

## **Construction Management at Risk (CM@Risk) Delivery Method from an Owners Representative Perspective (The Good, The Bad and The Ugly)<sup>1, 2</sup>**

**Kevin M. Wills, CCM, LEED AP**  
and  
**Steve R. Pancham, CCM**

McDonough Bolyard Peck, Inc. (d/b/a MBP),

### **Abstract**

This paper is based upon lessons learned from Owner's Representative perspective managing and auditing over 60 construction management at-risk (CM@Risk) projects for public owners over the past 10 years. The paper provides an overview of the benefits, risks and lessons learned to owners associated with the CM@Risk delivery method from selection through construction to closeout. Our discussion will provide insightful solutions to manage the process efficiently, to guide the owner, and to provide a check that will keep the project on the right path. Owners want to keep projects on schedule, under budget, and to have high quality, so our solutions mentioned in this paper will help facilitate trust amongst the parties of the project through transparency (not only the Good aspects of a project, but also the Bad and Ugly and how to openly address them in a collaborative and tactful manner). Our discussion also provides a unique perspective, gathered from lessons learned from the auditing of public CM@Risk projects.

### **Introduction**

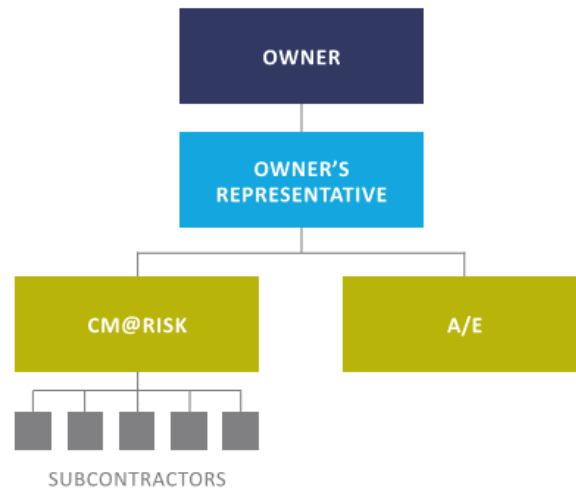
CM@Risk delivery method has been utilized for over 30 years and continues to be used as a popular method for construction project delivery. Like all project delivery methods, there are pitfalls, benefits, costs, and risks. The objective of this paper is not to provide a comparison of the various delivery methods, but rather to examine the use of CM@Risk delivery method for the

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owner's benefit and discuss what issues and challenges can be anticipated in its use. The information presented is based upon lessons learned developed as an Owner's Representative on CM@Risk projects and providing financial auditing of CM@Risk projects. The result is a list of recommendations and solutions to assist owners in this delivery method for achieving better results and better outcomes for construction projects that employ this method of delivery.



### Definition of CM@Risk

The Association of General Contractors (AGC) defines CM@Risk as:

“A specific variation of construction management in which the public owner engages both a project designer and a qualified construction manager under a negotiated contract to provide both preconstruction services and construction. The CM@Risk (CM/GC) provides consulting and estimating services during the design phase of the project and acts as the general contractor during construction, holding the trade contracts and providing the management and construction services during the construction phase. The degree to which the CM/GC provides a cost and schedule commitment to the public owner is determined during the negotiation of the final contract. (This is a risk issue. If there is no risk involved, it is not CM/GC.)”<sup>3</sup>

The Construction Management Association of America (CMAA) defines CM@Risk as:

“A delivery method which entails a commitment by the construction manager to deliver the project within a Guaranteed Maximum Price (GMP). The construction manager acts as consultant to the owner in the development and design phases, but as the equivalent of a general contractor

<sup>3</sup> CM/GC Guidelines for Public Owners, second edition 2007 by the Association of General Contractors and the National Association of State Facilities Administrators.

during the construction phase. When a construction manager is bound to a GMP, the most fundamental character of the relationship is changed. In addition to acting in the owner's interest, the construction manager also protects him/herself." <sup>4</sup>

### **The Nature of CM@Risk**

From these two definitions, we can come to agreement on the nature of CM@Risk. The first is that it is a delivery method where the CM@Risk will wear two hats, simultaneously. The first hat is to be the owner's consultant during the preconstruction services phase and the second hat is that of general contractor during the construction phase, but when and how do these two phases mix? They will certainly mix at the time the first subcontractors are brought under contract, if not before.

The second fundamental is the Guarantee Maximum Price (GMP) and the defining agreements that set the GMP. Many times, the GMP is not negotiated until after construction begins. The GMP should be signed when the information for design has reached a point where defining the unknowns has become a small part of the design. Many times, there will be an "Amendment Agreement" that allows construction to start ahead of the final GMP. As a minimum, the GMP should contain the cost of the construction work, construction contingency (negotiated amount), general conditions fees, insurance and tax fees, and the CM@Risk fee. **(Note: it is also important that the CM@Risk's Assumptions, Clarifications and Exclusions be included with the GMP).** And at this point, everyone from the Owner, Designer, and CM@Risk will be thinking, "what's in it for me" what are my risks? It is important to have these discussions. After all, that's what it's all about!

So "what's in it for me?" Every Owner should ask this continually during a CM@Risk project. Let's start with the CM@Risk selection process and the types of projects that tend to be contracted with a CM@Risk delivery method.

### **Selection of the CM@Risk**

Most States allow the use of CM@Risk delivery over the traditional, Design-Bid-Build and Design-Build delivery method on projects of a minimum value or highly complex projects of unique construction. Typical Higher Ed projects include, dormitories, museums, arenas, performing and visual art centers, hospitals, laboratories, and other Higher Ed facilities. These projects usually must be approved by a governmental entity (Board of Visitors, Capital Outlay, Facilities Management). The most important aspect in this phase is to select a CM@Risk that has proven

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<sup>4</sup> CMAA: Construction Management Standards of Practice 2003

experience in the type of construction and the knowledge that comes with having constructed and managed similar types of building projects in the jurisdiction having authority. Without this prior knowledge, most of the cost estimating and scheduling done by the CM@Risk could be unreliable. The CM@Risk should provide a proven history of project cost estimating and scheduling successes with references. Public owners are highly encouraged to call the references. Lastly, as the consideration for final selection progresses, the owner should evaluate a CM@Risk for reasonable preconstruction fees, general conditions costs, overhead and profit percentages, contingencies, allowances and other fees and costs.

### **Pre-construction Phase**

The services that will be performed by the CM@Risk in the preconstruction phase is usually defined during the selection process and paid for as a lump sum for those services. Expectations of the CM@Risk, owner, and design team should be defined in the solicitation documents. It is important for all team members to understand what is expected in terms of deliverables and schedules. Please note that the CM@Risk may list the number of cost estimates and CPM schedules they will perform under the preconstruction phase costs (and should). Owners should require cost estimates and a CPM schedule during the Schematic, Preliminary and Working Drawings (at a minimum). If this number is exceeded, the CM@Risk could request additional fees for the extra work. That is important information if the designer gets behind schedule and wants to make piece-meal submissions.

During the preconstruction phase, the CM@Risk is responsible for providing cost estimating. This becomes the basis for the eventual GMP and most importantly, the owner's construction budget. The CM@Risk must be informed of any changes in design or unusual features anticipated for a project. If these expectations are not defined to the CM@Risk in a timely fashion, the estimate will not be conclusive and the responsibility shifts again to the Owner and design team to identify missing features, which results in an updated cost estimate that likely was not included in the original scope of work. For instance, if you are building a performing arts center, the experienced CM@Risk will know that acoustic walls will be a necessity. Of course, there are many types of acoustic walls, so defining the type(s) and the amount in the estimate is a necessity. Failure to include these walls in the cost estimate will result in a cost estimate that is too low and eventually, as the cost estimate and design efforts move closer together, the budget will suddenly jump and the owner will be frustrated with the CM@Risk and the A/E as both parties begin to argue over the responsibility of the cost overruns.

At later stages, the value engineering (VE) effort done by the CM@Risk will cost the owner in quality as items are deducted or substituted that originally would never have been considered. Many times, owners are simply too busy and lack the resources to perform adequate reviews of

the cost estimate and everyone gets caught up in the issue of the budget. The owner depends upon the CM@Risk to look out for his interests during this phase and little to no risk is carried by the CM@Risk for cost estimating. If there are extra costs added into the cost estimate, which include the potential for a higher budget, these could become absorbed by the CM@Risk at the conclusion of the GMP negotiation. It is very important that the owner does a formal facilitated VE work session, especially for technically complex facilities such as labs, etc. The value added to the project by performing a VE work session has helped all parties feel that they have enhanced the program and functionality of the facility, instead of simply lowering the cost of the construction.

To complicate the issue, the CM@Risk is usually responsible for making and updating the construction schedule, so when issues arise for budget and redesign, you will hear the common mantra of “this is a potential delay!” The fact is, much of this can be avoided with properly vetting the CM@Risk during selection, setting a realistic budget, thorough review of the design, cost estimating and scheduling, and developing the scope of work in such detail that the quality, types of materials, and the size of the project can be anticipated from the RFP.

The construction schedule must include reasonable times for permitting, submittals and code reviews and other uncontrollable activities. You should not include a duration for the code review that falls under the “I hope so” category. Remember, the project is complex, and the code official, board of visitors, or council may need extra time for reviews. Beware of the promise to build it faster than anyone else feels possible. If it sounds too good to be true, it is. It is imperative to maintain realistic and attainable goals.

During design, since the owner carries the contract with the A/E, we have experienced that some A/E firms have a patented exterior design and will use it over and over again in different forms. This may be the same “signature” style no matter what type of building. It will be the owner’s responsibility to control a design that is not true to the owner’s design intent. Any design outside of the owner’s intent will no doubt increase scope. We find it is much easier for owners to stay within budget if the designer is clear as to meeting the “design intent” needs of the owner and not trying to sell their “signature” designs. Owners can help themselves with the process of earmarking design scope creep by making this the responsibility of the CM@Risk to document. It is not uncommon for the end-users to be a part of the initial design progress meetings and for something unexpected to creep into the design process that will increase the initial pricing. During initial discussions, at a Programming/Pre-Planning meeting, what the A/E hears in the discussion may be totally different than what the owner’s decision makers have heard and so forth. It is important that the A/E bring suggested changes back to the owner’s decision makers for approval but most times, in the interest of keep the design on schedule, they will proceed. Not managing the design process from the initial phases will likely cause scope creep. Scope creep is one of the main culprits of cost overruns. The CM@Risk should alert the owner when an

item is identified as scope creep which results in a cost impact. The owner at that time should approve/disapprove the added scope or determine another resolution pending anticipated cost.

### **The Construction Phase and Contingency**

First, we need to have a discussion regarding contingencies. Generally, there are two types, owner and construction manager. The owner normally holds the owner contingency. An owner contingency is usually mandated by the State Agency or State general services. Change orders from the owner contingency are issued for changes that are caused by scope changes, design errors and omissions, unforeseen conditions, or owner requested changes. The Construction Manager's contingency is generally defined as a component of the GMP that sets aside costs for components of the GMP that were reasonably unforeseen at the time of the GMP. These costs could be scope gaps between subcontractors, costs due to refinements of the ongoing design, corrective work, constructability issues, and field issues that the CM@Risk should have reasonably foreseen. Scope changes during the design phase are not a part of the CM@Risk contingency as they are considered outside of the normal design intent scope. Have we read the term reasonable or reasonably enough yet? We have found more often than not, that every design change is considered a change order and should be paid from the owner contingency, as the CM@Risk has now converted to general contractor and claims they could not have reasonably foreseen such an issue.

If during negotiation of the GMP you find yourself with other contingencies required by the CM@Risk, owners need to figure out why a contingency is needed, for what it is to be used, and to define the use and ownership of the contingency and disposition of any remaining balance.

One of the overriding issues with contingencies is how they are accounted for in the final numbers. Many times, we see overhead, and profit markup applied to the CM@Risk contingency for change orders. This sometimes constitutes a doubling up of overhead and profit. It's important to remember, a change order paid from the CM@Risk contingency has already been marked-up for overhead and profit in the GMP.

The construction phase starts when the CM@Risk advertises for the first subcontract. Some States require that subcontracts be procured according to public procurement laws. Others allow the CM@Risk to handle all the bidding without an open book. The best way to make sure you get the appropriate value and quality is for the CM@Risk to have open books and always include the owner in the bidding process. The perception that competition is limited can only be mitigated by the open book approach. Local contractors should have the opportunity to bid. If you have an out of town CM@Risk that is based in a State far from the project site, there is a great deal of certainty that many of the subcontractors will come from out of town, and it is hard to accept

that the subcontractor who must live in hotels for the duration is cheaper than a good prequalified local subcontractor.

### **CM@Risk Audit Findings**

Audits Definition- Systematic or methodical review; to examine with intent to verify. Most audits are done after the project has been completed and all monies (retainage) are released or paid to the CM@Risk. MBP has been involved with performing limited construction audits on several projects for clients to ensure the CM@Risk billings are accurate and in accordance with the contract documents. We have seen the owner received a Return of Investment (ROI) of up to 2:1 from our construction audits. Our main focus was around the following items:

1. Review of Contingency Use
2. Review of the GMP and Subcontractors Contracts
3. Review of the Monthly Pay Applications
4. Review of Change Order Request

### **Lessons Learned**

- Contingency Use- many public agencies state that any use of the contingency has to be approved by the Owner. Also, any unused contingency is shared between the CM@Risk and Owner. The key is to understand how contingency will be addressed in the contract.
- GMP Schedule of Values (SOV) vs Subcontractor Agreements- The main concern with Owners is verifying what was in a CM@Risk GMP contract was truly based on their subcontractor agreements. (There are issues with some CM@Risk not truly being transparent on explaining to the Owner why the numbers changed)
- Documentation – You should verify that you have all the documentation that is needed to perform a thorough audit. (i.e. change orders, allowances, pay applications, and multiple pay applications if there is more than one phase of the project).
- Arithmetic – Very simple, you should verify the accounting of all allowances and change orders as they are deducted from the Contract amounts are accurate. – (an example we have seen is that in multiple GMP phase contracts, the previous contracted amount was not deducted from the successive GMP contracts).
- Mark Ups – You should review in detail the mark ups on change orders applied to the owner and construction contingencies as well as the project allowances. On a

CM@Risk project the Prime is not allowed to markup Change Orders that are applied to the Construction Contingency or Allowances. The Prime can markup Change Orders applied to the Owner's Contingency.

- Self-Performed Work – On CM @ Risk projects, you should identify what percentage work was performed by the Prime. There is typically a limit on how much work the Prime Contractor can perform.

## Summary

Owners may face challenges in determining the best delivery method for their construction programs. It is important that owners have a full understanding of procurement process requirements and the project risks when pursuing the CM@Risk delivery method. Is the CM@Risk delivery method adding value to your program/project as it relates to time, budget and quality? Are owners capable of managing a CM@Risk project from Programming phase to Construction Closeout. Below are some Solutions and Recommendations that owners should consider from MBP, based on our role of being an independent Owner's Representative on CM@Risk delivery method projects:

### Solutions and Recommendations:

1. Develop a list of permit reviews and other activities that will take time, cause design to slow, or otherwise have an effect on the overall schedule. Make sure the CM@Risk incorporates these into the schedule individually and linearly. Do not allow "bundling" of schedule activities. This obscures the durations and allows the CM@Risk an advantage over the owner and A/E. The more detail is in the schedule and the more the owner has provided input, the greater chances for an on-time finish and success of the project.
2. Hire an agency construction manager (owner rep) to assist owners through the design phase and construction phase, to review the submitted costs provided by the CM@Risk for the GMP. This will ensure that the project budget stays on track and that all project related cost are accounted.
3. Hire an agency construction manager (owner rep) to perform a detailed review of the design and construction phase schedules, starting with the baseline and monthly updates during each phase.



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Engaging an Agency Construction Manger earlier in the Planning process will add peace of mind. They will provide independent confirmation that all information has been thoroughly reviewed. This will go a long way in developing and keeping the trust with the project team.

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## About the Authors



**Kevin Wills**

Virginia, USA



**Kevin Wills**, CCM, LEED AP MBP, is a Senior Project Manager at McDonough Bolyard Peck, Inc. (d/b/a MBP). Kevin brings 33 years of experience in program management, construction management, inspection, scheduling, cost estimating, and claims analysis. His breadth of experience includes hospitals, prisons, k-12 schools and higher education buildings, heavy civil construction, environmental mitigation and remediation, and maintenance for new construction and the renovation of existing facilities. Kevin can be contacted at [kwills@mbpce.com](mailto:kwills@mbpce.com)



**Steve Pancham**

Virginia, USA



**Steve Pancham**, CCM MBP, is Vice President, Service Executive at McDonough Bolyard Peck, Inc. Steve brings 32 years of experience in transportation, utility infrastructure, and new building and renovation projects. Steve has served as project engineer/manager in charge of more than \$500 million in highway and building construction projects. Claim to fame -Steve was on the San Francisco Bay Bridge during the 1989 Loma Preita earthquake and was part of the earthquake response team inspecting bridges for the California Department of Transportation (CALTRANS). Steve can be contacted at [spancham@mbpce.com](mailto:spancham@mbpce.com)