

Delivery of Water Projects Using
Construction Management at Risk

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- CM at Risk - Presentation Objectives

- What is CM at Risk?

- How Does CM at Risk Differ from other Delivery Methods?

- What are the Advantages of CM at Risk?

- Use of the CM at Risk Delivery Method in the Water Market

What is CM at Risk?

- Key Points:
 - CM firm holds all subcontracts – CM is AT RISK
 - CM provides PRECON SERVICES during design
 - CM submits a ***Guaranteed Maximum Price (GMP)*** to perform all the work
 - All costs associated with the project are open for review by the owner - OPEN BOOK ACCOUNTING

What is CM at Risk?

■ Preconstruction Services

- Cost estimating
- Preparation and coordination of bid packages
- Scheduling
- Value Engineering / Cost Control

■ Construction Services

- Administration/Supervision of all trade and subcontracts
- Safety conformance
- Rigorous Project Budget & Schedule Controls
- Strict Quality Control
- Change Management – Owner Advocacy
- Acceptance testing & Start-up Support

What is CM at Risk?

- How and When is a GMP Developed?
 - GMP is the maximum amount the Owner pays for the project, including costs of the work, general conditions and CM fee.
 - The GMP is developed when the scope of work is sufficiently designed to be fully priced.
 - Less complete bid documents require a higher contingency value on the GMP, however:
 - UNUSED CONTINGENCY IS RETURNED TO THE OWNER!

CM at Risk v. Lump Sum Bidding & D/B

CM at Risk



Lump Sum Bid

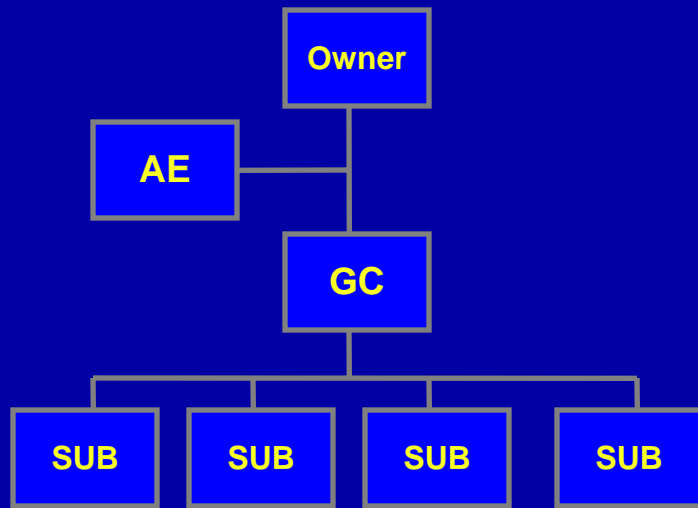
Or

D/B

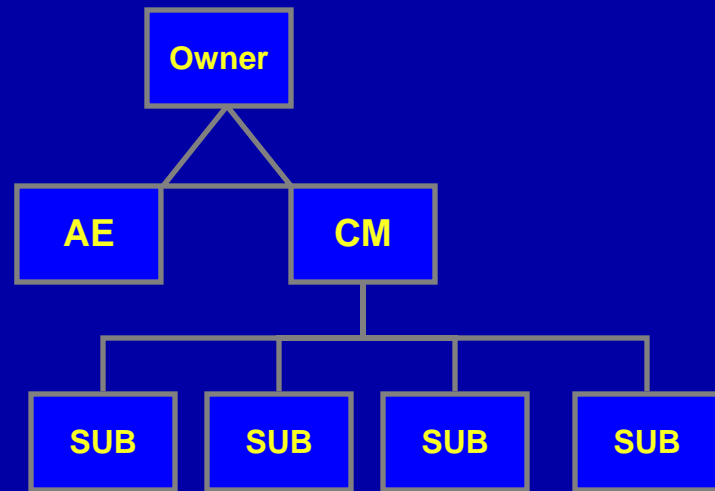
Owner must weigh the advantages and disadvantages of each approach

How Does CM at Risk Differ from other Delivery Methods?

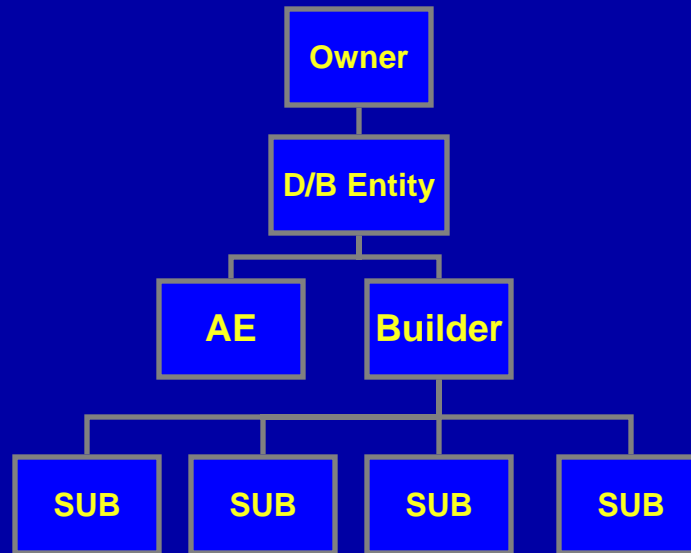
Organizational Comparison



Lump Sum



CMaR



Design/Build

How Does CM at Risk Differ from other Delivery Methods?

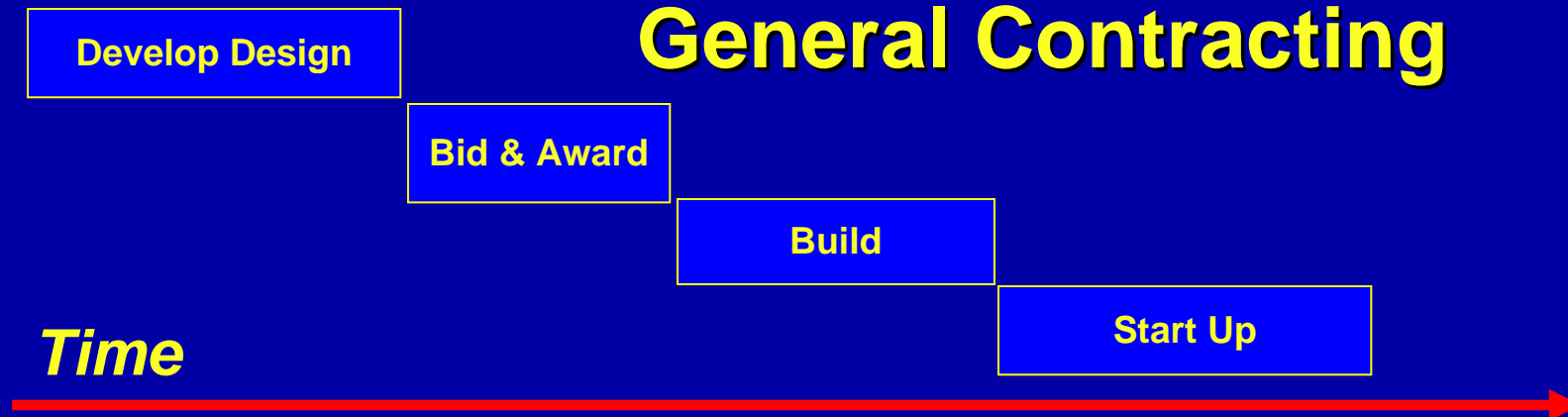
	LUMP SUM BID	CM at Risk
Contract	GC selected by low price	CM selected on qualifications and fee
Cost of Work	Owner sees only one lump sum price for all work	Open book process. Owner sees all costs.
Subcontracts	No owner (or little) control	Owner participation to extent desired
Schedule	Design to 100%, bid the job, start construction	Construction can be phased as design continues. FAST TRACK option.
Who Controls Design?	Owner	Owner
Builder input during design?	No	Yes

How Does CM at Risk Differ from other Delivery Methods?

	Design Build	CM at Risk
Contract	DB team selected on Quals and low price	CM selected on qualifications and fee
Cost of Work	Owner sees only one price for all work	Open book transparency. Owner sees all costs.
Subcontracts	No owner (or little) control	Owner participation to extent desired
Schedule	Construction can be phased as design continues. FAST TRACK option.	Construction can be phased as design continues. FAST TRACK option.
Who Controls Design?	DB Firm	Owner
Builder input during design?	Yes	Yes

How Does CM at Risk Differ from other Delivery Methods?

Lump Sum Bidding: Conventional General Contracting



■ Advantages

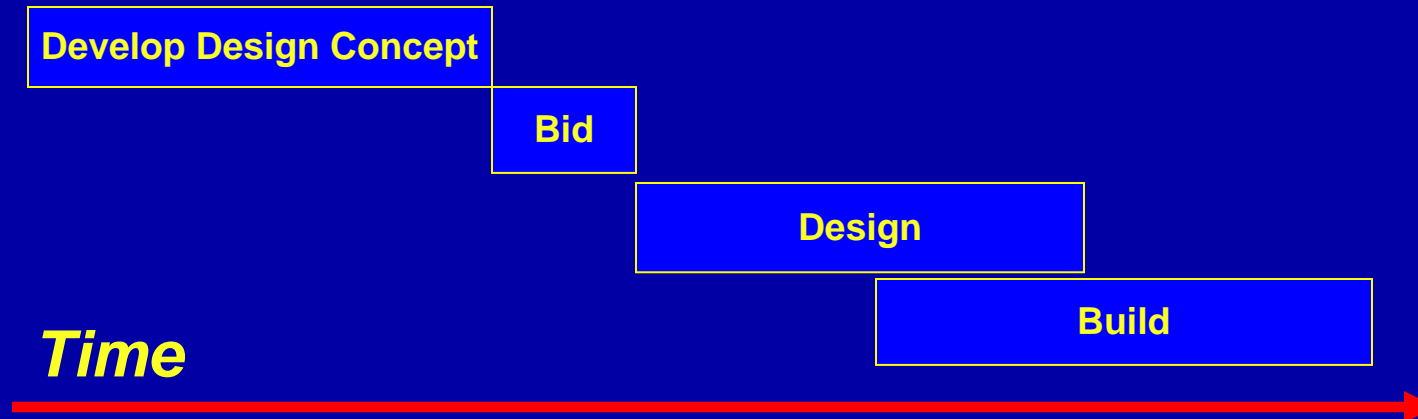
- Approach is well understood
- Minimal owner involvement if all goes according to plan
- Clean bids provided schedule allows for complete documents
- Well suited for simple projects and where time/budget sufficient to fully advance design

■ Disadvantages

- Lack of Builder input during design
- GC profit is unknown – no open book
- Lack of owner control on subcontractor qualifications
- Inability to fast track design
- Savings during buyout phase go to the GC – not the owner
- Greater potential for adversarial relationship

How Does CM at Risk Differ from other Delivery Methods?

Design / Build



■ Advantages

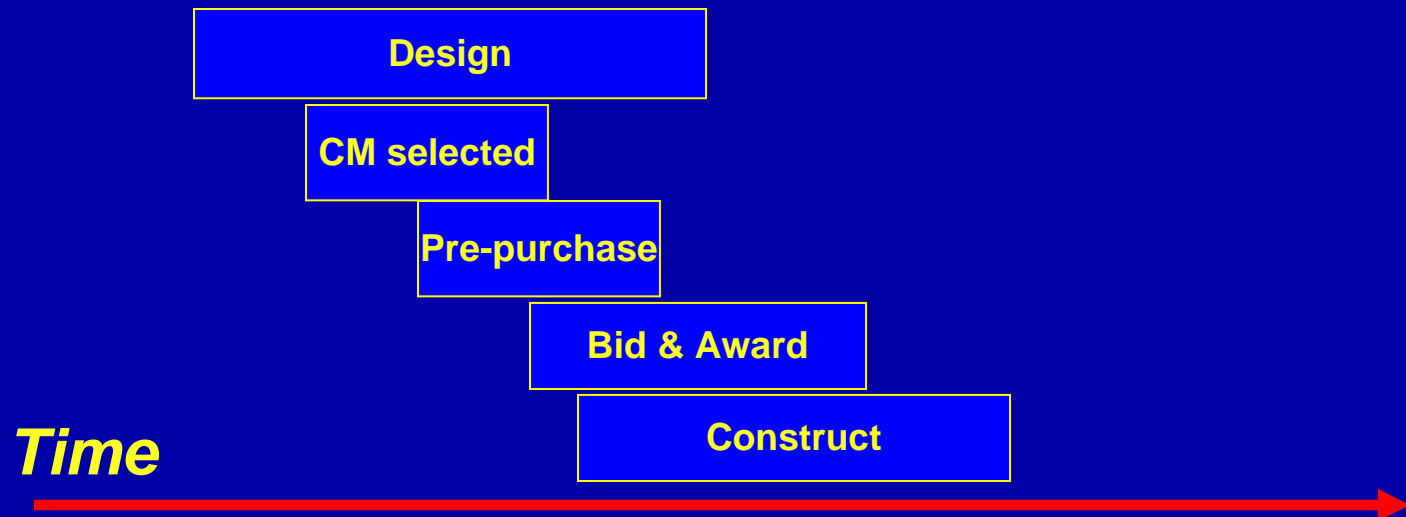
- Single point of project responsibility
- Minimal owner involvement
- Fast track potential
- Builder involvement/ingenuity injected into design
- Increasing familiarity with D/B in water market

■ Disadvantages

- Lack of owner control after D/B firm on-board
- Builder-A/E profit unknown – NO OPEN BOOK
- Lack of owner control of subcontractor quals
- Savings during buyout phase go to the D/B , not the owner
- Greater Potential for Adversarial Relationship: Cost driven contracting

How Does CM at Risk Differ from other Delivery Methods?

Construction Management at Risk



■ Advantages

- Emphasis on team approach
- Checks and Balances
- Continuous Open Book budget control
- Constructability / VE during Design Phase
- Phased Construction

■ Disadvantages

- Process is new to many owners
- Perception that owner accepts more risk due to multiple contracts

Budget Controls

- Budget Control realized through.....
 - Value Engineering
 - Continuous or staged CM Cost Evaluations
 - Development of Bid Alternates
 - Scope reviews to Reduce / Eliminate Claims & Changes
 - Non Adversarial Relationship between Owner – CM
 - More time for designer to develop plans/specs for tail end of job while front end starts = better quality documents, reduced changes
 - Selection of lowest priced, prequalified, subcontractors

Below Budget

- Buy Out Savings Returned to the Owner
- Open Book Accounting
- Unused Contingency is returned to the Owner



On Schedule

- CM develops & manages schedule
- Weekly / Monthly schedule progress reports
- Long Lead items identified early and prepurchased
- Scope review reduces time lost to claims & changes
- Flexibility to accommodate owner issues by adjusting bid packages/sequencing

What are the Advantages of CM at Risk?

Scope Reviews

- Purpose is to check bidders proposal against scope requirements
- Assures all of the scope is in the bid and the contract
- Opportunity to discuss Exceptions / Variations / Alternates

Market Trends

- FMI 2007 Survey: 66% of respondents use DBB, 23% believe it offers the best value.
- About 19% of all respondents use CM at Risk, 35% believe it offers the best value
- Of municipal respondents, 9% report using CM at Risk, yet 28 % believe it offers the best value.
- State, 24% use, 41% believe best value
- Federal, 11% use, 25% believe best value

■ CM at Risk on Water Projects

- Easton WTP, Easton, CT
 - 20MGD
 - Delivered 20% below budget & on time
- Hemlock WTP, Fairfield, CT
 - 50MGD
 - 50 subcontracts, executed parallel with design
 - \$9M under budget

Others: Upper Blackstone Valley, Norwalk, CT

Nationally, FL, TX, GA, AZ, CA

Summary of CMaR advantages

- Design phase cost control
- Constructor input on design
- Schedule control – ability to fast-track
- Controlled purchasing – ability to pre-purchase
- Open Book Accounting – Transparency
- Owner Advocacy

Questions?