



CONSTRUCTION MANAGER AT RISK

**A REFERENCE DOCUMENT
FOR TEXAS K-12 EDUCATIONAL
CONSTRUCTION PROJECTS**

**Prepared by a Joint Committee of
The Associated General Contractors of America
Houston, Texas Chapter
and
The Council of Educational Facility Planners International
Southern Region/Gulf Coast Chapter**

December, 2002



December 10, 2002

We are pleased to recommend this reference document for the Construction Manager At Risk delivery method for Texas K-12 Educational Construction Projects. This document is the result of a collaborative effort between the Houston, Texas Chapter of the Associated General Contractors of America (AGC-Houston) and the Gulf Coast Chapter / Southern Region of the Council of Educational Facility Planners International (CEFPPI) and represents a great deal of hard work by educational facility directors, educational architects/engineers, and construction managers involved in educational facility construction projects throughout the southeast Texas area.

The Boards of Directors of the Gulf Coast Chapter, the Southern Region, and the International Board of CEFPPI have reviewed and approved this document.

This document has been produced to provide guidance and practice recommendations for those involved in planning and constructing K-12 educational facilities using the Construction Manager At Risk delivery method. It is the intent of both CEFPPI and AGC to review and update this document every two years to keep it current and your input and suggestions are welcome.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Roy Sprague', with a horizontal line extending to the right.

Roy Sprague, AIA, CSI
President, Southern Region
e-mail: roy.sprague@cfisd.net

A handwritten signature in blue ink, appearing to read 'Jim Ratcliff', with a horizontal line extending to the right.

Jim Ratcliff
President, Gulf Coast Chapter
e-mail: jratcliff@clri.com



December 11, 2002

Attached is a reference document for the Construction Manager At Risk delivery system. This document is intended to aid all of the parties involved in this delivery method . . . Texas School Districts, Construction Managers and Design Professionals. It is the result of many hours of discussion, and sometimes debate, by members of the Gulf Coast Chapter of the Council of Educational Facility Planners International and the Houston Chapter of the Associated General Contractors.

This document has been reviewed and approved by the Board of Directors of the Houston AGC.

The Construction Manager At Risk delivery system can be very successful if properly implemented. It is our hope that this document will eliminate some of the confusion and pitfalls associated with this relatively new contracting method. We trust you will find it beneficial.

Sincerely,

David G. Marshall
President, Houston AGC

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I. INTRODUCTION

The 74th Texas Legislature through Senate Bill No. 1 and the 75th Texas Legislature through Senate Bill No. 583 allowed Texas School Districts the opportunity to utilize several different methods for the procurement of construction contracts. These methods were further defined by the 76th Texas Legislature (Senate Bill 669) and the 77th Texas Legislature (Senate Bill 510). Before this legislation passed, the law required School Districts to hire the lowest bidder, with few exceptions, regardless of past experiences or relationships with Contractors. Now School Districts have more say in how the contracts will be structured and who will do the work. They are free to choose the contracting arrangement that will yield the best value to the District and a whole new range of options is available in building and renovating facilities.

This recommended practices handbook focuses on the application where the Construction Manager is also the Constructor (CM at Risk) Project Delivery System. Although this procurement method has been in practice for many years in the private sector, it is relatively new to publicly funded projects.

The committee formed to author this handbook is comprised of members of the Council of Educational Facility Planners International (CEFPI) – Southern Region / Gulf Coast Chapter and the Associated General Contractors of America (AGC) – Houston Chapter. These committee members include a diverse group of School District Personnel, Architects, Engineers and Contractors experienced in K-12 school projects throughout southeast Texas.

It is intended that mistakes made and lessons learned utilizing this delivery method over the years and the productive discussions experienced by this committee over the past few months be presented to you in the form of a recommended practices handbook. Further intent is to allow all parties engaging in this procurement process to have a better understanding of their roles and responsibilities and ultimately to improve this delivery system.

This document is not intended to be a legal interpretation of the laws defining this procurement method. You should consult legal counsel for consideration of all delivery methods.

A Construction Manager project delivery system allows the Owner, Construction Manager and Architect/Engineer to work as a unified team. It is advantageous to include the Construction Manager at the start of the project to gain the full benefits of the team. It is also important that all team members understand their duties and responsibilities required for a successful project. This handbook defines the roles and responsibilities of each team member.

A Construction Manager project delivery system is a system based upon an Owner's agreement with a qualified construction firm to provide construction leadership and perform administration and management within a defined scope of services.

The Construction Management project delivery system is further refined by the amount of risk the Construction Manager assumes in performance of those services. The two construction manager delivery systems that are allowed by Texas law are the following:

- Construction Manager (Agent)

In this delivery system, the construction firm assumes the role of Agent to the Owner in a contractual relationship very similar to that of the Architect and/or the Engineer. The construction firm has limited risk because construction contracts are between the Owner and the individual contractors. This delivery system is often referred to as "CM for a Fee," "Pure CM," or by the American Institute of Architects as "CM where the Construction Manager is not a Constructor." With this delivery system, the Owner assumes the risk for subcontractor performance, financial stability, fluctuations in material costs, etc.

- Construction Manager at Risk

The AIA refers to this project delivery system in the AIA document A121/CMc as "Construction Manager where the Construction Manager is also the Constructor." The Contractor assumes a great deal of the risk, much the same as in the traditional competitive bid lump sum contract delivery. In both delivery systems (CM at Risk and Traditional Lump Sum) the Contractor is responsible for the execution and control of the work and subcontractors are bound by subcontracts to them. Examples of risk would include performance and financial stability of subcontractors and vendors, fluctuations in material prices, schedule adherence, weather, construction means and materials, quality and other non-reimbursable General Contractor delays.

The Guaranteed Maximum Price (GMP) is not absolutely an essential part of CM at Risk Construction Management. However, the two go hand-in-hand and a GMP is required for public education projects in Texas using the CM at Risk delivery system. In private work, in lieu of a GMP, a lump sum contract amount (where the Owner does not participate in any potential savings) or a cost plus contract arrangement is also used.

Many Owners and Design Professionals interpret the GMP as an absolute GMP with no increases to the GMP allowed. This interpretation is incorrect and should be clarified. The agreed upon GMP is the maximum price an Owner intends to pay for the project as defined by the contract documents. The Owner pays the CM for the actual cost of the work plus a fee, not to exceed the GMP (assumes 100% savings to the Owner). The scope of work (contract documents) definition is quite

important when a GMP is used because scope variations, changed conditions, Owner-caused delays, revisions to contract documents and/or systems, will most often require a revision to the GMP. These revisions are normally accomplished by the traditional change order process or absorbed into contingency amounts built into the GMP, if any.

A recommendation from this task force would be the use of the term, in future RFP's, "Construction Manager where the Construction Manager is the Constructor" to be consistent with AIA contract document A121/CMc. The term "CM at Risk" should follow in parentheses after the AIA contract document title, to comply with the language of the current Texas law. Also the definition section of the RFP can equate "Construction Manager at Risk" as meaning the same thing as "Construction Manager where the Construction Manager is also the Constructor."

Other common project delivery systems are "Competitive Sealed Proposal" and "Competitive Bidding." Both require a lump sum competitive bid from each Contractor after the completion of contract documents (plans and specifications). However, the "Competitive Sealed Proposal" also requires qualification material from each bidder and allows the School District some selection flexibility in terms of price and qualifications.

Attachment A to this document is a matrix of project delivery methods originally included in a manual entitled "Project Delivery for Texas Public Schools." This manual was a product of many volunteers organized by Texas Building Branch - AGC, Texas Society of Architects and Consulting Engineers Council of Texas, Inc.

II. CONSTRUCTION MANAGER WHERE THE CONSTRUCTION MANAGER IS ALSO THE CONSTRUCTOR (CONSTRUCTION MANAGER AT RISK)

A. Selection of Construction Manager

The Texas Public Education Statute, Chapter 44, Subchapter B, provides the requirements for a School District to follow in selecting a Construction Manager at Risk for their facility construction projects. Following are the steps involved in this process (a copy of Subchapter B is provided in the Appendix of this document):

1. The School Board must officially take action determining that the Construction Manager at Risk delivery method provides the best value to the District and must select either the One-Step or Two-Step process. The suggested wording for the board motion is "_____ ISD has evaluated

the construction contracting methods available under Chapter 44, Subchapter B of the Texas Public Education Statute and has determined that the Construction Manager at Risk method provides the best value to the District, and that the (One or Two) Step process shall be used for the selection of a Construction Manager at Risk.”

2. At the same meeting:
 - a. The Board should officially appoint the committee to perform the evaluations and negotiations and the Board should approve the selection criteria the District will use. The suggested wording for the board motion is “_____ ISD appoints a committee as follows: (list committee members), to evaluate, rank, and interview the Construction Managers at Risk who submit proposals and to negotiate a proposed contract for recommendation for award by the Board of Trustees of _____ ISD.”
 - b. The Board should officially adopt the evaluation criteria to be used by the committee in evaluating and ranking the Construction Managers at Risk. The suggested wording for the board motion is “_____ ISD adopts the following criteria for use in evaluating and ranking the Construction Managers at Risk:
 - (1) the purchase price;
 - (2) the reputation of the vendor and of the vendor’s goods or services;
 - (3) the quality of the vendor’s goods or services;
 - (4) the extent to which the goods or services meet the District’s needs;
 - (5) the vendor’s past relationship with the District;
 - (6) the impact on the ability of the District to comply with laws and rules relating to historically underutilized businesses;
 - (7) the total long-term cost to the District to acquire the vendor’s goods or services; and
 - (8) any other relevant factor specifically listed in the request for proposals.”

If the Board intends to apply any weighting factors to the evaluation criteria, those factors should be included in the motion.

3. Advertisement - taken from 44.031.g of the Education Code: (g) Notice of the time by when and place where the bids or proposals, or the responses to a request for qualifications, will be received and opened shall be published in the county in which the District’s central administrative office is located, once a week for at least two weeks before the deadline for receiving bids, proposals, or responses to a request for qualifications. If there is not a newspaper in that county, the advertising shall be published in a newspaper in the county nearest the county seat of the county in

which the District's central administrative office is located. In a two-step procurement process, the time and place where the second-step bids, proposals, or responses will be received are not required to be published separately.

B. Preconstruction Services

Preconstruction services are typically defined as those services performed prior to the actual start of construction. A benefit of hiring a construction manager early in the planning stages of a project is the ability to utilize their construction expertise in all aspects of the design and planning. With a construction manager employed early in the planning stages, the project team consists of the Owner, the Architect/Engineers and the Construction Manager. Each team member has a role that should be defined at the beginning of the project. Although each project is unique, items have been listed in the following three sections to illustrate the typical tasks performed by the Owner, Architect/Engineers and Construction Manager.

1. Performed by Construction Manager

- Review District's *Needs, Goals and Priorities*
- Evaluate the District's *Budget and Program*
- Evaluate the District's *Time Schedule*
- Establish Set *Team Meetings*
- Schematic Design
 - a. Prepare a schematic design estimate.
 - b. Monitor evolving design and make suggestions.
 - c. Consult with the Owner and Architect on means and methods of construction.
 - d. Review schematic design documents.
 - e. Submit input to the Owner and Architect relative to time and cost control.
 - f. Identify certain areas of phased construction.
 - g. Prepare a preliminary project schedule, including the design phase. Identify critical milestones.
- Design Development

- a. Evaluate the design development documents.
 - b. Prepare a detailed estimate based on available design drawings in a CSI or subcontractor bid format to insure that project is within budget.
 - c. Analyze the project for potential alternative equipment, material and systems selections for cost savings.
 - d. Prepare “trade-off” studies relative to value engineering.
 - e. Review and update the project schedule.
 - f. Review project for constructability.
 - g. Discuss project with subcontractors and material suppliers to determine work loads, bonding capacity availability, worker/mechanic availability, etc., and to develop interest in the project, intent in bidding work, and fine tuning time schedule to provide best possible time to receive bids and construct project.
 - h. Prepare a site use study to be used for allocation of space for storage, parking and temporary facilities.
- Construction Documents
 - a. Prepare and update estimates in the CSI format, and budgets and time schedules, at appropriate points in the working drawings stage. Care should be taken to ensure that an excessive number of estimating points do not hinder the schedule and flow of the project.
 - b. Review the drawings and specifications and make comments and suggestions.
 - c. Develop a detailed CPM network schedule.
 - d. Prepare an estimate for the cost of advertising and printing of proposal documents.
 - Soliciting Subcontractor/Vendor Lump Sum/Competitive Sealed Proposals
 - a. Organize and distribute construction documents and other Contractor and District bid requirements for seeking lump sum or competitive sealed proposals.
 - b. CM shall advertise for sealed competitive or lump sum proposals. Owner should pay for proposal document printing and advertising.
 - c. Conduct, as necessary, pre-proposal meetings.

- d. Respond to questions concerning schedule and sequencing, and forward questions from bidders to the Architect.
- Receiving Proposals
 - a. Receive all proposals.
 - b. Review proposals for compliance with contract documents and prepare proposal tabulations.
 - c. Review subcontractor/vendor qualifications, past experience and other key factors.
 - d. Make recommendations for subcontractor/vendor awards.
 - e. Assist Owner in preparation of Amendment No. 1 to the AIA document A121/CMc (GMP for CM at Risk Contract).

2. Performed by Architect/Engineer

- Review District's Educational Specifications and Design Standards and comment to the Owner on additional information needed. If requested, assist Owner in preparing Educational Specifications and/or Building Program.
- If requested, assist Owner in obtaining:
 - a. Geotechnical/subsurface soils report
 - b. Topographic survey of the subject site
 - c. Environmental investigation
 - d. Wetlands investigation/determination
 - e. Fault investigation
 - f. Antiquities letter to the Texas Historical Commission and their response
 - g. Endangered species declaration
- Provide Schematic Design Documents/Information:
 - a. Site plan
 - b. Floor plans for each level usually at 1/16" = 1'-0"
 - c. Building elevations
 - d. Building sections
 - e. Other drawings as necessary to adequately present the concept
 - f. Outline description of major materials and building systems

- g. Building code and regulatory analysis findings including occupancy classification, construction type, critical life safety and special issues
 - h. Statistical summary of the design area in comparison to the program
- Provide Design Development Documents/Information:
 - a. Civil
 - (1) Preliminary grading, paving and drainage plan
 - b. Architectural
 - (1) Site plan
 - (2) Landscape plan
 - (3) Floor plans for each level usually at 1/16" = 1'-0"
 - (4) Roof plan
 - (5) Ceiling plans
 - (6) Enlarged floor plans (core elements)
 - (7) Building elevations
 - (8) Building sections
 - (9) Interior elevations
 - (10) Profile architectural details
 - (11) Rendering
 - c. Structural
 - (1) Preliminary framing plans
 - (2) Preliminary foundation plans
 - (3) Typical sections and details
 - (4) Preliminary bracing system details
 - d. Mechanical
 - (1) Floor plans (all levels) with zone layouts and one line diagrams of major duct runs
 - (2) Enlarged plans of HVAC equipment rooms with equipment blocked out
 - (2) Preliminary equipment criteria and schedules
 - e. Plumbing
 - (1) Floor plans (all levels) one line diagrams of piping for various systems with preliminary pipe sizes
 - (2) Schematic riser diagrams

- (3) Preliminary equipment schedules
- f. Electrical
 - (1) Power distribution site plans
 - (2) Lighting site plans
 - (3) Power one line/riser diagrams (no sizes shown)
 - (4) Voice/video/data/security systems and/or empty raceway riser diagrams
 - (5) Power fire alarm and voice/video/data/security layouts of typical areas
 - (6) Lighting layouts for typical areas
 - (7) Lighting fixture schedules
 - (8) Electrical and voice/video/data/security rooms - typical layouts
- g. Report/Design Manual
 - (1) Design narrative update
 - (2) Code analysis update
 - (3) Establish structural design criteria
 - (4) Structural systems and description
 - (5) HVAC control philosophy and description
 - (6) HVAC and electrical load calculation updates
 - (7) Outline specifications
- h. Material Sample Boards
 - (1) Major interior and exterior material selections
 - Provide Construction Documents/Information for use by the Construction Manager for pricing and bidding.
 - If required, prior to construction, update Construction Documents used for pricing and bidding to include addenda, cost reduction items, etc.
 - a. Additional services should be paid to the Architect/Engineer for updating drawings and including cost reduction items, addenda, scope changes, permit and/or regulatory changes.
 - b. When requested update changes are due to cost savings items, the additional cost of the redesign effort should be included as an offset against the cost savings. Compensation to the A/E may be

through the CM at Risk contract or directly from the Owner.

3. Performed by Owner

- Provide a list of and/or identify the District's decision-makers to the CM and A/E.
- Provide the District's critical dates to the CM and A/E for integration into the project schedule.
- Provide at the outset of the project:
 - a. Educational Specifications defining the District's requirements for minimum space and usage of each component in the subject facility.
 - b. Design Standards defining system types, material/finish types and performance standards that the District has adopted for their facilities.
- Depending upon how the project is scheduled, provide the following items either prior to or immediately after Schematic Design:
 - a. Geotechnical/subsurface soils report
 - b. Topographic and/or boundary survey of the subject site
 - c. Environmental investigation
 - d. Wetlands investigation/determination
 - e. Fault investigation
 - f. Antiquities letter to the Texas Historical Commission and their response
 - g. Endangered species determination
- Provide responses to reviews and requested information in a timely manner and in accordance with the project schedule.

C. Guaranteed Maximum Price

1. Definition of Guaranteed Maximum Price

As defined by AIA Document A121/CMc, the Guaranteed Maximum Price (GMP) is the sum of the Cost of the Work and the Construction Manager's Fee. The GMP is a price for the total project and is not intended to be determined on a "line by line" item basis.

2. Construction Document Percentage Completion Status for Guaranteed Maximum Price (GMP)

- a. For projects that do not require phasing and/or fast track packaging, it is recommended that the GMP be provided by the CM when the Construction Documents are 100% complete.
 - Pros: The use of contingency allowances can be minimized and their usage can be more clearly defined. The need for subcontractors to qualify their bids or proposals is minimized.
 - Cons: Does not allow any work to begin until the GMP is accepted by the Owner.
- b. For projects that do require phasing and/or fast track packaging, the percentage of completion of the Construction Documents used for the GMP(s) will vary by project, depending upon how the project is structured. Whenever possible, it is recommended that the phasing and/or packaging be broken down by construction sequence, such as using a site package, a building pad/foundation/slab/underslab utilities package, etc., rather than just stating that the GMP will be provided at 50%, 75%, etc. completion of the Construction Documents. It is also recommended that the total project budget and individual package budgets be established from the outset so overall budget control can be maintained as individual packages are released.
 - Pros: Allows for an earlier start of construction, thus relieving potential schedule pressure.
 - Cons: Typically results in the use of larger and possibly less clearly defined contingency allowances. Subcontractors may include more qualifications and/or exclusions in their bids or proposals.

3. Construction Manager's Fee

The Construction Manager's fee represents the CM's overhead and profit and is further defined in the A121/CMc Contract Form,

Article 6.2, Costs Not To Be Reimbursed. These costs include salaries and other compensation of the CM's personnel stationed at the CM's principal or other offices other than the project site office. Exceptions include supervisory and administrative personnel when stationed at the project site - for example a project manager that spends a portion of his time at both locations. These exceptions need to be addressed in the CM's proposal and general conditions, if they are part of the proposal. Other costs, which are considered part of the fee, include the CM's principal office or offices other than the project site, general and administrative costs, and CM's capital expense. A broad definition of fee would be any cost that is not directly required to complete the specific contractual scope of work. The Owner should structure the fee and general conditions portion of the RFP to address the level of detail they require. It is important to note that the law does not require that the fee and general conditions be included in the RFP. These can be negotiated with the selected CM.

4. Cost of the Work

The term "Cost of the Work" shall mean costs necessarily incurred by the Construction Manger in the proper performance of the Work. Such costs shall be at rates not higher than those customarily paid at the place of the Project except with prior consent of the Owner. The Cost of the Work shall typically include only those items set forth in Article 6 of the standard AIA document A121/CMc.

a. Bonds

Bonds are components of the cost of the work and their requirements should be detailed as part of the Request for Proposals.

A Bond is an obligation by which one party (Surety) agrees to guarantee performance by another (Principal) of a specified obligation for the benefit of a third person or entity (Obligee). There are several types of Bonds; Bid Bond, Completion Bond, Dual Obligee Bond, Payment Bond, Performance Bond, Statutory Bond and Supply Bond. The most common Bonds encountered in CM at Risk are Performance and Payment Bonds.

A Payment Bond is a Bond in which the CM and the CM's Surety guarantee to the Owner that the CM will pay for

labor and materials furnished for use in the performance of the contract. Persons entitled to the benefits of the Bond are defined as claimants in the Bond. A Payment Bond is sometimes referred to as a Labor and Materials Payment Bond.

A Performance Bond is a Bond in which the CM and the CM's Surety guarantee to the Owner that the work will be performed and completed in accordance with the Contract Documents.

Since Bond costs are considered part of the cost of the work, definition of allowable Bond costs should be clearly stated in the Request for Proposals. The Construction Manager at Risk shall acquire and maintain Performance and Payment Bonds for the entire project and the costs for such Bonds are considered cost of the work. There is also the potential Bonding of subcontractors commonly known as Double Bonding. Double Bonding exists when a subcontractor or supplier must provide a Payment and Performance Bond for their scope of work underneath the Construction Manager at Risk's Payment and Performance Bond. Stating whether the expense for Double Bonding is allowable or not, should be defined in the Request for Proposals.

It is the policy of some CM's to bond all subcontractors. Some bond only the major subcontractors, and some bond on an as-needed basis if a subcontractor presents a low bid, appears to be financially unstable, or is somewhat inexperienced. Some CM's require subcontractors to have the ability to be bonded as a standard pre-qualification requirement. Subcontractor bonding increases project cost and decreases Contractor liability. It offers protection to the CM for subcontractor performance in the event that they fail to perform, however it adds cost to the GMP that may not be reflected in the CM fee. Since the School District pays for the Performance and Payment Bonds for the entire project, the subcontractor bond may be considered by the District as Double Bonding and may be viewed as paying twice for bonding.

Some things to consider with subcontractor bonding are:

- Does the CM have a standard company policy on bonding subcontractors?
- When does the CM bond subcontractors and why?
- What are the benefits to the project in requiring subcontractor bonds?
- Should the School District pay for subcontractor bonding or should it be part of the CM fee?
- How would the School District justify paying twice for bonding on a project?
- Can bonding of subcontractors be used to increase participation of minority firms, or newly established firms in a way that benefits the project?
- If a subcontractor is a high-risk contractor with a low price, will it be advantageous to the project to utilize the contractor by requiring a subcontractor bond?
- If an unbonded subcontractor defaults, the Construction Manager's construction contingency will typically be utilized to pay for the cost difference to have a new subcontractor complete the project. Will this potentially deplete the construction contingency and any potential Owner cost savings at the end of the project?
- Is the project complex and does the subcontractor play a critical role in the overall cost or schedule of the project?
- If subcontractors are bonded, will the Construction Manager's fee be decreased because of his lower project risk?

Subcontractor bonding policies should be discussed during the CM selection process as one factor in the final decision, as it will affect the overall GMP. There are many instances where bonding subcontractors is appropriate, but it should be mutually agreed upon by all parties and be fully disclosed.

b. Insurance

Insurance may vary widely in coverage and cost and the School District's minimum requirements should be clearly stated in the Request for Proposals. It is highly recommended that the District's insurance professional or Risk Management Department be involved in developing

the requirements, limits and language for all insurance requirements for the project.

Insurance policy types, requirements, minimum coverage, and deductible amounts should all be stipulated in the Request for Proposals. Minimum requirements should include Workers' Compensation, Builder's Risk, Auto Liability and Commercial General Liability. Additional coverages to be considered are Owner and Contractor's Protective Liability Coverage, Extended Coverage Insurance, Special Hazards Insurance, Pollution Liability and Errors and Omissions Professional Liability. Consideration should also be given to who is responsible for the deductible should a claim be required.

c. Fees to Governing Authorities

Permits and fees paid to Governing Authorities and Agencies are also considered cost of the work. Defining who will pay what fee is imperative in developing a GMP (Guaranteed Maximum Price). Some items to be considered are:

- Building permits
- Inspection fees
- TDLR review and inspection fees
- Health Department fees
- Utility fees, tap fees, permanent connection fee
- Capital recovery fees, utility assessment fee (may consider use of an allowance or direct payment by District if fee information is unavailable)
- Meter charges and fees
- MUD fees
- Elevator license and inspection fees
- Third party building code review fees (if necessary)
- Platting and zoning change fees

Fees to governing authorities can be included in the cost of the work, whereas the CM is responsible for paying these fees or they can be paid directly by the Owner to the governing entity. Defining which party is responsible for which fees during the Request for Proposal process promotes a clear understanding of the responsibilities for fees and prevents delays and surprises later in the construction process.

d. General Conditions

The ranking of Construction Managers at Risk should be based on the qualifications of the CM and the fee/costs offered, including or not including the cost of the General Conditions, depending upon which of the following approaches is selected:

- (1) The RFQ (two step) or RFP (one step) should include a scope of work and list of anticipated General Conditions (see list in this handbook) for acceptance and/or modification by the CM. At the time of submittal of proposals (one step process) or additional information (two step process), require the CM to provide his acceptance of, or modifications to, the anticipated General Conditions list and a lump sum dollar cost or a percent of the project construction budget.

Pros: This allows the Owner to evaluate specific numbers when evaluating the fee and General Conditions.

Cons: There are a lot of items that cannot be fairly priced at early design phases. It is difficult to compare these costs from different CM's because each CM may determine, or assume General Conditions differently.

- (2) The RFQ (two step) or RFP (one step) should include a scope of work and list of anticipated General Conditions that are known and can be estimated. At the time of submittal of proposals (one step process) or additional information (two step process), require the CM to provide his acceptance of or modifications to this list, and a lump sum dollar cost or a percent of project construction budget, to be used for defining the known General Conditions. The balance of the General Conditions will then be negotiated at the appropriate time.

Pros: For the General Conditions items that are known and can be estimated, the Owner has a clear number to use for evaluation.

Cons: Because the undefined items are left to negotiations, the Owner may feel that he is not getting a competitive number for this portion of the General Conditions cost.

- (3) The definition of and cost for the General Conditions items will be reserved for the negotiation process with the highest ranked CM.

Pros: Since the evaluation is based strictly on qualifications and the CM's fee, the Owner can make a clear comparison.

Cons: Because the General Conditions are left to negotiations, the Owner may feel that he is not getting a competitive number for the cost of the General Conditions.

Consideration should be given to the fact that difficult and/or multi-phased renovation projects typically incur a higher percentage General Conditions cost, than do new construction projects. In addition, the percentage cost for General Conditions typically is also related to the total cost of the project, with higher cost projects incurring a lower percentage than do lower cost projects.

It is recommended that the definition of the General Conditions be broken down into two categories:

- General Conditions items that can be priced as a lump sum cost for the project with a month add/deduct cost factor to allow adjustment if the project takes more or less time to complete than the original proposed date for completion. The CM contract should include a stipulation that General Conditions items in this category would not be subject to audit verification.
- General Conditions items that are variable in cost. These items should be listed by item with a definition of how the cost is to be determined for

each. The CM contract should include a stipulation that General Conditions items in this category would be subject to audit verification.

Following is a list of items typically considered to be General Conditions items. Each particular project may or may not include these items, as appropriate.

- Superintendent
- Assistant Superintendent
- Permits
- Mobilize
- De-Mobilize
- Field Engineer and Helper - Sitework
- Field Engineer and Helper - Building
- Engineer - Technology
- Layout Equipment/ Material
- Professional Surveyor
- Field Office
- Field Office Furnishings
- Office Supplies
- Field Office Maintenance and Repair
- Copier and Supplies
- Architect Jobsite Office
- Architect Jobsite Office Furnishings
- Storage
- Radios
- Project Signs
- Construction Fence - Install/Remove
- Construction Fence - Maintain
- Access Construction
- General Clean-up
- Clean-up Finish Areas
- Clean-up Site/ Paving and Walks
- Dumpsters
- Temporary Water Service
- Temporary Electrical Service
- Temporary Lighting
- Temporary Telephone Service
- Temporary Protection (Weather)
- Temporary Protection (Fire)
- Equipment Start and Testing
- Monthly Ice and Cups
- Monthly Toilets
- Monthly Water

- Monthly Power
- Monthly Telephone
- Monthly Fuel and Oil
- Small Equipment Rental
- Small Equipment Purchase
- Small Tools Purchase
- Scaffolding
- Hoisting Personnel
- Hoisting Materials
- Security Measures
- Safety Measures
- OSHA Requirements
- Safety Cables and Elevated Floors
- Badges
- Record Drawings
- CAD Drawings
- Close-out Manuals
- Printing of Plans
- Printing of Shop Drawings
- Monthly Watchman
- Monthly Progress Photos
- Monthly Lodging
- Timekeeper
- Project Manager
- Assistant Project Manager
- General Superintendent
- MEP Coordinator
- Estimating
- Accounting
- Secretary
- Schedule
- Schedule Update
- Ground Breaking
- First Aid
- Vehicles
- Vehicle Fuel and Maintenance
- Warranty Work
- AGC Dues
- Street Barricades
- Postage and Delivery
- Travel Expenses
- Bid Advertising
- A/E costs for updating construction documents to incorporate addenda and cost evaluation items into construction documents.

e. Subcontracts

Subcontractors perform the majority of work on most construction projects and are contractually bound to the Construction Manager with a subcontract. They are important and often technically sophisticated team members who can contribute positively to the outcome of a project depending upon their involvement with the Owner, Design Professionals and the Construction Manager.

Increasingly, buildings are a series of complex component systems and the people most knowledgeable about those systems are the subcontractors. They often provide key input in design and pricing. In a CM at Risk project, subcontractors are often brought in early on an advisory basis. They, like the CM and Architect, can be selected on the basis of their qualifications and experience as well as their fee. Like everyone else in the building process, they are in business to earn a profit and are at risk.

It is important to recognize that the low bid or proposal by a CM or a subcontractor is not always the best value to the Owner. Ironically, subcontractors providing adequate insurance, bonding and supervision may be at a pricing disadvantage when compared with smaller and less established firms. Experience and financial strength are important assets on an Owner's team and consideration should be given to what every subcontractor brings to the team beyond the lowest price. Requiring qualification statements from subcontractors for key systems is a prudent practice.

f. Material Suppliers

Material suppliers manufacture (or distribute on behalf of the manufacturer) the physical components which are used to construct the building. Material suppliers do not provide labor to install their products. Some firms, which represent manufacturers as material suppliers, will also install the supplied products as a subcontractor. Material suppliers generally have considerable knowledge about the technical aspects of the product and its usage and are invaluable in helping to develop the specifications from which the project will be built.

g. Construction Manager Self Performing as Subcontractor

Many firms that work as a CM at Risk also have the capability to perform portions of the construction work on a project with their own employees. The CM may bid or propose for various subcontractor portions of the work during the bidding process. The timing and procedure for submitting CM self-performed work bids or proposals should be agreed upon in advance by the Owner and the CM (for example, should such CM bids be submitted prior to the receipt of subcontractor bids and if so, in what format?). In some instances where a subcontractor defaults or where subcontractors decline to perform portions of the work, the CM can step in and take over the contract and perform the work with his own employees.

h. Allowances

Allowances are used commonly in GMP contracts to allow for costs that will be incurred for a future scope of work not defined in sufficient detail to price at the time of the GMP. The CM's fee is applied to these allowances as any other cost of work; however, upon pricing this work after the design is completed, the CM is allowed fee on the portion of the cost that exceeds the allowance. Allowances are not subject to any savings provision and if a credit exists, the Owner is due the entire credit. But if the allowance is exceeded, the Owner is liable for the overage including the CM's fee on that portion. The general practice is that allowances should not be exceeded without Architect and Owner advance approval. Typical examples of the use of allowances are landscape, irrigation, hardware, graphics, brick, etc.

i. Contingencies

Contingencies typically are used for the following reasons:

Design Contingency – used during preconstruction phase estimates and initial GMP estimates when construction documents are not 100%. These contingencies allow for further development of the drawings, and specifications.

The amount varies depending on the completeness of the drawings and specifications and the ability of the team to define and manage scope. Contingencies of this sort typically range from 1% to 5%. Upon completion of the construction documents and final pricing, the design contingency is normally eliminated.

Construction Contingency - Typically in competitive bidding, the General Contractor includes a contractor contingency, which the Owner and Architect do not see broken out because the bid is submitted as a lump sum bid amount. If this construction contingency amount within the stipulated sum is not utilized by the General Contractor, it remains with the General Contractor and is not returned to the Owner. However, in the Construction Management at Risk delivery method, any unused amounts remaining in the construction contingency are included as part of the overall savings of the project.

j. Printing

Printing costs typically occur at each of four phases of a construction project:

- (1) Preconstruction prior to bidding: prints are required at the end of Schematic Design, Design Development and Construction Documents. Prints are also required at interim review milestones established in the schedule of each project.
- (2) Preconstruction bidding: prints are required at the end of the Construction Document Phase for bidding.
- (3) Updated drawings for construction shall include cost reduction items, addenda, scope changes, and permit/ regulatory changes.
- (4) Construction: prints are required for shop drawings and final closeout documents during construction.

Many factors are involved in a project that can affect the printing costs. During preconstruction and prior to bidding, design solutions are developed with participation from all of the project team members (Owner, Architect, Engineers,

CM, Code Official and other consultants) to determine the best design solution. At the inception of the project, the entire scope and size is unknown, and therefore printing costs are difficult to predict. It is recommended that the Owner pay for the printing costs incurred during preconstruction prior to bidding.

During the bidding phase, the current bid market can factor into the quantity of bid documents that are actually required to accommodate the subcontractors. Also, if a project is phased, the cost of printing and advertisements are increased. For costs incurred for printing bid documents and advertising for bids, it is recommended that the Owner pay for the printing costs.

During construction, the number of copies of each submittal and closeout documents to be retained by the Architect/Engineer and Owner shall be defined in the contract documents. Because this is an established quantity, it is recommended that the Construction Manager's GMP include the cost of printing submittals and closeout documents during construction.

Each project is unique and therefore each project should be reviewed individually to determine the appropriate method of covering the printing and advertisement costs.

k. Advertisement

Costs for advertisement for subcontractor and material supplier bids or proposals are frequently included as an allowance in the GMP. The wording of the actual advertisement should be reviewed by Owner, Architect and CM.

D. Selection of Subcontractors

Texas Public Education Statute Chapter 44, Section 44.038

A CM shall publicly advertise...and receive bids or proposals from trade contractors or subcontractors for the performance of all major elements of the work other than minor work that may be included in the general conditions. A CM may seek to perform portions of the work itself if the CM submits its bid or proposal in the same manner as all other trade

contractors or subcontractors and if the District determines that the CM's bid or proposal provides the best value for the District.

The CM and the District shall review all trade contractor or subcontractor bids or proposals in a manner that does not disclose the contents of the bid or proposal during the selection process to a person not employed by the CM, Engineer, Architect, or District. All bids or proposals shall be made public after the award of the contract or within seven days after the date of final selection of bids or proposals, whichever is later.

If the CM reviews, evaluates, and recommends to the District a bid or proposal from a trade contractor or subcontractor but the District requires another bid or proposal to be accepted, the District shall compensate the CM by a change in price, time, or guaranteed maximum cost for any additional cost and risk that the CM may incur because of the District's requirement that another bid or proposal be accepted.

If a selected trade contractor or subcontractor defaults in the performance of its work or fails to execute a subcontract after being selected....., the CM may, without advertising, itself fulfill the contract requirements or select a replacement trade contractor or subcontractor to fulfill the contract requirements.

The Construction Manager at Risk process offers an opportunity for the District, Design Team and CM to work together in selecting subcontractors for a project, to the mutual benefit of all parties. The result is often reflected in improved responsiveness and quality of the work and less adversarial working relationships between all parties.

The CM should provide assistance in contacting potential trade contractors or subcontractors, reviewing the scope of work, relaying technical questions to the Design Team, obtaining preliminary estimates, and reviewing subcontractor qualifications and suitability to the scope of work.

The CM, District, and Design Team establishes the selection criteria for each trade or subcontractor. Price, completeness of bid or proposal, financial stability, work load, experience with similar projects, references, previous performance, ability to bond and other criteria are important considerations.

Continuity of subcontractors for multi-phased projects should be a consideration when deciding on whether to use bids or proposals. Requests for Proposal may request previous experience in multi-phased projects as a weighted factor in the evaluation process. This type of

selection criteria can be used as one of several criteria to evaluate the proposals to establish the best value for the District.

E. Warranty Services

The A121/CMc contract provides for the CM to provide a general one-year warranty from the date of substantial completion on all aspects of the work. Other specific construction components (roof, air conditioning compressors, etc.) may have extended warranties. These extended warranties are generally between the Owner and the subcontractor, vendor, manufacturer, as the case may be. If savings are generated back to the Owner at the completion of the project, the CM should be reimbursed for his out-of-pocket costs associated with the warranty service during this one-year period, up to the amount of savings accrued to the Owner. Typically, most warranty services are required to be performed by subcontractors and there are not out-of-pocket expenses for the Construction Manager. Warranty allowance should cover costs incurred by the CM for self-performed work and for subcontractors defaulting in their warranty responsibilities. This can be accomplished by either of two methods:

- 1) The CM sets up a warranty allowance after substantial completion of the project and reconciles it at the end of the warranty period, refunding the Owner any unused warranty allowance.
- 2) The entire savings is accrued to the Owner at project completion and the CM invoices these costs as they occur. If no savings are accrued to the Owner, then out of pocket CM costs are not reimbursed.

F. Risks with Construction Management at Risk Delivery Systems

1. Owner Risks

The CM at Risk process offers some important benefits to the Owner over the Design-Bid-Build process, including the selection and involvement of the most qualified Construction Manager early in the planning/design stages of the project. The relationship between all parties is generally less adversarial, although there are some added risks on the part of the Owner:

- a. The CM at Risk project delivery method typically requires the Owner to be more involved in the design, cost evaluation and construction proposal phases of the project

than typically is required with traditional Design-Bid-Build and/or Sealed Competitive Proposal methods.

- b. If the CM at Risk is not selected prior to or fairly early in the design process, the Owner will not receive the full benefits of the CM at Risk process.
- c. Depending upon how early in the document development process the Guaranteed Maximum Price is set, large allowances may be included that may make some Owners uncomfortable. This risk can be reduced by setting the GMP at completion of the construction documents.
- d. If the CM is not familiar with conceptual estimating for educational projects, an incorrect Schematic Design and/or Design Development estimate may be submitted, prompting unnecessary changes in scope that may have to be corrected later in the Design/Construction Document process.
- e. At the outset of the process, the Owner is dependent upon and expects the CM and the Architect to work together in the Owner's best interest throughout Design, Construction Document and Construction Process. If the CM and Architect are not fully committed to the process or if an adverse relationship develops between the CM and the Architect, the project and the Owner may suffer as a result.
- f. To prevent misunderstandings about the scope of the GMP and/or the GMP bidding process, it is recommended that the Owner participate fully in the receipt of bids/bid tabulation process. In addition a pre-GMP meeting should be conducted after bidding and before the GMP is finalized to review all bids to assure they are complete. Any contractor or subcontractor exceptions can be thoroughly discussed at this meeting. Also, it is suggested that a pre-GMP addendum be issued after the pre-GMP meeting to define any value engineering and/or scope changes that occur.
- g. The CM at Risk process may in some instances cost the Owner slightly more in initial first costs, but this is frequently offset by the Owner receiving better quality subcontractor and supplier participation, better scheduling and potential savings at project completion.

- h. Owners may perceive that some CM at Risk projects appear to include “over-administration” of the project by the CM as compared to CSP or low-bid projects, where the tendency may be to tighten up the administration costs in order to be low and get the job. In reality, the CM may actually be providing proper and adequate administration as compared to possible under-administration experienced with the other construction delivery methods.
- i. Compared to more traditional delivery methods, the CM at Risk process actually reduces the Owner’s risk of exposure to financial failure by the Contractor. This is due to the fact that the CM is selected based upon his qualifications, financial strength, and the fact that significantly more time is allowed for CM analysis of the project and the subcontractors available to construct the project.

2. Construction Manager Risks

Throughout the process of preconstruction and construction, the CM bears many risks. Beyond liability issues, the major risk exposure is financial loss. The CM has the same exposure for financial loss as does a General Contractor in a normal Design-Bid-Build process, and in some cases can incur even higher exposure when the construction drawings are not as complete as in a Design-Bid - Build scenario. The risk of financial loss can expose the CM on a number of fronts, including:

- Preconstruction services:

The CM’s preconstruction services fee rarely represents the actual amount of money the CM invests in developing the various cost estimates and reviews. If programming information, outline specifications, or drawings are inadequate or not produced in a timely manner, the CM will spend much more than his budgeted time in developing cost estimates. In addition, inadequate information can result in later variances arising in the budgets.

- Starting construction with incomplete drawings, specifications, or technical reports:

Due to schedules or drawing production problems, projects can start under the CM delivery process with a fixed budget

but with incomplete construction drawings. Because the CM is giving a GMP, project changes caused by inconsistencies in the drawings can cause the CM to suffer financial loss. Such drawings can also result in additive cost changes to the Owner's GMP when later drawings revise the scope of the project. Inaccurate technical data such as soils reports can result in major cost problems for the CM and for the Owner.

- Changes during construction:

If the Owner or Design Team alter the design or specifications during construction, this can result in cost risk to the CM. Even when materials of the same price are substituted, the material substitution delays have the potential to inflict financial loss on the CM. A change in scope is reconciled the same way as with a Design-Bid-Build project.

- Subcontractor problems:

Subcontractors have the same potential to default under their contracts using the CM at Risk system as they do under a Design-Bid-Build delivery system, and the same potential to inflict additional cost on the Owner and CM by seeking change orders. As an offset to this risk, the CM at Risk process does allow the CM, the Design Team and the Owner more time to review the subcontractor bid for completeness and to review more thoroughly the qualifications of the subcontractors.

- Adversarial team relationships:

In any delivery system the potential for an adversarial relationship exists between the Construction Team and the Design Team and Owner. In a CM relationship, the potential for an adversarial relationship is reduced, but not eliminated. If an adversarial relationship arises, every party to the process suffers.

3 Architect/Engineer Risks

If the CM is not familiar with conceptual estimating for educational projects, an incorrect Schematic Design and/or Design Development estimate may be submitted, prompting unnecessary

changes in scope that may have to be corrected later in the design/Construction Document process.

- If major systems and their associated cost factors are not selected/agreed upon early in the design and project scoping process, the A/E may incur additional costs to revise the construction documents at a later date. (For example – if the types of mechanical systems to be considered and their relative costs are not discussed and agreed upon early, then there may be a tendency to change systems for reasons of cost later in the process after the system has been designed). Knowledgeable discussions about systems selection at the outset of the project can minimize this type of problem.
- Phasing and/or multiple packaging of the project impose additional cost on the A/E than would be incurred were a single package approach selected.
- Owners who misunderstand the “At Risk” and “Guaranteed Maximum Price” concepts may unfairly expect the A/E to absorb costs that arise due to unforeseen conditions, etc.
- Inadequate or incorrect technical information provided by the Owner or the Owner’s surveyor and/or geotechnical consultants may require portions of the project to be redesigned after the correct information is provided.

G. Accounting, Procedures, Audits and Liens

It is important for the Owner to establish with the project team during contract negotiations, procedures to ensure proper accounting of project expenditures. This includes some of the following items for consideration:

- Establishment of a schedule of values for construction budget and GMP when agreed to.
- How are CM fee and general conditions calculated/funded during course of construction – equal monthly payments over construction period vs. actual % completion of construction?
- Is retainage to be withheld on fee and general conditions, bonds, insurance, etc?

When project buyout is completed by the CM, the schedule of values listed in the Application for Payment should be matched to the actual subcontract amounts. This will provide an easy tracking system for the Owner and the Auditor when an audit is actually performed on the project.

CM at Risk contracts are open book projects and the Owner has the right to review all expenditures by the CM considered as cost of the work, so that any savings returned to the Owner can be verified and confirmed through the audit process.

Since projects for school construction are typically funded by taxpayers through bond funds, it is a good practice to perform audits of CM type construction contracts. Larger Districts can utilize their internal auditor to perform such project audits. Independent auditors can also be retained to perform this audit function.

It is important that all parties maintain good records so that all project expenditures can be processed, verified and tied back to contract documents, subcontracts, etc.

The Owner should consult with legal counsel during contract negotiations to determine requirements for partial releases, final releases and conditional releases of lien through the construction process. Partial releases of lien during the construction phase should be considered by Owner and Architect as a condition of the construction contract. This procedure helps ensure the Owner that the CM is paying subcontractors, vendors, etc. on a regular basis as work has been completed. Partial releases should be submitted starting with the second application and thereafter, and should cover amounts funded from previously funded Application for Payments. This requirement will result in additional work by all parties to obtain such releases, review and evaluate prior to funding the next Application for Payment.

A drawback to this requirement is that Application for Payments could be delayed due to CM having difficulties obtaining such partial releases, especially if there are back charges, etc. in dispute between the CM and subcontractor. Such delays could also produce notice of claims from subcontractors and sub-subcontractors because of non-payment resulting in additional administrative time by all parties.

III. CONCLUSION

The Gulf Coast Chapter of CEFPI and the AGC Houston Chapter have prepared this handbook with the intent that it will be an ongoing aid to those involved in CM at Risk K-12 projects. It is also the intention of these organizations to review and update this

handbook every two years for the next few years until the process is smooth and well understood. We welcome your comments and suggestions and ask that you forward these to Jerry Nevlud at AGC of Houston (jerry.n@agchouston.org or 713-843-3700).

The core group of participants in this process endorse and recommend this handbook to you

Steve Aloway	VLK Architects
Candace Buhrow	AGC - Houston Chapter
John Carson	Brookstone, L.P.
Mike Clausen	La Porte ISD
Greg Edwards	G.A. Edwards Construction
Mark French	Bay Architects
Pat Kiley	AGC - Houston Chapter
Margaret Manley	Fort Bend ISD
David Marshall	Marshall Construction Co.
Karl Marshall	RH George and Associates
Jerry Nevlud	AGC - Houston Chapter
Jim Ratcliff	CLR Architects / Engineers / Surveyors
A.J. Restum	Gilbane Building Co.
Bob Richardson	Pepper-Lawson Construction, L.P.
Roy Sprague	Cypress Fairbanks ISD

The core group of participants wishes to acknowledge the assistance and contributions of the following individuals:

Terry Bell	Spring ISD
Rod Bowers	Tellepsen Builders, L.P.

Keith Dalton	Dalmac Construction
Paula Drnevich	Fort Bend ISD
Justin Harris	Dalmac Construction
Ian Powell	PBK Architects
Trent Tellepsen	Tellepsen Builders, L.P.
Tanya Travis	Pepper-Lawson Construction, L.P.