Duties and Responsibilities of Construction Managers: Perceptions of Parties Involved in Construction

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Abstract: This paper reports the findings of a study conducted by researchers at Illinois Institute of Technology under the direction and supervision of the ASCE Committee on Management Practices in Construction to investigate the expectations of the parties involved in the construction process, including designers, owners, general contractors, subcontractors, construction managers, and educators, relative to construction managers' duties. The findings suggest that while there is some consensus among parties to a construction project relative to CM duties particularly in the construction phase, there is also some disagreement, most of which appear to be between contractors and designers. Most disagreements are related to CM duties performed in the bidding and postconstruction phases of projects.

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Introduction

Construction management (CM) involves the optimum use of available funds, the control of the scope of the work, effective project scheduling, the avoidance of delays, changes and disputes, enhancing project design and construction quality, and optimum flexibility in contracting and procurement. There are, however, differing views concerning how these major objectives are to be achieved. Despite the wealth of accumulated experience in the past 30 years, some confusion still exists as to what exactly CM is and how it should be practiced. One major reason for this confusion is the different expectations of the different parties in the construction process. This confusion reflects on the educational system that produces construction managers, particularly in light of the ongoing discussion concerning the current state of the civil engineering curriculum (Russell and Stouffer 2005) and the desired body of knowledge (American Society of Civil Engineers 2008). This confusion also reflects on the quality of the CM services performed and on the frequency and severity of claims and disputes. For a healthier construction industry, the expectations of the different parties relative to CM need to be identified and reconciled.

The objective of the study reported in this paper was to collect information from the many parties involved in the construction process in order to record and compare their expectations relative to the duties of construction managers. It is hoped that the collected information will allow researchers and practitioners to reconcile the differences and recommend practices that are acceptable to most parties.

Methodology of the Study

The study was conducted by researchers at Illinois Institute of Technology under the direction and supervision of the ASCE Committee on Management Practices in Construction (MPIC). The study involved a survey of the main participants to the construction process, including design organizations, general contractors, specialty contractors, construction owners, construction managers, and educational institutions.

The literature indicates that project management, quality management, information management, risk management, safety management, value management, contract management, and schedule management are the major disciplines with which construction managers should be familiar [Barrie and Paulson 1992; Clough et al. 2005; Construction Management Association of America (CMAA) 1993; Fisk and Reynolds 2006; Gilbreath 1992; Gould 2002; Halpin and Woodhead 1998; Haltenhoff 1999; Hinze 2000; Liebing 1998]. A total of 124 duties and responsibilities were identified covering these eight CM disciplines. This information was obtained from the general literature and the input of the MPIC Committee but particularly from the *CMAA standard form of agreement between owner and construction manager* [CMAA

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Document No. A-1, Construction Management Association of America (CMAA) (1999)], the *AIA General Conditions of the Contract for Construction-Construction Manager-Adviser Edition* [Document A201/CMa, American Institute of Architects (AIA) (1992)], and the *AGC Standard Form of CM Agreement between Owner and Construction Manager* [AGC Document 510, Associated General Contractors of America (AGC) (1997)].

The respondents were asked to mark their expectations relative to the 124 duties of construction managers on a 1–5 scale where 1 refers to never expected and 5 always expected. As seen in Table 1, the 124 statements were categorized by phase of project life cycle. The survey instrument was set up both as a web-based system and as a mailing system. All parties were surveyed by using the very same survey tool, allowing the researchers to make comparisons. It took an average of 15–25 min for a respondent to assess all 124 statements in the survey instrument.

The sources of the information and the number of companies that received and responded to questionnaires are presented in Table 2. Given the extensive length and breadth of the survey tool, it is not surprising that the rates of responses were low.

Nonparametric tests were used to analyze the data because collected data were not always normally distributed. The Kruskal-Wallis test was used to compare three or more unpaired groups. The CM duties on which there were disagreements are marked in Table 1 with a footnote. Dunn's test, a method that compares the rankings of two groups was also used as a posthoc test in the ANOVA. All tests were conducted at $\alpha = 0.05$. The tests were conducted by using Prism, a statistical package developed by Graphpad, La Jolla, CA (www.graphpad.com).

Findings and Discussions

Judging from the results of the Kruskal-Wallis test presented in Table 1, parties agree on 66 out of 124 CM duties (53%) and disagree on 58 (46%). Respondents are mostly in agreement that the major role of the CM is in the construction phase. They disagree in about one-third of the CM duties in the predesign, design, and construction phases but the disagreement extends to about three quarters of the CM duties in the bidding and postconstruction phases.

Dunn's tests indicated that most of the disagreements (60%) in the bidding and postconstruction phases occur between contractors and designers. Disagreements between designers and educators (13%) rank a distant second.

In the bidding phase, the designers' scores are consistently and significantly lower than the contractors' scores relative to all CM duties on which there is disagreement. It appears that the designers resist the idea that many of the services they provide in the traditional contracting system (e.g., establishing a bidding schedule, recommending bid packages, issuing invitations to bid, negotiating with bidders, etc.) are somehow transferred to the CM. They probably see this shift as a threat to their existence, as an erosion of the services they historically provided and as a potential reduction in their fees.

As far as the postconstruction phase is concerned, most of the CM duties listed in this phase on which the parties disagree relate to close-out activities such as "advising owner of expected transfer date," "verifying guarantees," and "obtaining as-built drawings," all activities traditionally carried out by designers. The designers score consistently and significantly lower than the contractors in these activities, indicating the designers' preference that these duties should rather be part of services provided by designers.

Conclusions

Although CMAA, ASCE, AIA, and AGC attempted to formalize the duties of a CM in their respective contract forms and different publications, there still are discrepancies between the expectations of the parties. Surveying the parties involved in construction confirmed that disagreements exist particularly between designers and contractors relative to their expectations about the duties expected of CMs. The findings suggest that while there is some consensus among the parties to a construction project relative to CM duties, there are also some disagreements. The fact that the disagreements are mainly between designers and contractors is to be expected as designers' and contractors' problems were reported by Tatum et al. (1980) and Barrie (1979), as early as in 1979–1980. The different views of contractors and designers relative to CM services still persist today.

Concerning the disagreements between designers/contractors and educators, this finding is not surprising either, considering the multitude of educational programs (2-year and 4-year programs offered under different emphases such as CM, building science, construction technology, 4-year civil/architectural engineering programs, and a variety of master's programs) that have proliferated in the past three decades. It was interesting to note that there were no disagreements between CMs and educators.

It would be advantageous for all parties concerned to reconcile their differences and have a common understanding of CM duties over all phases of the construction project. A uniform understanding of CM duties across the industry would be beneficial for all parties concerned. It is reassuring to know that CM duties are well established and well recognized by most parties at least in the construction phase of a project.

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Table 1. Duties of the Construction Manager

Project life cycle				
Predesign phase	Design phase	Bidding phase	Construction phase	Postconstruction phase
1. Develop scope of project and areas of use	1. Assist designer in preparing detailed design schedule	1. Review and evaluate owner's proposed procurement methods	1. Arrange and chair project team meetings	1. Advise owner of expected transfer date[a]
2. Conduct market research	2. Interview and select special consultants	2. Recommend method of selecting contractors[a]	2. Ensure all approvals, permits, and licenses are obtained[a]	2. Liaise with operating staff manager to arrange training[a]
3. Collect typical operating costs, tax information, etc.	3. Develop security loss prevention program	3. Establish bidding schedules[a]	3. Organize access to temporary facilities and services[a]	3. Obtain and verify guarantees[a]
4. Establish models for optimizing return on investment	4. Arrange survey monitoring of adjacent properties	4. Recommend breakdown of bid packages to be let	4. Establish system of cost control[a]	4. Obtain and verify "as-built drawings"[a]
5. Develop broad outline schedule	5. Liaise with owner's legal counsel	5. Prepare forms of contracts and proposals[a]	5. Administer monthly accounting review	5. Coordinate commissioning, testing, balancing of all systems[a]
6. Develop conceptual budget.	6. Develop bid package formats	6. Issue invitation to bidders[a]	6. Update cash flow	6. Arrange acceptance and approval of completed facilities[a]
7. Evaluate financing sources and alternatives[a]	7. Identify and purchase long-lead items[a]	7. Conduct campaign to increase bidder interest[a]	7. Establish shop drawing submittal procedures	7. Transfer facility to owner's "care, custody, and control"[a]
8. Develop target design fees	8. Develop phased construction schedule	8. Prepare sets of bid documents (general and special conditions, contract forms)[a]	8. Expedite deliveries[a]	8. Arrange final photographs and publicity releases
9. Develop feasibility study report[a]	9. Initiate preliminary insurance review[a]	9. Establish prequalification criteria for bidders and prequalify bidders[a]	9. Obtain schedule updates from trades and suppliers[a]	9. Arrange opening ceremonies
10. Establish cash flow projections	10. Arrange and chair design coordination meetings	10. Prepare documents for alternative bids[a]	10. Evaluate progress and update schedule	10. Perform final accounting[a]
11. Determine organization and staffing to administer project	11. Oversee the production of schematic drawings	11. Evaluate requests for substitutions during bid phase[a]	11. Establish payment procedures to contractors and suppliers	11. Prompt contractors to rectify deficiencies[a]
12. Outline responsibilities of the project team	12. Prepare outline specifications[a]	12. Prepare, review, and distribute addenda	12. Approve monthly progress billings	12. Liaise with jurisdictional authorities for certificates and permits[a]
13. Establish basic communication procedures	13. Identify, review, and recommend special areas of study	13. Maintain a log of bidders[a]	13. Report to owner monthly progress, payments, costs, and trends	13. Verify all guarantees, manuals, and documentation are received
14. Prepare contractual agreements	14. Prepare and analyze alternate design schemes[a]	14. Organize and conduct prebid meetings[a]	14. Review submissions for design requirements compliance	14. Recommend holdback releases[a]
15. Establish reporting and accounting procedures	15. Conduct constructability reviews	15. Organize and conduct bid openings[a]	15. Receive, record, and schedule turnaround of submissions	15. Assist in expediting guarantee items[a]
16. Interview and select architects, engineers, estimators, land surveyor, and other consultants[a]	16. Conduct value engineering analysis[a]	16. Receive, evaluate, and analyze bids for responsiveness and price[a]	16. Review and approve change orders	16. Conduct postoccupancy evaluation
17. Conduct site evaluation[a]	17. Coordinate engineering designs[a]	17. Conduct postbid conferences[a]	17. Coordinate distribution of change order information[a]	

Table 1. (*Continued.*)

Project life cycle				
Predesign phase	Design phase	Bidding phase	Construction phase	Postconstruction phase
18. Select project delivery system (traditional, D/B, multiple primes, etc.)[a]	18. Arrange for models, mock-ups, renderings, etc. of key design elements	18. Notify bidders of bid results[a]	18. Facilitate settlement of contract disputes	
19. Explore partnering possibilities between parties[a]	19. Conduct public consultations	19. Negotiate with bidders[a]	19. Administer safety and security programs[a]	
	20. Review operating and maintenance costs	20. Assist owner in contractor selection	20. Deal promptly with labor relations problems[a]	
	21. Establish general conditions of contract[a]	21. Organize and conduct preaward meetings[a]	21. Arrange inspections by jurisdictional authorities[a]	
	22. Evaluate labor and trade contractor markets[a]	22. Assemble, deliver, and execute contract documents	22. Establish reasonable dates for substantial completion	
	23. Prepare general or trade contractor bid lists[a]	23. Assist owner in the award of contracts	23. See that no liens exist for the work[a]	
	24. Monitor cost estimates as details develop	24. Approve subcontractors and suppliers[a]	24. Verify all deficiencies and outstanding documents are completed[a]	
	25. Update cash flow requirements	25. Issue notice to award[a]	25. Establish reasonable dates for final completion	
	26. Establish insurance program[a]		26. Approve final payments to contractors	
	27. Assemble tender documentation for owner's confirmation		27. Inspect and monitor conformance to design	
	28. Finalize selection of architectural components and systems		28. Select independent testing companies	
	29. Liaise with jurisdictional authorities over design details		29. Administer quality assurance and control programs	
	30. Review working drawings and specifications		30. Verify monthly progress billings against actual work to date	
			31. Issue certificate of substantial completion	
			32. Issue punch list at substantial completion	
			33. Issue certificate of final completion	
			34. Review and evaluate documentation of claim by trade contractors	

[a]Statistically significant disagreement between parties at $\alpha = 0.05$.

Table 2. Total Rates of Response

Firms	Source of information	Number of firms	Number of responses	Rate of response (%)
Designers	Top 500 design firms 2005 (http://www.enr.com)	488	46	9
Contractors	Top 400 contractors 2005 (http://www.enr.com)	393	35	9
Subcontractors	Top 600 specialty contractors 2005 (http://www.enr.com)	596	13	2
Owners	Top owners 2005 (http://www.enr.com)	405	28	7
CMs	Top 100 CMs for fee 2005, Top 100 CMs at risk 2005 (http://www.enr.com)	179	25	14
Educators	Web search 2005 (www.pertersons.com)	48	10	21

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