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Research on civil engineering management and engineering cost control

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Abstract: *In order to improve the level of civil engineering construction and reduce the cost of construction expenditures, research on civil engineering management and engineering cost control methods is carried out. Comprehensively consider the risk factors that may increase the additional expenditures of the construction of the construction site, and manage the sub-items of the basic cost of civil engineering in a targeted manner; control the cost of the civil engineering project in each construction stage according to the three steps before, during and after the event expenditure. Choose a real project as the experimental project, and control the project construction expenditure with reference to the designed control method. After practice, it is proved that this method can realize the control of the actual expenditure of the expenditure cost project during the construction process to ensure that the project is in the existing High-quality completion within the scope of funds.*

Keywords: *civil engineering; engineering cost; cost; sub-project; management; control method*

1. Introduction

A civil engineering project is a complex engineering project involving multiple fields and multiple operations. The management content related to this project includes project construction quality, project construction and development progress, expenditure costs in various stages of project implementation, work safety, etc. Technicians need to cooperate with on-site management personnel to do the above work and implement the management and control of each link in order to ensure that the project achieves the expected effect after completion, and the construction party and construction party can get the due benefits after the completion of the settlement. It can be considered that project management and cost control are indispensable links in project implementation. Before designing management control methods, geological surveys and hydrogeological environmental surveys along the design and construction area should be done, and high-quality technical indicators should be selected[1]. In this way, the cost and expenditure conditions after the construction of the project are optimized to ensure that the civil engineering has a strong ability to use after it is put into use, so as to provide a relatively superior environment for the beneficiaries and users of the project, and reduce the expenditure in the implementation of the project cost[2]. At the same time, we must pay attention to the environmental protection work of civil engineering during construction, carefully consider the relationship between the construction route and the tourist attractions, cultural sites, cultural relics and historic sites along the line, and try to avoid large-scale filling and large-scale excavation to protect the original vegetation and water system and reduce water and soil Loss, reduce the additional cost of expenditure after the completion of the project.

2. Research on civil engineering management and engineering cost control methods

2.1 Itemized management of civil engineering basic cost projects

In order to solve the problem of excessive expenditures in civil engineering construction, this chapter proposes a method of itemized management of civil engineering basic cost items to control and constrain the total construction expenditure. In actual construction, the construction party must do a good job of controlling the progress of the project, and fully consider the risk factors that may increase the additional expenditures on the construction site at the construction site. When purchasing building materials for construction projects, the principle of shopping around must be followed. Under the premise of ensuring that the quality of the selected materials meets the standards, multiple purchasers

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are selected to compare the purchase price and cost of materials, and finally the best material supplier[3]. At the same time, according to the engineering tasks, the rational arrangement of personnel on the construction site is carried out to achieve the matching of human resources and material resources, and to ensure the optimization of resources in the allocation.

Before construction, check the operation of large equipment in different construction work areas to see if there are problems with machine operation failure or machine parameters not being debugged. Ensure that every auxiliary construction machinery and equipment can exert the highest energy efficiency on the construction site. After the individual construction of the project is completed, on-site technicians need to manage the operation of the equipment, check whether the equipment has faults that require repair or maintenance, to avoid on-site accidents due to mechanical equipment operation problems, and increase the expenditure of additional cost projects in the construction.

2.2 Cost control of civil engineering project cost in each construction stage

The construction of civil engineering projects is divided into three main stages. The first stage is the pre-preparation stage. In this stage, the construction party needs to budget, calculate, verify and count the project cost, and give priority to high-quality, cutting-edge Technology as a construction technology, according to the design changes of the construction plan, the adjustment of the cost and expenditure and the secondary accounting are carried out in a timely manner. The second stage is the construction stage, which is also the most critical stage for cost and expenditure control. In this stage, it is necessary to make overall arrangements for personnel to ensure that all construction activities and projects are implemented under the conditions specified in the previous period[4]. Avoid negative impacts on project construction costs due to irregular construction behaviors. The third stage is the post-acceptance stage. According to the actual situation of the project, the materials and contracts involved in the construction can be sorted out during the construction, and the third-party agency will carry out the project quality acceptance and project expenditure statistics to ensure that all information is true and correct. After that, output the final result and use it as the total cost of civil engineering construction management.

3. Case application analysis

Based on the existing research results in the market, a new cost control method for civil engineering construction projects is proposed above. In order to further verify the effect of the control method in practical applications, the method proposed in this article is applied to In a real engineering project, and based on the analysis of the estimated expenditure and actual expenditure during the construction phase, the feasibility test result of the design cost control method is carried out[5].

The practical engineering project selected for this experiment is the expressway project developed by the Shandong Provincial Local Taxation Administration. It is known that the designed total length of the project is about 56.254km. The upper part is integrated with road bridges and residential buildings on both sides are concentrated. Before the operation, through a large number of calculations, geological surveys, on-site assessments, combined with the hired project cost technicians and supervisors, the engineering quantity list of this project was compiled, and based on the content presented in the list, the project expenditure was calculated and predicted to be 87.544 million yuan.

In this study, only one sub-project of the project was selected as a practical case, that is, the traffic post in the road engineering project. According to the capital allocation of the cost personnel to the project, the construction expenditure in this area should be controlled within 10,235,400 yuan. The project uses ZJ496-950 model drilling rig for construction and water-based mud drilling. The specification of the operation area is 100m (length) × 42m (width), and it is equipped with an emergency pool of 500 cubic meters. After the above-mentioned project conditions are known, according to the cost control method proposed in this article, the construction expenditure of each stage of the project is managed and controlled. When controlling, the basic cost of the project is first extracted, and on this basis, the total cost is calculated Cost budget, according to the existing available funds, carry out the planning of the construction expenditure cost at each stage.

In order to realize the appraisal of the application effect of the design method in this paper, the method of comparing the expenditure funds after the completion of the project with the project cost estimated funds is selected, and the difference between the actual expenditure and the estimated expenditure between the two sets of data is grasped.

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When conducting field inspections and expenditure statistics on the construction area, assisted in the use of computer equipment to record relevant results, respectively from the purchase cost of construction materials, construction human resource expenditures, construction machinery and equipment costs, land use costs in the construction area, and other costs In five aspects, the investigation of the expenditure cost of this project is carried out, and the results of the investigation are counted and calculated, and a record sheet of the application effect of the cost control method shown in Table 1 is obtained.

Table 1 Application effect of cost control method

Expenditure cost item	Estimated expenditure	Actual expenditure
Purchase cost of construction materials	856,000 yuan	840,300 yuan
Construction human resources expenditure cost	1,984,500 yuan	1,456,200 yuan
Cost of construction machinery and equipment	5,105,300 yuan	RMB 3.0514 million
Land use cost in construction area	2.054 million yuan	1,975,400 yuan
Other costs	235,600 yuan	13.78 million yuan
Total cost	10,235,400 yuan	7,461,100 yuan

According to the experimental results shown in Table 1 above, it can be seen that the application of the method designed in this paper can realize the control of the actual expenditure of the expenditure cost project during the construction process, and ensure the high quality completion of the project within the existing funds. By comparing the total cost of the estimated expenditure and the actual expenditure, it can be seen that using the cost control method designed in this paper to control the project during construction has saved a total of 2.7743 million yuan in expenditure costs.

4. Conclusion

In order to realize the management and cost control of the project based on many aspects, this paper takes a civil engineering project as an example to carry out design research on the cost management method of the project. Examples have proved that using the cost control method designed in this paper to control the project during construction can reduce the cost of construction expenditure and create higher market value and personal income for the construction party and the construction party in the market.

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