

# Construction Management at Risk

## *The Preferred Construction Delivery Process for Sophisticated Owners and Developers*

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Inasmuch as owners and developers have become highly sophisticated in the art and science of construction, there can be little doubt that the proliferation of new construction methodologies and delivery systems have rapidly emerged to keep pace with their expanded needs. Traditional construction practices have changed for the better. The most cumbersome, adversarial and lengthy General Contracting process of construction has understandably given way to Construction Management (CM). Further, CM has been delineated in several classifications, which include the most notable method, Construction Management at Risk (CM at Risk). Construction Management at Risk (CM at Risk), similar to established private sector methods of construction contracting, is gaining popularity in the public sector. It is a process that allows a client to select a Construction Manager (CM) based on qualifications; make the CM a member of a collaborative project team; centralize responsibility for construction under a single contract; obtain a bonded guaranteed maximum price; produce a more manageable, predictable project; save time and money; and reduce risk for the client, the architect and the CM.

### **The traditional process:**

Government and public agency organizations have traditionally selected their Architect and Engineer (A/E) based on their qualifications and the General Contractor (GC) based on the traditional competitive bid model. The rationale for this difference in selection procedure is that it's difficult to define and measure the experience, wisdom or creativity of architects and engineers. Architects and Engineers typically represent their client's interests with a fiduciary responsibility. So clients typically avoid bidding and seek out the most qualified firm.

However, construction has been considered a tangible product that can be specified and measured, not a professional service. Thus, public organizations buy brick and mortar by competitive bid. The conventional wisdom is that bidding construction work gives everybody an equal chance to do business on the public dollar, prevents favoritism, and gives the appearance of least cost.

But today, increasingly, industrialization and specialization in the construction industry challenge the validity of this conventional wisdom. Building construction can be entirely subcontracted. And most of the cost and technical knowledge for the manufactured portion of buildings reside with specialty trade contractors and manufacturers. Thus, GCs are now primarily managers of multiple subcontractors and specialists. They win work by skillful purchasing and management of subcontracts.

### **Negotiated GMP contracts:**

Private sector clients recognize that contractors have experience, wisdom and creativity, too. They want this talent on their side of the table during the design phase, not just during construction. Additionally, they want a more manageable and predictable procurement process for construction. So they frequently select a GC during design to provide technical advice. As contract documents near completion, the contractor negotiates or takes bids from subcontractors and builds the

project under a cost-plus-a-fee contract, usually with a guaranteed maximum price (GMP). However, in situations where a GMP is given well before construction drawings are complete, the GMP may change. The actual budget may vary to a greater proportion until construction drawings are completed and the variation in budget to actual cost will narrow to a point where a definitive price can be developed. That will be the true GMP.



The deliberate phased procurement of subcontracts benefits the project. During the completion of construction drawings a GC will often negotiate prices for alternate building systems (such as elevators or mechanical equipment). When the most cost-effective system is selected, the AE will design around it. This results in drawings that are specific to the systems to be used, thus saving money and reducing errors during construction.

The project also benefits from the knowledge of construction technology and cost that the GCs, specialty trade contractors and manufacturers provide during design. This results in better management during construction. Furthermore, since the client chooses the firm based on qualifications and can do so again, the GC wants a good recommendation and, hopefully, a repeat client. This motivates the GC to serve the client's interest.

### **Agency CM**

In an attempt to gain similar benefits (but restricted by procurement regulations), public clients can select construction management organizations under professional service contracts—often under AE procurement regulations. The CM's provide advice during design, take bids for construction from multiple prime trade contractors and then manage the prime trade contractors in the functional role of a GC. However, the client holds the contracts to keep the CM in a professional position and to avoid the appearance that the CM is a vendor of brick and mortar.

These clients and CM's often use fast-track procedures. When this occurs, the CM often provides a professional guarantee early in the project. The guarantee typically states that if the project bids in over the budget, the CM will work with the architect to reduce the cost of the project.

While most CM's deliver successful projects, many clients are troubled by; 1.) the administrative burden of managing many contracts for a single project, 2.) a concern about third party liability in the event one prime trade contractor damages another, and 3.) the lack of a single, guaranteed, bonded price for the total project (although the substantial trade contractors are typically bonded).

Since the clients hold the contracts, many feel the need to duplicate some of the CM's oversight with a few representatives of their own. That often increases the client's



cost, confuses and weakens the CM's role in the eyes of the prime trade contractors and adds complexity to the CM's job. The CM has a proactive (but sometimes inexperienced) client to manage as well as a set of contractors.

Furthermore, the lack of CM industry standards can create problems. There are no licensing requirements as there are for architects and engineers and no bonding requirements as for general contractors. Occasionally, unqualified firms have produced poor results for clients that did not have the sophistication necessary to pick a qualified firm.

### New enabling legislation in Florida and Texas:

Recently Florida passed legislation that allows CM at Risk in the public sector, and Texas passed laws allowing CM at Risk for school district and community college construction. Federal Acquisition Regulations have also been modified to allow similar processes. Meanwhile, contractors working with private sector clients have grown increasingly more professional. They are paid fees for services and operate in their client's interest just as the A/E with whom they collaborate.

As GCs have assumed professional roles, A/E firms have developed construction management skills. To their traditional professionalism, A/E's have added construction experience and a willingness to furnish bonds and to guarantee cost and schedule. CM companies that have provided agency CM are providing CM at Risk. All are now competing to provide CM at Risk services.

The result is a process that allows a client to select a CM as a professional based on qualifications, experience and reputation. The CM subcontracts by proposals or by competitive bid from trade contractors. The process makes the CM a member of a collaborative project team; centralizes responsibility for construction under a single contract; obtains a bonded guaranteed maximum price; produces a more manageable, predictable project; saves time and money; and reduces risk for everyone.

### CM at Risk: How to Do It Selection procedures:

A client's objective should be to select the best CM for the project at a fair and reasonable fee. Most issue an RFP, receive proposals and interview a short list of the most qualified firms. Some of the more careful clients visit the CM's office, check references and examine their control systems in great detail. Typically the information requested by the RFP will include:

1. Corporate information: the CM's company history, size, staff, general experience and a financial statement,
2. Personnel information: an organization chart with resumes of the project team and key corporate leaders,
3. Systems approach: a management plan and project management control systems that will be used on the project,
4. Experience: a list, with references, of similar projects the CM has done.

The client typically negotiates the CM's fee and the terms of the contract. In some cases the fee may be part of the CM's proposal or requested separately during the selection process. However, the client isn't required and should not feel

compelled to accept the lowest fee. Ideally, selection occurs at the project's beginning (before or just after selection of an architect).

### Services:

The CM becomes a collaborative member of the project team. Preconstruction services include budgeting, cost estimating, scheduling, constructability reviews and value engineering studies. As construction drawings progress or near completion, the CM divides the project into appropriate scopes of work for bidding. Subcontractors and vendors are prequalified and bids are accepted for the work. The CM, architect and client review bids and proposals for compliance with the contract documents and determine which ones to accept. (They are not required to select the lowest bids, but there should be clear explanations if they do not, particularly if they have prequalified bidders.)

The CM then prepares cost estimates for the yet to be bid portion, adds a contingency and a budget for general conditions construction items, provides a guaranteed maximum price and manages construction as a general contractor would. In some states a general contractor's license may be required. It is an open book process: the CM tracks all the costs for the client and AE to review.

### Bonding:

If the client requires that the CM provide a performance and payment bond, these costs are added to the project. The CM would subsequently require bonds from major subcontractors.

### The contingency

#### The CM's contingency:

This contingency belongs to the CM if it is needed but is returned to the client if it goes unused. It is a stated line item within the GMP that reflects the incomplete nature of the drawings and specifications, which limit the CM's inability to predict the cost of yet to be bid work with absolute accuracy. It may also cover unanticipated costs that arise during construction. The more work that is actually bid at the time the GMP is given, the smaller that contingency can be.

The client's contingency This contingency is for changes that the client inevitably will want to make during construction. The first lies within the GMP, the second outside the GMP.

### The GMP

The CM at Risk contract is a cost-plus-a-fee contract with a guaranteed maximum. It is the sum of the CM's fee, the CM's contingency, the General Conditions Construction, all the subcontracts, plus an estimate for yet to be bid



subcontracts. The CM agrees to pay for costs that exceed the GMP and are not a result of changes in the contract documents.

The GMP is subject to adjustment if the client or the AE makes changes. If the CM gives a GMP prior to the completion of construction documents, and if items not logically implied by the GMP documents are later added to the construction, the CM will want to increase the GMP.

### CM at Risk and Fast-Track:

With CM at Risk, construction can start well before the AE finishes the contract drawings, thus saving time. However, most clients want a GMP, which can be given at any time in the process. But there's a right and a wrong way to do so.

The wrong way If the AE brings all contract documents to partial completion and then asks the CM for a GMP, there is potential for conflict. The CM can't get enforceable subcontracts with incomplete drawings. The CM must rely on its own estimates or must get unenforceable estimates from subcontractors. The process can work with competent people on the project team, but it is not legally sound. Disputes may arise over what was logically implied but not included in the incomplete plans and specifications. Put in this position, a CM is apt to estimate the work conservatively and include large contingencies. That will reduce the budget the AE has to work with. Conversely, if the CM underestimates the figures, claims and conflict will follow.

"Guaranteed Maximum Price" has a wonderful ring. A good CM makes it work, and with an adequate contingency, the process goes smoothly. But the CM may not anticipate items of work not yet defined in the construction drawings when the GMP is given. If the CM underestimates not yet bid work, or if the AE and owner make capricious changes or additions, the CM will submit change orders and claims, and the old adversarial relationship returns.

The right way A better approach is to bring a part of the contract documents to 100% completion. Then the CM can execute enforceable contracts with subcontractors for the completed part. The CM can add an appropriate contingency to the not yet bid portion and give a sound GMP. A 7.5% contingency on the entire project amounts to a 15% contingency on the not yet bid portion if half of the work is bid.

If the GMP is given before contract documents are complete, it's a defined price for an undefined product. It has no more enforceability than a lump sum competitive bid based on incomplete contract documents. In either case, the size of the contingency inevitably varies with the completion of the contract documents. A GMP based on completed construction documents minimizes risk and the contingency.

### Self-performed work:

It is bad practice for a CM to furnish construction labor or do any portion of the construction work. This leads to a perceived (or real) conflict of interest, and perceptions are critical in the public sector. CM's should take bids for all construction work to give everyone a fair chance at the work. Then the CM should see to it that each subcontractor delivers what is specified. A CM cannot perform that role on work done by the CM's own employees without being exposed to criticism for conflict of interest. And if a CM bids its own work against other subcontractors, the subcontractors will feel that the CM has an advantage and cry foul.

### Equipment:

For similar reasons, CM's should not furnish construction equipment. Even though the CM might refer to some authority for fair rental rates, such rates are notoriously overstated. Also, there have been situations where CM's "parked" equipment on site when it was not needed elsewhere. Even if the CM is scrupulously fair, perceptions can be misleading.

### Terms of Payment:

The payment structure commonly used for CM at Risk can confuse inexperienced clients. It is typically broken into the following categories.

### Fee:

Typically the fee is a fixed lump sum, but it can also be a percentage. The fee covers the CM's home office overhead, profit, and design phase services. It is usually broken down into two parts—design and construction. The fee usually runs 4-6 % of the construction cost.

**General conditions  
Reimbursable General Conditions  
costs are typically broken  
into two categories.**

### On-site overhead:

This refers to the cost (without home office overhead and profit but including benefits) of the CM's full-time, on-site management staff and the cost of an on-site office and office equipment, utilities, and communications. Some clients ask that the CM fix these costs and include them in the fee. However, making them reimbursable at cost (without overhead and profit) is usually better. The CM can adjust the site staff based on the needs of the project without the client feeling that the CM is acting out of self-interest. It provides a conflict-free approach to making corrections.

General conditions of construction This refers to the cost of non-permanent construction work that is necessary to support subcontractors. This work can include a job-site trailer with office equipment, communications and printing tools, barricades, security fencing, signs, temporary power, utilities, clean up services, site toilets or perhaps gravel for a workers' parking area. A CM can put these work items into a subcontract or procure them directly. For instance, the gravel, barricades or site toilets could be included in the package of work done by a foundation contractor. However, the foundation contractor will likely add overhead and profit to those costs. If the CM procures that work directly, the CM takes on more work and is reimbursed at the cost of the purchase without markup. That saves money for the client and makes more work for the CM.

So a CM that proposes a large budget for General Conditions of construction items



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may be saving money for the client and assuming extra work without extra fee. Therefore, the cost of General Conditions of construction should not be considered part of the CM's compensation, and it should not be considered when comparing one CM's fee to another. It should be reviewed in detail to compare the competing CM's understanding of the project.

### Subcontractor costs:

The CM is reimbursed the cost of the subcontracts without markup. Typically the CM doesn't pay the subcontractors until the CM is paid. The CM agrees to a payment schedule with the subcontractors based on industry standards for payment and retainage, percentage complete, material on site, and/or a cost-loaded CPM diagram. The CM calculates the amount due and then gains concurrence from the AE and approval from the client. The client pays the CM who promptly pays the subcontractors.

### Minimizing Risk and Cost

#### The old way:

Traditional construction projects are characterized by high risk. In traditionally bid construction contracts, subcontractor prices are verbally collected in a few weeks with little legal support and frequent misunderstandings about scope responsibility among subcontractors and general contractors.

Subcontractors often align with their favored general contractors, providing them with a lower price than their competitors. Yet no general contractor has the entire set of best prices. And in the bidding process subcontractors float high bids early in the bidding cycle, afraid that their bid will leak to their competitors. As the time before the bid is due diminishes, the prices drop. The lower prices aren't always communicated to all the bidders. Furthermore, some subcontractors will pad bids; anticipating bid shopping after the contract is awarded. Competition among the subcontractors may be limited. Friendly relationships may influence who works on the project. The process is unprofessional and not cost-effective.

A GC is therefore aligned with subcontractors, manufacturers, and suppliers in opposition to the AE and the client. Conflict is common. Plans and specifications always contain errors, clients always make changes, and bids always contain either speculation or outright errors. The result is strained relationships, and the work inevitably suffers.

#### The new way:

CM at Risk minimizes risk for everyone. The experience, wisdom, creativity or engineering skills of AE and CM firms are combined at the table with the client's understanding of requirements. This group has more complete control and unity. Together they command the classic tripod of functional requirements, design and construction. They are non-adversarial and collaborate to make decisions. The CM can review the AE's drawings and often catches errors, reducing the AE's and client's risk. The AE can review the CM's approach to the work, making helpful recommendations. The CM is allowed to take bids or proposals from subcontractors during completion of contract documents, prior to the GMP, which reduces the CM's risk and provides useful input to design. The procedure is more methodical, manageable, predictable and less risky for all.

The procurement of construction is also more business-like. Each trade contractor has a fair shot at being the low bidder without fear of bid shopping. Each must deliver

the best bid to get the project, so the client winds up with the low sub-set of prices. Competition in the community is more equitable: all subcontractors have a fair shot at the work. A contingency within the GMP covers unexpected but justifiable costs, and a contingency above the GMP allows for client changes. As long as the subcontracts are within the GMP they are reimbursed to the CM, so the CM represents the client in negotiating inevitable changes with subcontractors.

### Summary:

The CM at Risk process has many characteristics attractive to clients, AEs & CM's.

1. The client makes selections based on qualifications, so the client hires better CM's. Because they are selected for their qualifications, CM's are inclined to maximize their service and their allegiance to the client in order to obtain repeat work and a good reference.
2. All parties collaborate. CM's provide advice on construction cost and technology during design to keep the project within budget and reduce design error; AEs are more involved in the construction process and make recommendations that are helpful to the project's success.
3. Costs and fees are out in the open, helping eliminate adversarial relationships between the contractors, clients, and architects.
4. Elimination of bid shopping also results in lower costs and better relationships in the community.
5. The CM can minimize risk to all by taking many or all trade bids prior to providing the GMP. Minimizing risk means minimizing cost to the client.
6. With agency CM, a client selects the CM based on qualifications. The CM provides advice during design and manages the trade contractors during construction in the functional role of a GC. The client holds all the contracts.
7. A public client selects a CM at Risk based on qualifications and makes the CM a member of a collaborative project team during design. When construction begins, the CM provides a bonded Guaranteed Maximum Price.
8. Private sector clients often select a GC during design. The GC negotiates subcontracts and builds the project, usually under a cost-plus with a guaranteed maximum price contract (but sometimes with a negotiated lump sum price).
9. If a GMP is given before the completion of contract documents it is essentially a defined price for an undefined product.

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