



# Understanding Your Choices: Chapter 149 or 149A

*A comparison of the processes, risks and rewards*

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# Understanding the Differences



CM at Risk

Design-Bid-Build

# CM at Risk

“During the 1970’s, a new type of firm evolved. Most were GC’s looking to provide services, work as part of teams, and eliminate adversarial environments on projects. In doing this they raised construction to a higher level of project delivery and added value to the end product”

*Project Delivery Systems for Construction published by AGC  
2004*

# Design–Bid Build

“It is important to note that the constructor’s obligation is to satisfy the minimum requirements of the drawing and specifications. In the bidding process, the Owner asks for the lowest possible price to perform only those things that are absolutely required by the drawings and specifications and not more.”

*Project Delivery Systems for Construction published by AGC 2004*

# Key Difference

- ▶ With CM at Risk – you are hiring a professional service firm which builds buildings
- ▶ With D–B–B – you are purchasing a building in accordance with detailed plans and specifications

# Key Attributes

- ▶ CM at Risk
  - Design Phase Services
  - Start before design is completed
  - Qualification-based selection
  - Negotiated price
  - “Open book” accounting
- ▶ Design-Bid - Build
  - No design phase services
  - Completed design
  - Lowest Responsive Bidder (prequalified)
  - Lump Sum Payment
  - Owner has no say in team (except prequalification of FSB's)

# Finding the Tipping Point

- ▶ Bottom Line: Some projects are sufficiently “simple” that the initial cost savings with DBB outweigh the value-added services provided through CMR.
- ▶ IG Report on CMR: Owner’s view CM at Risk most appropriate for complex projects involving phasing, challenging logistics and aggressive schedules; DBB as most appropriate for new construction on open, clean sites, not time dependent.

# OPM and CM at Risk

- ▶ **REQUIRED SKILL SET** beyond Ch 149
  - Experience as CM or managing CM contracts
  - Know difference – CM contracts v Lump Sum
  - Working knowledge of construction accounting
  - Experience managing collaborative teams
  - Understand how CM's delineate scope between subcontractors
  - Understand differences between allowances, scope holds, and contingencies

# OPM and CM at Risk

## MAJOR RESPONSIBILITIES

- ▶ Help AA decide on use of CMR or Ch 149
- ▶ Cultivate CM interest in project
- ▶ Draft CM RFQ and RFP – organize selection process
- ▶ Assist in drafting and negotiating CM contract
- ▶ Push for real value during preconstruction process

# OPM and CM at Risk

## MAJOR RESPONSIBILITIES (cont'd)

- ▶ Negotiate GMP
- ▶ Understand and approve non-trade contractor scopes of work and procurement
- ▶ Manage “open book” – reimbursable costs vs. GC / Fee
- ▶ Recommend incentive payment – if applicable



# CM At Risk The Architect's Perspective



# CM At Risk Process

- ▶ Selection Process Critical
- ▶ Determine Appropriate Parameters
- ▶ Decide delivery process early
- ▶ Opportunity for construction input into design



# Optimization

- ▶ CM gives municipality an additional professional with construction savvy
- ▶ Bolsters Building Committee's knowledge of project
- ▶ CMR is a more comprehensive documentation process



# Value Engineering

- ▶ The most efficient time to value engineer any project is in the early phases.
- ▶ SMMA experiences on some of their school work clearly illustrate the difficulty of a later selection of the CM and the catch up process that ensues.



# Cost Control

- CMR process is introduced as quality-based process, however costs not guaranteed
- CMR leads to more confidence in pricing due to more comprehensive bid packages



# Relationships

- ▶ Team chemistry
- ▶ CM's should be chosen by experience with project type
- ▶ The opportunity for the team members to listen, evaluate and respond to various design oriented developmental issues during the design phase only enhances the final product.



# Assessing Project Risk

## Hard Bid (149) vs. CM at Risk (149A)

- Chapter 149 – All risk factors need to be addressed prior to filed sub-bid process without input of GC

**Lower risk projects more appropriate for Chapter 149**

- Chapter 149A – CM engaged in pre-construction process to address risk factors prior to issuing trade and non-trade bid packages

**Higher risk projects more appropriate for Chapter 149a**



# Potential Project Risks

Factors Impacting Schedule, Cost and Quality:

- Unforeseen building or site conditions
- Incomplete architectural documents to bid
- Unqualified subcontractors, poor performance
- Subcontractor failures
- Working in and around occupied facilities
- Restoration or re-use of historic buildings
- Complex site logistics
- Adversarial team environment
- Inadequate GC staffing/general requirements
- Potential bid protests



## Lower Risk Projects Appropriate to Hard Bid (149)

- Minimal risk of concealed site and/or building conditions
- Adequate time to fully design into 100% construction documents
- Minimal logistical challenges
- Conventional schedule/schedule flexibility
- No need for early procurement



# Higher Risk Projects Appropriate for CM at Risk (149A)

- Schedule-driven, non-negotiable turnover dates
- Tight design-to-construction timeframe
- Requires early procurement to meet turnover date
- High probability of concealed conditions
- Complex logistical constraints
- Historical buildings
- Large projects with significant bid packages
- Occupied renovations
- Additions tied into existing buildings
- Projects targeting LEED and other sustainable goals



# How Chapter 149A Can Help Mitigate Project Risks

- Opportunity to pre-qualify CMs and their teams
- Pre-construction services to address project risks
- Confirm existing conditions
- Design-to-budget process with architects
- Constructability reviews to ‘fill in the gaps’
- Stricter subcontractor pre-qualification process
- CM contracts sub-bid packages
- Option to ‘fast track’ trades
- Open book
- Transparent GMP construction administration



# Hypothetical \$50 Million K- 12 School Project

## *How the number breaks down*

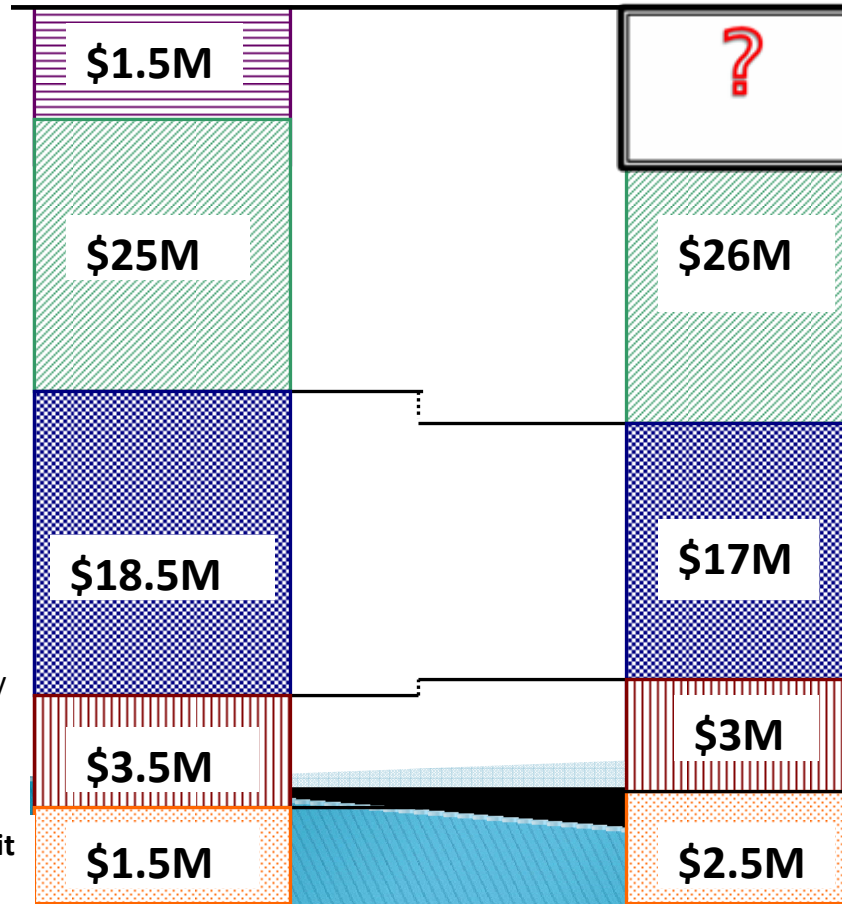
**Contingency** –Controlled by CM but owner approved; balance returned to owner

**Trade Contractors** – Typically more competitive bids with a known CM

**Non-Trade Contractors**- Bids are open book ; may be a cost premium due to CM taking on more qualified subs

**General Conditions** – Typically higher in CM for adequate staffing & oversight

Fee/Profit



**Change Orders** - Typically higher % on hard bid – incomplete filed sub-bid packages and unknowns

**Filed Sub-bids** – Typically higher to cover risk of the unknown GC

**Non-filed Sub-bids** – Typically lower but owner does not have a chance to review bids

**General Conditions** – Typically lower to be low bidder

**Fee/Profit** – Higher fee on hard bid reflects buyout going back to GC

**CM at Risk**

**Hard Bid**



# Sub Bridging Document to Verify Full Scope

Department of Fire Services  
Fire Fighter's Academy  
Stow, MA  
July 2, 2007



## General Supplementary Conditions

### Trade (Filed Sub-bids)

These supplementary conditions are intended to assist trade bidders (filed sub-bidders) in establishing items within the scope of their work. They are neither definitive nor all inclusive and do not relieve bidders of the responsibility to quote complete work packages. If any conflicts are found or any clarifications are needed, please forward an RFI to Consigli Construction immediately.

**General: All bidders must provide for the following.**

1. LEED conformance. See specification section 018113.
2. Prevailing wages. See attached appendix.
3. Phasing. See specification section 013110.
4. Show percentage of Commonwealth of Massachusetts State Office of Minority and Women Business Assistance (SOMWBA) certified minority and women business subcontractors and suppliers MBE/WBE included as part of your proposal. If certified Women and/or Minority businesses are included, please include a completed Schedule with your proposal. See Appendix B, Schedule XIII, and Letter of Intent and Schedule, attached.



# ▶ Open Book Subcontractor Procurement

## LEVELING SHEET

Project: <b>Bridgewater State College Pope &amp; Scott Halls</b>		Sub:	CCS Environmental/SOS	LVI Environmental Services	Suburban Middlesex	Wing Environmental, Inc.
Trade: <b>Demolition</b>		1 in estimate 20,000	(508) 941-6888 (508) 941-6966 Brian Stack / Eric	(617) 389-8880 (617) 389-9502 John Coppola	(781) 769-0210 (781) 769-9775 Dorell Maclean	(978) 474-6222 (978) 474-9000 Dale R. Ardolito
BASE BID:			\$ 422,150	\$ 700,620	\$ 603,000	\$ 651,800
cutting up of duct, st		Y	as needed	as needed	Y	Y
remove all non ACM v		Y	Y	Y	Y	Y
remove vents and d		Y	Y	Y	Y	Y
remove all ext walls		Y	Y	Y	Y	Y
sawcut floor opening		Y	Y	Y	Y	Y
all items to be removed shall be legally disposed of		Y	Y	Y	Y	Y
provide all temporary support as required to facilitate demo		Y	Y	Y	Y	Y
foundation coring - POPE	6 ea	500	C \$ 3,000	C \$ 3,000	C \$ 3,000	C \$ 3,000
foundation coring - SCOTT	2 ea	500	C \$ 1,000	C \$ 1,000	C \$ 1,000	C \$ 1,000
demo of north stair at POPE	1 ls		C \$ 5,000	C \$ 5,000	C \$ 5,000	C \$ 5,000
<b>POPE HALL</b>			\$ 436,538			
<b>SCOTT HALL</b>			\$ 280,393			
<b>EXCLUSIONS</b>						
removal of selected site elements - demo to be by site contractor		Y	Y	Y	Y	Y
temporary protection		Y	Y	Y	Y	Y
removal of existing foundations - to be by site contractor		Y	Y	Y	Y	Y
dropping of MEP systems to floor	by FSB's	Y	Y	Y	Y	Y
<b>BOND</b>		NA	\$ 8,573	\$ 12,450	\$ 10,985	\$ 11,715
<b>TOTAL (incl. adjustments):</b>			\$ 832,295	\$ 680,087	\$ 842,439	\$ 743,349

*Self-performed trades bid against subs*

*Missed scope; bids adjusted*

*Total Adjusted Bids*

- Estimators review bids to flag any missed scope
- Cost-adjusted bids compared on an "apples to apples" basis
- Competitive sub-bids presented in an open book process
- Process ensures that low bidder carries full scope of work



# Tools to Assess Project Risk

## Risk: Working in and around an operational environment

### Risk Prioritization:

**Budget:** Medium

**Schedule:** Medium

**User Impact:** High

### Steps to minimize risk:

- Conduct interviews with all key stakeholders.
- Prepare and implement a detailed site logistics and safety plan
- Explore methods to minimize dust, noise and vibration
- Involve our Safety Director in site planning, pedestrian traffic and OSHA requirements
- Prepare periodic community outreach bulletins throughout the construction phase

**Best Addressed By (Circle One):**

**CM at Risk**

GC

## Risk: Achieving turnover date of August 2010

### Risk Prioritization:

**Budget:** Medium

**Schedule:** High

**User Impact:** High

### Steps to minimize risk:

- Building investigation to confirm existing conditions
- Early procurement of windows and MEP equipment
- Pre-qualified subs with ability to deliver on aggressive schedules
- Process to develop 100% CDs

# New K-12 School, Chapter 149



- ▶ **Schedule:** Outdated current facility; new school will be approximately the same size as the replacement
- ▶ **Logistics:** Plenty of available land; site can be isolated and presents minimal logistical challenges
- ▶ **Budget:** Site has been investigated for concealed conditions; adequate time to develop 100% construction documents
- ▶ **Procurement:** No need for early procurement to achieve fall 2012 turnover date
- ▶ **Subcontractors:** Time to develop complete filed sub-bid documents, not an aggressive schedule

# New K – 12 School – Chapter 149A



- ▶ **Schedule:** Existing facility is overcrowded and outdated; some classes are in temporary trailers
- ▶ **Logistics:** Minimal available land; either need to build major addition onto current school or build new facility in close proximity
- ▶ **Budget:** Speed of process has not allowed adequate time to investigate site and/or existing building conditions to determine most efficient approach
- ▶ **Procurement:** Project will require early packages to achieve Fall 2011 turnover date
- ▶ **Subcontractors:** Schedule adherence, quality and safety are big concerns, especially in close proximity to students



# Questions:

*Thank you for joining us.*