the activities and initiatives of construction industry associations, as they can heavily influence professional association practices. Owner associations should take the lead in influencing the initiatives and practices of the AIA and CMAA.

Some faction of our industry must take the first step towards enacting change. If the owners are unable or unwilling to get it done, perhaps the professionals – the architects, construction managers, and program managers – should just stick to what they know and do best -- their core competencies.

Who is willing to step up to the plate?

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<sup>30</sup> The use of the work "assist," often used in design professional, program management and construction management service agreements may be the largest source of ambiguity.

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### ABOUT THE AUTHOR

Gary Berman is President and CEO of GREYHAWK North America, LLC, a construction management and consulting firm headquartered on Long Island, New York. He is a licensed professional engineer with more than 25 years of experience in structural design, construction management, dispute resolution, and design-build/EPC contracting. His industry experience has been acquired throughout the United States, as well as Europe, South America, and Asia.

During his career, Mr. Berman, in the capacity of a structural engineer, has designed and constructed hundreds of steel structures. He served as the Chief Engineer and Director of two different design-build steel fabrication and erection companies operating out of Texas and Louisiana, constructing steel structures and buildings for industrial and commercial applications worldwide. He has also served as construction manager on numerous different commercial and industrial projects.

Mr. Berman has served as an expert witness in both trial and ADR proceedings, is a trained facilitator, and often serves as a mediator and arbitrator. He has been qualified in various courts and tribunals around the U.S. as an expert on issues of construction management, steel construction, and the management of construction.

Mr. Berman currently serves as a member of the Board of Governors of the Construction Manager Certification Institute. For seven years he served as a member of the Board of Directors of the Construction Management Association of America (CMAA). On two occasions, he was the recipient of CMAA's Distinguished Service Award. He is the founder and Associate Editor of CMAA's eJOURNAL of *Construction Management*.

Mr. Berman has given more than 30 presentations and has written scores of technical papers on a wide variety of topics in engineering and construction. He was a co-author of the *Heavy Construction Handbook*, published by McGraw-Hill, and authored the chapter on *Structural Steel Construction* in the book entitled *Sticks and Bricks – A Practical Guide to Construction Systems and Technology* recently published by the American Bar Association. Mr. Berman is also a member of the American Institute of Steel Construction and an Associate of the American Bar Association.