

# Cost Control during the Bidding Stage of Construction Projects

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## Abstract

Effective cost control during the bidding stage of construction projects is crucial for the success of project management. The process starts from a thorough pre bidding stage, including feasibility studies, risk assessments, and realistic budget formulation. In the bidding process, setting clear standards, evaluating suppliers, and evaluating based on various factors such as cost, technical qualifications, and past performance are key steps. Through comprehensive measures, it can be ensured to minimize risks and improve project efficiency to the greatest extent possible.

## Keywords

Construction Engineering; Bidding Stage; Cost Control.

## 1. Introduction

The bidding stage of construction projects is crucial, involving two aspects: the pre bidding stage and the actual bidding process. Throughout the entire bidding stage, attention should be paid to cost control to ensure that the project remains within budget constraints while ensuring quality and adhering to schedule, thereby achieving good cost control results.

## 2. Cost Control in the Pre Bidding Stage of Construction Projects

### 2.1. Project Feasibility Study and Cost Estimation

Before starting any construction project, it is crucial to conduct a comprehensive feasibility study aimed at evaluating whether the project is feasible and worth implementing. It involves evaluating various aspects, including: (1) location. Transportation convenience, proximity to suppliers and labor, and environmental factors play an important role. For example, construction in areas with skilled labor and a good transportation network can reduce costs. (2) Market demand. It involves studying potential customers, competitors, and market trends. (3) Technical feasibility. This involves evaluating whether the proposed construction can be technically implemented. Engineers and architects evaluate factors such as soil conditions, geological surveys, and structural requirements.

Once the feasibility study confirms the feasibility of the project, the next step is cost estimation. Accurate cost estimation is crucial for budgeting and financing. It involves breaking down the project into its various components and estimating the costs associated with each component. The main cost components include: (1) materials. Including the cost of all materials required for construction, such as concrete, steel, wood, and fixtures. (2) Labor force. Labor costs include wages, salaries, benefits, and any subcontracting expenses. (3) Equipment. Construction projects typically require heavy machinery and equipment. Estimating equipment costs involves considering rental fees, maintenance fees, and depreciation expenses. (4) Management expenses. This includes fees for licenses, insurance, utilities, and office space.

### 2.2. Identifying Potential Risks and Uncertainties

Construction projects are inherently complex, accompanied by a series of potential risks and uncertainties. Identifying and managing these risks is crucial to ensuring that the project is on

track and within budget [1]. Specifically, it includes: (1) risk identification. Project stakeholders, including engineers, contractors, and project managers, work together to identify potential risks. Risks may be related to technical aspects (such as design and construction methods) or external factors (such as weather conditions and regulatory changes). (2) Risk assessment. Once a risk is identified, it will be evaluated based on its likelihood and potential impact. High impact and high probability risks require more attention and mitigation measures. (3) Develop risk mitigation strategies. These strategies can include risk avoidance (changing project plans to eliminate risks), risk reduction (taking measures to minimize impact), risk transfer (transferring risks to another party, such as through insurance), and risk acceptance (acknowledging risks) but choosing not to take specific actions. (4) Uncertainty management. Although risk is a specific event or situation with quantifiable probability, uncertainty is a broader factor that can affect a project. Managing uncertainty involves maintaining flexibility in project plans and budgets to adapt to constantly changing conditions.

### **2.3. Develop a Realistic Budget for the Project**

A realistic budget is the cornerstone of successful cost control in construction projects. It ensures that resources are effectively allocated and unexpected situations do not occur during this process. Specifically, it includes: (1) detailed cost breakdown. Based on the cost estimation of the feasibility study, the budget divides the costs into categories, which can accurately track and control expenses. (2) Incorporate emergency funds. Emergency funds are included in the budget to cope with unforeseen events or cost overruns. The size of the emergency fund may vary depending on the complexity of the project and the identified risks. (3) Reserve funds. Reserves can also be used for specific purposes, such as addressing potential scope changes or unexpected delays. (4) Budget tracking and control. Once the project begins, careful tracking and control of the budget is crucial. Regular financial reports and reviews help ensure that expenditures align with budgets and make timely adjustments when necessary. (5) Review and adjustment. As the project progresses, regular budget reviews should be conducted. Adjustments may need to be made based on actual expenses, changes in scope, or unforeseeable events [2].

## **3. Cost Control during the Bidding Process**

### **3.1. Setting Clear Bidding Standards**

Developing clear and comprehensive bidding standards is the first step in ensuring the success and cost-effectiveness of the bidding process. These standards serve as guidelines for contractors to submit proposals, and the specific design should reflect the specific requirements and goals of the project. Specifically, it includes: (1) defining the project scope and specifications. This includes building and engineering plans, materials used, and any special requirements or standards that must be followed. A clear scope can minimize misunderstandings and ensure consensus among all bidders. (2) Technical requirements. This may include specific construction methods, quality control procedures, safety measures, and project milestones. (3) Contract terms and conditions. Including payment schedule, project schedule, and any penalty clauses for delay or non-compliance. The clarity of contract terms helps contractors understand their obligations and the financial structure of the project. (4) Legal and regulatory compliance. Ensure that all bidders understand and have the ability to comply with legal and regulatory requirements, such as permits, licenses, insurance, and environmental regulations. (5) Evaluation criteria. Cost is a key factor, and other factors need to be considered, such as the contractor's experience, past performance, financial stability, and compliance with safety protocols. (6) Pre bid meeting. Consider holding a pre bid meeting to provide potential bidders with the opportunity to visit the site, raise questions, and gain a deeper understanding of the project scope and requirements [3].

### 3.2. Conduct a Thorough Supplier Evaluation

Supplier evaluation is an important aspect of the bidding process. Thorough evaluation can reduce the risk of selecting unreliable contractors and strengthen cost control by ensuring that selected suppliers can deliver on budget and schedule. Specific evaluation aspects include: (1) qualifications and experience. Looking for contractors with good records and necessary licenses and certifications in similar projects. Experience is usually related to the ability to effectively manage costs. (2) Financial stability. A financially stable contractor is unlikely to encounter cash flow issues during the project period, otherwise it may lead to cost overruns or project delays. (3) Reference materials and past performance. Based on the contact information provided by the bidder, gain a deeper understanding of their past performance. Clearly define their ability to control costs, adhere to schedules, and handle unexpected challenges. (4) Safety records. Safety is an important consideration in construction projects. Evaluate the safety records and protocols of each bidder to ensure that the selected contractor prioritizes the well-being of workers and minimizes accident risks and related costs. (5) Technical capabilities. Including the ability to acquire necessary equipment, technology, and skilled labor. Contractors with internal capabilities can better control costs. (6) Relationship with subcontractors. A strong relationship can save costs and ensure efficient project execution.

### 3.3. Evaluation of Bids based on Cost and Other Factors

Once the bid is received, the evaluation process begins. Cost is an important factor and should be evaluated in conjunction with other criteria to select contractors who provide the best value and meet project objectives. Specifically, it includes: (1) cost evaluation. Compare the cost recommendations of each bidder to ensure consistency with the budget formulated in the pre bidding stage. Seeking transparency in cost breakdown and identifying any potential cost saving measures proposed by bidders. (2) Technical and qualitative evaluation. Evaluate the technical proposals and qualifications of each bidder, taking into account factors such as proposed construction methods, project timelines, and compliance with technical requirements. Assess the ability of each bidder to address potential risks and uncertainties. (3) Past performance and reference. Review the past performance of each bidder based on their reference and tracking records in similar projects. Consider factors such as on-time delivery, cost control, and the ability to effectively manage challenges. (4) Contract terms and conditions. Review the proposed contract terms and conditions to ensure they align with the project's objectives and risk sharing mechanism. Evaluate any proposed changes or deviations from the initial bidding criteria. (5) Comprehensive evaluation. Developing a comprehensive evaluation matrix and assigning weights to projects based on different criteria helps ensure an objective and consistent evaluation process [4].

## 4. Epilogue

In short, cost control during the bidding stage of construction projects is a meticulous and strategic process. Effective cost control can improve project quality, ensure risk management, and achieve overall success, ensuring project benefits, making it an indispensable aspect of construction engineering.

## References

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