

CONSTRUCTION MANAGEMENT CORE COMPETENCIES

A Guide to the Construction Management Core Competencies and their Body of Knowledge

CM PROFESSIONAL PRACTICE..... 1
CM PROJECT MANAGEMENT..... 4
COST MANAGEMENT..... 7
TIME MANAGEMENT..... 9
QUALITY MANAGEMENT.....10.....
CONTRACT _____

CM PROFESSIONAL PRACTICE

- A. The Construction Manager as a Professional
 - 1. CM's role and responsibilities as a professional and leader
- B. Historical Evolution of CM
 - 1. Early construction management projects
 - 2. Evolution of CM in the public sector
 - 3. Problems encountered at the Federal level
 - 4. Role of associations in the development of CM
 - 5. Role of the Construction Management Association of America (CMAA)
 - 6. Establishment of standards of professional practice
 - 7.

- 2.

2. Traditional approach to project delivery
 - a. Contracting options
 - b. Advantages and disadvantages of traditional system
 3. Design-Build as a delivery system
 - a. Advantages and disadvantages of the design/build approach
 4. Construction Management as a delivery system
 - a. Definitions of CM
- E. Forms of Construction Management
1. Placing CM on the agency at risk spectrum
 2. Legal relationships between owner and CM
 - a. Fiduciary responsibility and the potential conflict of interest
 - b. Defining the CM standard of care
 - c. Creating and maintaining the owner-CM relationship
 3. Forms of CM contract
 - a. CM as an agent of the owner
 - i. Pure Agent
 - ii. ACMSinglePrime
 - iii. ACMMulti Prime
 - b. Guaranteed Maximum Price CM (GMP)
 - c. CM as an independent contractor
 - d. Dual Services CM
 - e. Extended Services CM
- F. Procurement and Compensation of Professional CM Services
1. Owner selection of the project team
 - a. Determining the project delivery system
 - b. Criteria for the project team
 - c. Selection of the Construction Manager
 2. CM professional services contract issues
 - a. Standard form versus specially developed contracts
 - b. Legal and other review processes
 - c. Public sector procurement of CM services
 3. CM compensation
 - a. Basic CM fee structures
 - i. Fixed fee
 - ii. Fixed fee plus costs
 - iii. Percentage of construction costs
 - iv. Cost reimbursement
 - v. Guaranteed Maximum Price (GMP)

3. Selecting and prioritizing pertinent reference documents
4. Summarizing detailed project data for team members
5. Organization of the project
 - a. Understanding relationships between project control systems, procedures and tasks
 - b. Types of project organization, decision and authority structures
 - c. Understanding organizational structures of other team members
 - d. Defining the roles and responsibilities of project team members
 - i. Using the "responsibility matrix" to communicate lines of responsibility and authority
6. Site use planning
 - a. Knowledge of construction sequences and operations
 - b. Components required for site mobilization/use over project duration
 - c. Identifying unique site conditions which may impact construction operations
 - i. Alternative or prescriptive sequences to optimize site ~~utilization~~
7. Contract administration
 - a. Understanding the contractual relationships of team members
 - b. Applications of basic contracting/procurement strategies:
 - i. Single Prime/Multi Prime
 - ii. Lump Sum/Cost Plus/Guaranteed Maximum Price
 - iii. Design-Build
 - iv. Fast Track
 - v. Phased Purchase
 - vi. Long Lead Procurement
 - vii. Owner Assignment
 - c. Identifying and resolving conflicts duplications or omissions in contractual responsibilities
 - d.

- ii. Special liability risks
 - iii. Applying principles and techniques of risk management
 - iv. Available alternative dispute resolution options
 - Applicable laws and standards
- 9. The Project Procedures Manual
 - a. Purpose and contents
 - b. Level of detail appropriate
- 10. Project funding
 - a. Preparing information required to support owner's funding requirements (cash flow, budgets, estimates, schedules, program definitions, project descriptions, etc)
- C. Design Professional Selection
 - 1. Design resources required to meet specific project requirements
 - 2. Basic tasks and responsibilities of design professionals
 - 3. Defining criteria for qualifications and experience of design professionals in relation to the project
 - 4. Basic contracting strategies for design professional services
 - a.

2. Assessing bidding climates
3. Requirements for selection of pre-qualified bidders for bid advertisement
4. Assessing and evaluating bidder qualifications relative to project requirements
5. Understanding basic content required of contract general conditions
6. Addressing risk management issues in contractor award meetings

F. Information Management

1. Defining expected outcomes of the information management system
 - a. Data requirements to meet reporting goals
 - b. Client expectations and requirements
 - c. Appropriate levels of detail
 - d. Distribution of reports
 - e. Procedures for information plan revisions
2. Providing timely flow of information to the project team
 - a. Overall status and forecast of outcomes estimate plan
3. Understanding design report formats
4. Understanding cost/benefit analyses of various information systems levels
5. Procedures for retrieval and processing of information
6. Developing appropriate public relations information
7. Understand real/perceived impacts of project on the community

COSTMANAGEMENT

A. Project and Construction Budget

1. Conceptual budgeting methods, components and factors
 - a. Interpreting conceptual budgets provided by the owner and assessing impacts on the project cost management plan
 - b. Integrating the owner's conceptual budget into the overall cost

3. Using cost models to monitor cost during progress of design
4. Cash flow needs and availability based o the project progress schedule
 - a. Developing a compatible cash flow schedule
- 5.

- e. Evaluating progress on activities and determining relative percentages for work progress

D. Design Phase Scheduling

1. Difference between statusing the schedule for progress (updating) and revising the schedule to reflect changes that have or will occur
2. Implementing schedule revisions and assessing and minimizing impact on project dates and costs

E. Construction Phase Scheduling

1. Understanding when a recovery schedule should be required during the course of a project
 - a. The relationship of the recovery schedule to the base project schedule
 - b. Determining the appropriate period of schedule recovery
 - c. Types and uses of forms of recovery schedules
2. Schedule impact of suspension of work, concurrent delays, compensable and non-compensable delays
3. Time impact analysis using planned, as adjusted and as built schedules

7. Integrating contract drawings, specifications, general and special provisions, codes, submittals, changes and applicable regulations into quality management
8. Computer software available for project, cost, and schedule management and estimating
9. Understanding how the Quality Management Plan integrates with other project plans and procedures

B. Selecting the Project Team

1. Understanding the selection process
- 2.

6. General use and capabilities of materials used in construction
 7. Material performance and its relationship to project quality
 8. Developing corrective procedures for deficient and nonconforming work
- H. Quality Management Documentation
1. Quality control document retrieval and archival
 - a. Identifying quality management data requiring tracking
 - b. Procedures for communicating quality management data to other project parties

CONTRACT ADMINISTRATION

- A. Project Contract Format
1. Evaluating a project to determine the appropriate delivery technique(s)
 2. Understanding risk sharing methods
 3. Defining the roles and responsibilities of the parties under each delivery technique
 4. Defining advantages and disadvantages of each delivery technique
- B. Design Phase Contract Administration
1. Understanding design processes and procedures
 2. Importance of team member communication and interaction
 3. Understand the project milestone schedule
 4. Defining design phase milestones, tasks and responsibilities of team members
 - a. Understanding design requirements at various design milestones (concept, schematic, design development etc)
 5. Understanding the requirements for different types of design reviews (program, technical, constructibility, etc)
 6. Project legal requirements relative to proprietary specifications
 7. Documenting results of design reviews and communicating same to team members
- C. Construction Procurement
1. Understanding construction contracting delivery methods
 2. Bid packaging concepts and bid package interface requirements
 - a. Bid packaging related to project needs and market conditions
 3. Disputes avoidance processes and team building (partnering) concepts
 4. Developing a construction contract procurement plan
 5. Reading and understanding contract documents
 6. Market survey techniques and procedures
 7. Contractor prequalification techniques
 - 8.

- b. Importance of consistency in the bid process
- c. Bid and performance guarantees, such as bid and performance bonds, letters of credit, etc

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- c. Requirements relative to ~~as~~ built drawings
 - i. Defining the process for ~~as~~ built review and approval
- d. Requirements for shop drawings, coordination drawings, change orders, field orders, requests for information, etc
- 6. Specification requirements of the contract, including inspections required during manufacture and at delivery
- 7. Contractor's procurement, ~~exp~~ending, delivery and installation processes relative to material and equipment furnished by contractor or owner
- 8. Defining contractors' responsibility for quality
 - a.

- a. Understanding project accounting records
11. Occupancy/startup requirements

SAFETYMANAGEMENT

- A. Sources of Safety Liability
 - 1. Contractual services and the CM's duty to injured workers
 - 2. Actions of the CM and the duty to injured workers
 - 3. Liability imposed by statute
 - 4. Statelevel safety legislation
 - 5. The Occupational Safety and health Act (OSHA)
- B. Immunity and Indemnity from Safety Risk
 - 1. Insurance coverage for safety related claims
 - 2. Applicability of Workers' Compensation Laws
 - 3. Indemnification for safety
- C. Safety Records
 - 1. Purpose of prequalifying contractors
 - 2. Contractor's OSHA 200 form
 - 3.

2. Risk allocation principles
- H. Insurance for CM Services
1. Common project risks
 2. Types of insurance coverage
 3. Insurance requirements for projects
- I. Alternative Forms of dispute Resolution
1. Arbitration
 2. Mediation
 3. Mini-Trial
 4. Dispute Review Board
 5. Mediation/Arbitration
- J. Partnering
- K. Definition
- L. Benefits to the parties
- M. Process of partnering