

Study on the Control and Management of Construction Project Cost

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Abstract: The management and control of construction project cost needs to determine the cost accuracy of different stages according to the construction procedure, control the project cost within the approved cost limit, correct the deviation according to the progress of the project, use resources reasonably, and achieve good investment benefit. According to the status quo of China's construction cost management, this paper points out the importance of construction project cost control, pointing out that construction project cost control should run through the whole process of the project, and staged project cost control is discussed to achieve the expected investment objectives and give full play to investment returns.

1. Introduction

In recent years, the national economy has developed at a high speed, the process of economic marketization has accelerated, the competition in the construction industry has become increasingly fierce, and the concept of construction project cost management has been continuously strengthened. The reasonable determination and effective control of project cost has become an important part of engineering construction management [1]. The smooth implementation and the realization of investment benefits play a decisive influence and role. The project cost control and management should follow the two principles of pre-control and active control, and set the focus of control behavior in advance and in the event, especially in the investment decision-making, design, bidding, construction and completion settlement stages of the project [1]. In order to effectively control the project cost, each stage should be based on a feasibility study to develop a correct investment estimate, and to establish a relatively clear control objectives, phased target control until the end of the project. Construction engineering units should improve the quality of cost personnel, improve the ability of technical and economic analysis, and enhance the market competitiveness of enterprises.

2. Characteristics of construction project cost

The characteristics of project cost are determined according to the construction characteristics of the project. It has the following characteristics: the cost of the project has a large amount of money, and its physical shape is large and the cost is high. Millions, tens of millions, hundreds of millions, hundreds of billions of dollars, and the cost of a large-scale engineering project can reach 10 billion yuan [1]. The characteristics of the large amount of engineering cost make it related to the huge economic benefits of all relevant aspects, but also have a huge impact on the macro economy.

The difference in cost and the individuality of the project make any project have a specific function, purpose and scale. Therefore, there are specific requirements for the structure, space division, modeling, interior and exterior decoration and equipment configuration of each project, so the content of the project and the form of the object are different and individual. At the same time, the area and location of each project will be different, which will strengthen this feature. The project cost has a certain dynamic nature [2]. Every project has a long construction period from the beginning of the decision to the completion of the project. It is affected by uncontrollable factors. Within the estimated time limit, there are many projects that affect the project. Dynamic factors of cost, such as changes in engineering, material prices of equipment, wage standards, and changes in interest rates, rates, and exchange rates. These changes must affect the change in cost. Therefore, the project cost can not be finalized until the final settlement of the project.

3. The importance of construction project cost management and control

The cost of construction projects runs through the decision-making, design, implementation and completion stages of the project. In these processes, many uncertain factors such as engineering changes will occur, and the estimation over-estimation, budget over-estimation, and final budget will occur. The control of project cost brings great inconvenience and affects the economic benefits of construction enterprises [2]. As the market competition becomes more and more fierce, the price of goods has increased, and the profits of construction companies have been greatly affected. These have made more and more companies aware of the role of cost management control. The cost management control of construction enterprises is the basis of their cost control, which is of great significance for improving the economic benefits of enterprises and accelerating social and economic development.

4. Current status of construction cost control and management in China

4.1 The design stage is too conservative for the control and management of construction project cost.

At present, most of the control and management of construction cost in China still adopts the stage management mode, but there is still a lack of macroscopic comprehensive control and management of the entire construction project. Design units, supervision units, and construction units often have no unified construction project cost control and management objectives, and lack of standardized communication mechanisms [3]. This makes the supervision units usually limited to the construction cost control and management. However, there is a lack of management for the construction cost of the design stage. Although the design unit will also carry out related work on the budget of the construction project in its design stage, due to the defects of the current system and the lack of the constraint mechanism, the design unit usually has too conservative control and management of the construction cost, resulting in the investment amount remains high.

4.2 There are loopholes in the control and management of construction project cost in the bidding stage.

At present, China has not been able to comprehensively and effectively promote the design of quotas, which also makes the design work unable to receive due attention and constraints. In particular, most construction units have no corresponding concept is to take measures to urge the design unit to carry out the design and the standardization. There are even many construction projects that have not been tendered and designed to optimize at the design stage [3]. However, the management system of many design units is not perfect enough, and the sense of quality is extremely lacking. It is often just the pursuit of the workload of design tasks and its economic benefits. In addition, in the current bidding management process of construction units, some construction units in the process of preparing tenders and bidding quotations, maliciously suppress or raise the construction project budget, thus making the construction cost of some construction projects and normal The market price has deviated, disrupting the normal operation of the construction market.

4.3 The control and management of construction project cost is too random during the construction phase.

In theory, after the construction project has undergone strict project feasibility study and investment quota and other approval procedures, it must be carefully prepared and scientifically and effectively organized and monitored at all stages of the implementation process. The amount actually incurred in the construction project cost should be within the limits required for decision-making [4]. However, in fact, many construction units in China are often eager to start construction projects, and lack many necessary construction preparations, especially for investment quotas, construction standards, design depth requirements, and bidding documents and construction contracts. There is a lack of strict checks on the improvement, which leads to the design change of the construction project while carrying out the construction. Even if it is changed in the construction process of the

construction project, it is necessary to change it, change it, change it, and make the design change reasonable. Sex and necessity lack scientific and effective technical supervision and economic review, and there is no clear accountability system for the losses caused by design changes.

5. Research on control and management of construction engineering cost

Control and management of project cost in project decision-making stage project decision-making plays a decisive role in project cost and economic benefits after project completion. There are many people involved in the project cost control in the decision-making stage, including cost engineers, accountants, engineering and technical personnel, economic and market analysis experts, etc., as well as a large number of industries, which requires relevant personnel to have professional knowledge and practical experience. In addition, to ensure the objectivity of the cost, it is necessary to guarantee the scientificity, authenticity and validity of the collected data [4]. In the decision-making stage, we must recognize the importance of preparing investment estimates. It is an indispensable part of the pre-construction period. Investment estimates have a certain control over the preliminary design estimates, and loans are also based on investment estimates.

5.1 Do a good job in cost control in the early stage of investment decision-making.

The investment decision of the construction project is very important to the cost of the whole project. The technical and economic aspects of different investment plans should be compared in order to make reasonable decisions and lay a good foundation for controlling the cost from the source. First of all, we must actively prepare for the project decision-making, and do a good job in the investigation and collection of basic materials, such as the geological conditions of the project site, the status of water circuits, the purchase of bulk materials, the price of materials and equipment, etc., and the information and information are as detailed as possible [4]. Accurate and complete; secondly, collect and collect a large amount of statistical data and information materials through investigation, conscientiously do a good job in market research, combine market demand and development prospects, and reasonably determine the scale and standards of project construction; once again, fully do a good job of feasibility study the feasibility study includes construction investment, market analysis, construction scale, construction location, profit situation, long-term outlook, etc.. Prepare engineering investment estimates in a detailed, comprehensive and accurate manner, when there is sufficient basis, the unfavorable factors that may occur during the construction process should be fully considered in combination with the actual situation, and the price floating coefficient should be reserved in combination with the construction period and market conditions to ensure that the investment estimate is as close as possible to the actual investment, so that the investment estimate starts from To control the total cost of the project.

5.2 Strengthen the cost control in the design stage.

The design phase is the stage in which the construction project turns from planning to reality. The cost control, quality assurance and execution of the whole project are largely determined by the design. If the cost control in the design stage is not good, it will be detrimental to the later construction stage [4]. The development of cost control work. The design phase should reduce the cost by the following measures:

1) There is such a phenomenon in the current design. Many designers only consider the construction cost from the technical point of view, and increase the safety factor at will, which leads to a substantial increase in the project cost. In the design process, not only the technical feasibility and safety of the construction project should be considered, but also the economic rationality of the project cost should be fully considered. The designer should improve the economic awareness and continuously optimize the design through modern design tools and design ideas [5]. A technically feasible and economically optimal design.

2) Fully apply value engineering theory in architectural engineering design, analyze and decompose the function of construction engineering, analyze cost of construction, remove redundant and unpractical functions, and select building economic life with material selection and equipment

selection [5]. The combination of the type and the function of the construction project proposes a scheme to reduce the construction cost and seek the best cost-effectiveness.

3) Vigorously implement the quota design, complete the preliminary design and budgetary estimate in the approved project investment estimate, ensure that the budget estimate does not exceed the investment estimate, and then complete the construction drawing design and construction drawing budget on the basis of the budgetary estimate, so as to control the construction cost at different levels [5]. Under the premise of ensuring the use of functions, the various professions cooperate with each other and coordinate with each other to control the design according to the amount of investment allocated.

5.3 The cost control in the bidding stage.

The construction project realizes bidding and introduces a competition mechanism, which is conducive to ensuring the construction quality of construction projects and controlling the construction cost. In the bidding stage, the following aspects should be done to control the cost:

1) Bidding should follow the principles of fairness, openness and fairness. It must have a high degree of transparency, strengthen the qualification review of bidders, prevent units with poor credit standing to disrupt the order of bidding, and ensure that there is no stringing and accompanying in the whole bidding process. Standard and black box operation behavior [6].

2) Prepare the bidding documents, and prepare the bidding control price scientifically and reasonably. The cost management personnel should collect, screen and analyze all kinds of valuable materials and information [5]. The clauses involved in the bidding documents should be repeatedly evaluated and the bidding control should be prepared. The price should be realistic and realistic, and taking into account the price fluctuations should be consistent with the actual changes in the market, as far as possible to control the bidding control price at the lower limit of the reasonable cost.

3) Those who are reasonable and low-priced will win the bid and carefully select the construction team. It is necessary to eliminate the need to seek absolute low bids to prevent some units from maliciously bidding below the cost price, so that the basic construction quality cannot be guaranteed. The construction team should be selected according to the project scale and technical requirements [6]. For some large-scale important projects, try to select construction enterprises with strong technology, capital and strong construction strength.

4) Do a good job in signing the contract, clarify the terms of the contract agreement, and clearly stipulate the terms of the project, the settlement method of the price, and the handling of the breach of contract.

5.4 Cost control and management measures during the construction phase.

The construction phase of construction engineering is the main stage of project cost generation, so the following aspects should be done to strengthen cost control and management [6]:

1) Strengthen the control of materials and equipment, and the cost of construction raw materials and equipment accounts for more than 70% of the investment cost of the entire project. Therefore, it is necessary to focus on strengthening the control of materials and equipment. For bulk construction materials, it is necessary to shop around, or to implement bidding procurement. Select materials and equipment of manufacturers with good quality and low price.

2) Strengthen the engineering changes and visa management at the construction site. In the construction process of the construction project, it is inevitable that there will be changes. In order to reduce the number of changes and the impact of the changes, the review of the design drawings should be strengthened before the construction, and the discovery and indication should be discovered as soon as possible [7]. Irrational or erroneous in the design, so as to avoid the change or rework, resulting in an increase in the cost; for the design changes that must occur, the part that involves the increase or decrease of the cost should be reviewed and verified, and signed by the design, the owner, and the supervisor.

3) Strengthen the organization and management of the construction site. During the construction process, the effective allocation of personnel and equipment resources should be carried out according to the progress of the project, avoiding the phenomenon of artificial shortage, work and

equipment idle, and strengthen technical training for construction personnel [8].

4) After the completion of the construction, the project cost control and management of the completion settlement should be done carefully. The final calculation of the drawings should strictly follow the contract terms, strictly review the calculation of the amount of drawings, the quota application, the material price difference, etc., to prevent the occurrence of double-computing engineering quantities. High set of quotas and other behaviors will lead to an increase in project cost [8].

5.5 Completion acceptance and post-evaluation stage.

The important basis for the reasonable determination of project cost is the settlement of the project completion. Whether the construction unit or the construction unit pays great attention to the audit settlement of the project price. The construction unit shall prepare the project settlement book and entrust a qualified intermediary agency to conduct the review [8]. The preparation of project settlement is not only directly related to the interest relationship between the construction party and the construction party, but also related to the actual result of the project construction cost. The settlement of the project shall be carried out in accordance with relevant state policies and regulations [7]. Practice has proved that, through the review of the settlement of the project, under normal circumstances, the project settlement after review is about 10% different from the settlement price of the project, and some of them are as high as 20%, which plays an important role in controlling investment and saving funds.

6. Summary

In summary, the control and management of construction project cost is a whole process management from investment decision to completion and final account, and any link is indispensable. In order to achieve the expected investment objectives and give full play to the investment benefits, only the construction process cost control of the construction project can achieve the goal. Controlling project cost is not only to prevent investment from breaking through the limit. The more positive significance is to promote the construction, construction, and design units to strengthen management, so that the limited resources such as manpower, material resources, and financial resources can be fully utilized to achieve the best economic benefits and society. benefit. Therefore, doing a good job in the control and management of project cost is of great significance for ensuring and accelerating economic development.

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