

Construction Cost Management

By John Dunkerley, FRICS, PQS

Why Do We Need Good Construction Cost Management?

In planning, designing and constructing a project, cost is of prime importance. This is true today more than ever due to rampant escalation. Cost considerations are continually present from concept budget, through to successful building occupation and use. So what does Construction Cost Management really encompass?

Construction Cost Management is the establishment of realistic capital costs of construction projects.

It embodies detailed cost planning and cost control services to ensure construction projects are bid, documented and completed within a pre-agreed cost framework and in the most economical manner consistent with program requirements and aesthetic considerations.

All construction projects should have an independent, unbiased, professional Cost Manager or Quantity Surveyor onboard through the duration of the contract to police and overview the procedures in order to protect the financial interests of the Owner. A Cost Manager or Quantity Surveyor uses their engineering judgment and experience in the application of scientific principles and techniques to analyze and develop the best course of action in regard to cost estimation, cost control and profitability of the project. Using cost management principles, the Cost Manager or Quantity Surveyor ensures a project is designed within budget objectives and meets performance and quality goals.

The Cost Manager or Quantity Surveyor is a vital member of, and brings added value to, the design and construction team. In this team, just as in any other, success is achieved by skill and cooperation. The skills of the Cost Manager or Quantity Surveyor emanates from their training, experience and expertise in the field of construction costs, enabling them to perform duties combining the functions of an economist, an estimator and an accountant. The Cost Manager or Quantity Surveyor is specifically focused on the management of construction cost and value.

Depending upon the sophistication of the client in design and construction, the Cost Manager or Quantity Surveyor can be retained to provide input and advice from inception to total completion or for specific tasks therein. Experience has shown clients who include the Cost

Manager or Quantity Surveyor as part of their team, from inception to completion, tend to maximize their return by investing in this type of professional expertise. When you embark on a construction program, you are making a commitment to what may be a major investment in an unknown quantity. While defining the proposed facility broadly in terms of size and function, it is possible there are significant variables that need attention such as:

- How well and how long will the facility serve its intended purpose?
- Will it be responsive to the needs of its users and the community?
- What will it say about your image?
- Will it be financially feasible?

The Cost Manager or Quantity Surveyor will work with the design team to establish the program budget or confirm the established budget. As the design progresses through the various design stages, the Cost Manager or Quantity Surveyor will prepare elemental cost estimates which will be used to report changes and variations in the anticipated cost, allowing for timely decisions on additions or deletions to the design while maintaining the initial program budget. Prior to bid, the pre-bid estimate will be used to evaluate bids received. During the design and construction of your project, the Cost Manager or Quantity Surveyor effectively becomes a major contributor to the Design Team, serving as advisor and technical manager and in large measure, he or she will determine the financial success of the project. Selecting the right Cost Manager or Quantity Surveyor should not be a casual or offhand process. When choosing a Cost Manager or Quantity Surveyor look for someone whose experience, interests and capabilities fit the requirements best, and with whom can work well with the Design Team.

Cost Managers or Quantity Surveyors provide the following services:

Cost Consulting, incorporating:

Feasibility Studies and Conceptual Estimating; Project Budgeting; Cost Control Estimates (in either elemental or trade format); Assembly of Bid Packages; Bid Review and Contractor Selection; Functional Cost Analysis; Review and recommendation of Project Progress Payments; Review and Negotiation of Change Orders and Contractual Claims.

Lender Services, incorporating:

Review and Verification that Project Budget is adequate to complete Project; Progress Draw Review and Monitoring of Costs incurred; Verification of Borrower payments.

Value Management, incorporating:

Review of Project Program, Design and Cost Studies; Service Provider for Value Management Workshops; Evaluating Processes and Components; Preparation of Recommendations.

Life Cycle Costing, including:

Life Cycle Cost Plans; Discounted Cash Flows; Sensitivity Analysis.

Other Services:

Reserve Fund Studies and Cost to Complete Reports; Property Condition Reports; Risk Analysis; Insurance Replacement Cost Assessment; Project Management; Project Scheduling; Construction Management; Construction and Project Cash Flows; Mediation and Arbitration; Expert Witness; Bills of Quantities and/or Materials; Material Take-offs.

Cost Management Services During the Design Process

The following services are identified at specific stages in the work for ease of reference only. The client will only recognize the full benefit of engaging a Cost Manager or Quantity Surveyor if that person or firm is an active participant in the design team, able to provide costing advice on an ongoing and continuous basis.

The following sets out some of the Cost Management Services a Cost Manager or Quantity Surveyor can provide:

Feasibility Studies

The Cost Manager or Quantity Surveyor will undertake studies into the feasibility of construction projects including an analysis of construction costs, operating and maintenance costs, site servicing and cash flows. The Cost Manager or Quantity Surveyor may also, working with other market specialists, advise on feasibility studies analyzing commercial returns, profitability, financing arrangements, land acquisition, revenue forecasts and market analysis. For public, institutional and commercial construction projects, the Cost Manager or Quantity Surveyor typically prepares a study which will consist of an analysis of budget requirements, analysis of possible building size within a fixed budget and preparation of cost

studies including operating and maintenance cost evaluations.

Functional Program

As an integral part of the above, the Cost Manager or Quantity Surveyor will provide construction cost advice to a client concerning their proposed project at the very earliest stage of the deliberations. This advice will assist the client in determining the viability of the project, prior to design. The Cost Manager or Quantity Surveyor will draw upon accumulated experience and recorded cost data to prepare an estimate of the probable cost consistent with the known requirements. This estimate will assist the client in assessing the feasibility of undertaking the project and in establishing a tentative budget. Clearly this early assessment of cost will involve a number of basic assumptions as to the nature and construction of the project. The more complex projects, generally institutional developments, may also be costed at this stage based on a Facilities Program.

Schematic Design

The Cost Manager or Quantity Surveyor can prepare analytical studies of a number of design solutions based on schematic drawings showing the approximate shape and size of the proposed construction and brief outline specifications. It is reasonable to expect up to three alternative solutions to be studied for costing. Where additional solutions are required to be reviewed, an additional fee should be negotiated. The cost study at this stage will enable a choice to be made of the building size, shape, possible construction materials and services systems.

Design Development

Following selection of a basic design, preliminary drawings will be prepared from which an estimate will be developed to show the cost of each functional element of the construction and its relationship to the whole. This estimate is the first benchmark and all subsequent cost estimates and fiscal changes must relate to it. With its use, the client may judge the economic viability not only of the entire project but also of each part, and together with the designer, may make any necessary changes which may be required with full knowledge of their effect on the original budget.

Construction Documents

When the contract documents (i.e. Working Drawings, Specification, and General Conditions) are virtually complete, the Cost Manager or Quantity Surveyor will re-

evaluate the work and provide a final estimate. This re-appraisal provides the opportunity to conduct an overall review of the project and to take into account last minute changes in market conditions that may prevail during the bidding period. The Cost Manager's or Quantity Surveyor's expertise in, and close attention to, construction cost creates a special awareness of the financial implications of the various methods of selecting a contractor and of the various types of building contracts. The cost distribution in the final estimate can be rearranged to provide a means of direct comparison with the price breakdown requested in the bid documents from the successful bidder and upon which progress payments during construction will be based.

Bidding Package

As the bidding package is being assembled, the Cost Manager or Quantity Surveyor should be made aware of all changes from the documents used to prepare the pre bid update. It is not uncommon for the final details to significantly alter costs of the work. The Cost Manager or Quantity Surveyor can consider these changes and advise the client and design team to take appropriate action.



John Dunkerley, FRICS, PQS - With more than 35 years of experience in the quantity surveying profession, Mr. Dunkerley serves as the Director of PinnacleOne's Cost Management division. As a Fellow of the Royal Institution of Chartered Surveyors, Mr. Dunkerley is experienced in all facets of cost management and planning. He received a BS degree in Quantity Surveying in the United Kingdom and is skilled in developing estimates from the early planning stages of a project through each phase of design.

Mr. Dunkerley has earned a reputation for delivering accurate cost estimates on a broad range of project types including education (K-12 and higher education), healthcare, prisons, national parks, convention centers, libraries, sports facilities, courts, museums, office buildings, crime labs, and significant projects with the Bureau of Indian Affairs.

Mr. Dunkerley has been a team member of and conducted seminars in Construction Cost Management, Cost Control, Value Management, and Life Cycle Costing Techniques.

Summary

By understanding Construction Cost and Budget implications, it's possible to avoid the time consuming and costly process of reviewing or redesigning the project. Project Owners should hire an independent professional and unbiased Cost Consultant, who has no conflict of interest, to overview the cost of the project from inception through to completion of the final account. Many Cost Consultants employ Cost Managers or Quantity Surveyors who are professionals from the United Kingdom and its previous Commonwealth countries who have received university degrees in Construction Economics and are professionally trained to financially control construction projects. PinnacleOne offers a broad range of cost estimating, management and control services for public and private owners, developer and designers. The Cost Management Division at PinnacleOne assists clients in establishing realistic construction budgets and the subsequent monitoring and management of cost from planning through occupancy.