Dynamic Management and Control Measures of Construction Cost

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Abstract: As an important part of project management, construction cost management plays a vital role in construction projects. Due to the long duration period and wide scope of construction projects, it is necessary to build a dynamic management system in project cost management and cost control, and carry out targeted cost management and cost control according to the characteristics of different stages of construction projects, so as to ensure the realization of cost objectives. This paper analyzes the importance of dynamic management of construction project cost, discusses the factors that affect construction project cost, and puts forward corresponding dynamic management and control measures respectively from the project feasibility study stage, design stage, construction stage and completion acceptance stage, so as to improve the level of construction project cost management and to maximize the economic and social benefits of construction projects.
***Keywords*:** construction engineering; project cost; dynamic management; cost control

1. Introduction

Construction cost management is an important work to control the whole construction process of construction engineering, and it is an important work related to the survival and development of construction enterprises. For construction enterprises, project cost management is the main source of economic and social benefits of construction enterprises, and for project managers, project cost management is also a kind of assessment of the comprehensive quality and management ability of project managers [1].In the construction project, the project cost management is a very important work, in the actual work, due to the lack of the consciousness of dynamic management of the construction project, the efficiency of the construction cost management is low. In the actual work, construction enterprises often only pay attention to the management of the construction process of the construction project, but ignore the dynamic management and control of the construction cost.Due to the lack of dynamic management awareness of the construction stage, the construction personnel can not find the problem in time and solve it effectively in the actual work. At the same time, due to the lack of awareness of dynamic management and control of construction project cost, construction enterprises cannot timely adjust the construction plan in actual work, which increases the production cost of construction enterprises [2]. Therefore, strengthening the dynamic management and control of construction cost is of great significance for improving the economic and social benefits of construction enterprises.

2. The importance of dynamic management of construction cost

2.1 Adapt to market changes

The price of the construction market fluctuates greatly, and the price of materials and labor costs can change at any time. Through dynamic management of the project cost, we can timely understand the market changes, adjust the project cost, and make the cost of the construction project more in line with the actual situation.

2.2 Improve the scientific nature of project decision-making

In the decision-making stage of construction project, through the dynamic management of project cost, different construction schemes can be economically analyzed and compared, and the best construction scheme can be selected to improve the scientificity of project decision-making.

2.3 Ensure project quality and progress

Reasonable project cost is an important premise to ensure the quality and progress of the project. Through the dynamic management of the project cost, the capital investment can be adjusted in time to ensure the sufficient funds required for the project construction, so as to ensure the quality and progress of the project.

2.4 Improve the economic benefits of the project

Through the dynamic management of the project cost, the project cost can be effectively controlled, unnecessary waste and loss can be avoided, and the economic benefit of the project can be improved.

3. Factors affecting the cost of construction projects

3.1 Engineering design factors

Engineering design is one of the important factors that affect the construction cost. Reasonable design scheme can reduce the project cost, while unreasonable design scheme will increase the project cost. For example, the structural form, material selection and equipment selection in the design scheme will have an impact on the project cost.

3.2 Material price factors

The cost of building materials occupies a large proportion in the project cost, and the fluctuation of material price directly affects the project cost. Changes in the price of materials in the market are affected by many factors such as supply and demand, policy adjustments, and transportation costs.

3.3 Construction technical factors

The advanced degree of construction technology and the rationality of construction plan will also affect the project cost. The use of advanced construction technology and reasonable construction scheme can improve the construction efficiency and reduce the construction cost.

3.4 Engineering change factors

During the implementation of a construction project, engineering changes may occur due to various reasons. Engineering change will lead to the increase of engineering cost, so the engineering change must be strictly controlled.

4. Existing problems of dynamic management and control of construction cost

4.1 Changes in the design phase

The design of the construction project is one of the most important links in the whole project construction process, and also the foundation of the whole project construction. However, there will be some changes in the design of construction projects, and the construction unit needs to make reasonable adjustments according to the actual situation. In the process of engineering cost management, if the design is changed, the cost of the construction project may be increased; if the design is changed, the cost of the construction project may be reduced [3]. Therefore, in the process of engineering construction, it is necessary to pay attention to the adjustment of the design, and every link needs to be implemented to ensure that the cost of the construction project is effectively controlled in the construction process.

4.2 Weak awareness of project cost

In the process of construction project construction, project cost is an important part of project construction, but the consciousness of cost management personnel in construction enterprises in our country is relatively weak, lack of a certain awareness of cost. In the actual work, construction enterprises need to carry out dynamic management and control of construction cost in combination with the actual situation in the process of project cost control, but many enterprises have ignored the training of project cost management personnel. Many enterprises have not established a perfect project cost management system, resulting in the inability to achieve effective management and control of the project cost. Therefore, in the process of construction project construction, it is necessary to strengthen the training of engineering cost personnel, improve their professional quality and comprehensive quality, so as to effectively ensure the dynamic management and control of construction enterprise engineering cost.

4.3 The dynamic control mechanism is not perfect

In the dynamic management and control of project cost, we must fully implement the whole process cost control concept, and do a good job in the dynamic management and control of project cost around the characteristics of each stage of design, bidding, construction and completion settlement. However, in the dynamic management of concrete project cost, the problem of imperfect management mechanism often appears. For example, in the early design stage, there is no comprehensive demonstration of the design scheme, resulting in many changes in the later stage of the design scheme; Lack of a sound cost budget and tracking mechanism, can not find and solve cost overruns in time; The management and supervision of the procurement and use of materials and equipment in the construction stage is not in place, and there are many waste and violations in the construction, resulting in an increase in the cost of materials and equipment. The above problems will cause the project cost to exceed the budget, affecting the final economic benefits of the project.

5. Dynamic management and control countermeasures of construction cost

The dynamic management and control of construction project cost refers to the management and control of the whole process of construction projects. Through the dynamic management of construction cost, construction enterprises can achieve the best economic and social benefits on the basis of meeting the needs of construction units. The dynamic management and control of the whole process of construction can not only ensure the construction quality of construction projects, but also save construction funds on the basis of meeting the needs of construction units.

5.1 Cost control in the design stage

In the construction process of a construction project, the design stage is the key link of cost control and an important factor in determining the project cost. Therefore, in the process of construction of a construction project, the cost control of the design stage must be strengthened. First of all, the designer should fully understand the actual situation of the construction project, in-depth analysis and research of possible problems and hidden dangers, and put forward corresponding solutions; Secondly, when designing a construction project, a scientific and reasonable design should be carried out according to the materials, equipment, tools and technologies required in the construction process of the construction project. Finally, in the design of construction projects, it is necessary to constantly optimize the design scheme of construction projects based on market demand, so as to reduce the increase in project cost caused by unreasonable design [10]. In addition, in the construction project design to do a good job of cost management. Before the construction of the construction project, it is necessary to do the cost budget work, and the budget result is an important basis for the preparation work before the construction of the construction project.

5.2 Construction cost control

In the construction phase of the construction project, the following ways can generally be used to control the cost:

Constantly improve and optimize the construction organization design. Construction organization design is not only the technical program of engineering construction, but also the important basis for determining the contract price. Therefore, before construction, the construction unit and the technical personnel and management personnel of the construction unit should be organized to compile together, and attention should be paid to the review of the construction organization design, and the investigation and analysis of the specific construction situation of the project should be done to ensure the advanced nature, rationality and accuracy of the construction organization design. At the same time, the construction scheme should be optimized and reasonable construction technology and equipment should be selected, so as to reduce various forms of waste and improve investment efficiency.

Strengthen engineering change management. Engineering change management mainly includes design change, engineering quantity change, schedule change and construction condition change, etc. Any change will cause project cost overruns and affect the realization of cost control objectives. Therefore, it is necessary to strictly review and control the changes during the construction phase to ensure the necessity and rationality of the changes and avoid unnecessary changes and waste. First of all, it is necessary to establish a sound change management system to clarify the responsibilities and processes of each link such as change application, review, approval, implementation and supervision, so as to ensure standardized and scientific change management and effectively control change costs within the established scope [4]. Secondly, any change should be evaluated and controlled in a comprehensive and scientific way, and the construction technology and plan should be optimized to reduce the risk and cost of change by developing technical plans, conducting technical and economic demonstration, and carrying out value engineering analysis. In addition, the construction project change order must be confirmed in writing and form a complete written document for archiving.

Strictly purchase materials and equipment. Material equipment is the foundation of engineering construction, but also the important link of engineering cost control. In the specific project construction, it is necessary to formulate a reasonable material and equipment investment plan according to the actual situation of the project and the construction progress, including procurement plan, use plan and settlement plan, etc., to ensure that the investment is controlled within the budget. At the same time, it is necessary to establish a corresponding material and equipment information management system to monitor and manage the procurement, inventory, use and settlement information of material and equipment in real time, discover problems and risks in time, and take appropriate measures to control and adjust. In order to avoid material waste or overspending, it is also necessary to formulate a quota system for material acquisition during construction, determine the amount of materials and equipment according to the construction plan and consumption quota, strengthen the management of materials and equipment on the construction site, ensure reasonable use and reduce waste, and effectively save the cost of materials and equipment. In addition, it is also necessary to strengthen the analysis of the impact of market price fluctuations and construction changes on project costs, and timely adjust management strategies according to the actual situation to

ensure the effectiveness of cost control [5].

5.3 Cost control in the completion and acceptance stage

(1) The cost control of the completion acceptance stage is mainly to conduct statistical analysis of the actual situation of the whole project after the completion of the project, and compare it with the budget to determine whether there is an over-budget situation. If there is an over-budget phenomenon, the over-budget part of the project cost should be reasonably controlled. However, this control does not mean that the entire project should be fully controlled, but should be focused on the control.

(2) Strengthen the management of design changes and on-site visas. For design changes and site visas, the construction unit shall strictly follow the terms of the contract, and shall not increase at will. For design changes and problems arising in the field visa, feedback should be provided to the designer and construction personnel in a timely manner.

(3) After the completion of the construction project, it is necessary to carefully review the final accounts of the construction unit. For unreasonable, untrue or major errors in the final account issued by the construction unit, the construction unit shall communicate and coordinate with the construction project cost management department in a timely manner to ensure that the cost reflected in the final account is consistent with the actual cost of the project.

6. Conclusion

In short, in order to improve the effect of construction cost management, reduce the cost of construction, and improve the economic benefits of enterprises, enterprises need to fully understand the importance of the dynamic management of project cost, effectively control the key points and keys of the dynamic management of cost at each stage, and formulate and adopt targeted measures and strategies around the problems existing in the dynamic management of project cost. Constantly improve the engineering cost management level and application effect.

References

[1] GEJingyu.Brief Analysis on Dynamic Management and Effective Control Measures of Construction Project Cost[J]. Foreign science and technology journal database (abstract edition) Engineering technology, 2022,3(1):652-655.

[2] Junlv Z.Dynamic Control and Management of Construction Engineering Cost[J].IOP Conference Series Earth and Environmental Science, 2021, 638(1):012-020.

[3] Dong L, Shijun Y.Analysis on Dynamic Management and Control of Construction Cost[J].Jiangxi Building Materials, 2018,55(2):106-109.

[4] Zhang S.Dynamic Management Control Analysis of Construction Engineering Cost Based on Building Structure Design[C]//2019 7th International Education, Economics, Social Science, Arts, Sports and Management Engineering Conference.Clausius Scientific Press, 2020,39.

[5] Guo L.Research on Dynamic Cost Management During Construction of Real Estate Project Construction Stage[J]. Academic Journal of Science and Technology, 2022.41(2):77-80.