

Research on project cost management for small and medium-sized construction enterprise

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Abstract: There are a large number of small and medium-sized construction enterprises in China's construction enterprises. The cost management in the construction stage is very important in the economic activities of small and medium-sized construction enterprises. Combined with the current situation of small and medium-sized construction enterprises, this paper analyzes the existing problems and gives corresponding improvement measures from the aspects of personnel, management and technology.

Keywords: SMEs; cost management; cost control

1. Introduction

There are a large number of construction enterprises in China, most of which are private small and medium-sized construction enterprises. The competitiveness of small and medium-sized construction enterprises in the whole construction industry is mainly reflected in the profitability of enterprises themselves. The profitability mainly depends on the cost management of construction enterprises in the project construction stage. Therefore, the cost management in the project construction stage is very important for small and medium-sized construction enterprises. With the increasing standardization of the construction market environment at home and abroad, if China's small and medium-sized construction enterprises want to seek development in the competition, they must change their development concepts and enhance their own strength. Small and medium-sized construction enterprises have gradually on project construction to ensuring the smooth progress of project construction. At the same time, it pays attention to saving the cost of the project and effectively controlling the cost. This change also makes how to do a good job in the management of the construction stage of the project become an unavoidable problem for small and medium-sized construction enterprises. Only by producing construction products with higher quality, shorter construction period and lower cost can small and medium-sized construction enterprises obtain more economic benefits, which is also the basis for the long-term and orderly development of small and medium-sized construction enterprises.

The cost control in the construction stage of construction project is the core content of cost management. The purpose of cost control in the construction stage is to effectively control the cost of the construction stage under the premise of ensuring the quality of the construction project, progress follow-up and safe construction, so as to achieve the goal of cost control. Small and medium-sized construction enterprises organize and mobilize all employees to take technical, organizational, economic and other measures to control the cost of each link in the construction stage scientifically and reasonably, and strive to obtain the most production results with the least resource consumption[1].

2. Problems of project cost management in construction stage

At present, the theoretical analysis and case study of construction project cost management mainly focus on large state-owned construction enterprises, while there are few studies on project cost management of small and medium-sized construction enterprises. There is a gap between small and medium-sized construction enterprises and large enterprises in terms of scale, technology and construction level. Only by strengthening cost control and taking low cost as the core competitiveness of enterprises can enterprises continue to develop. Effective project cost management can improve the internal management level of enterprise organization; it can reduce the waste of labor and materials

caused by project rework by implementing the responsibility of project members; enable enterprises to use low-cost advantages to build enterprise competitiveness.

2.1. In terms of personnel

2.1.1. The concept of cost control is backward

The cost control concept of small and medium-sized construction enterprises is relatively backward, and they do not realize the importance of cost control in the construction stage. Some managers believe that the cost control work in the construction stage is mainly responsible for the financial department and the project manager, while the construction department, technical department, procurement department and so on are only limited to their own work, and do not participate in the cost control. There is a lack of effective communication and teamwork among various departments in the process of cost control. Senior management personnel lack the awareness of full cost control, resulting in material waste, nest work and other phenomena, which is not conducive to saving construction costs and the development of small and medium-sized construction enterprises.

Small and medium-sized construction enterprises tend to focus their management on the control of construction period and the expenditure of major material costs, while ignoring the comprehensive and multi-level cost control, and lacking a perfect cost control framework system.

2.1.2. Inadequate training mechanisms

The professional quality of project management personnel is very important to the effect of project cost control. However, for small and medium-sized construction enterprises, the level of project management personnel is different. At the same time, due to the lack of scientific cost control training needs, insufficient training funds, imperfect training mechanism and insufficient training teachers, it is impossible to systematically organize training and track and confirm the training effect, and improve the comprehensive level of management personnel. This will inevitably lead to the lack of systematic understanding of key contents such as engineering construction organization design, cost plan and cost management means. In the process of on-site construction management, the concept of full cost management cannot be established[2].

2.1.3. Unclear rights and responsibilities

The implementation of most small and medium-sized construction enterprises only adopts the project manager responsibility system. The quality of management depends entirely on the level of project managers. Some project managers lack experience and have no awareness of full cost control. They cannot do a good job in staffing and department division of labor, and the boundaries of power and responsibility are unclear. As a result, there is a lack of mutual cooperation among various departments in the process of project implementation. The cost responsibility divided in advance by various departments can be used as a means to ensure the effect of cost management, but it is rarely implemented, and the work connection is not smooth. Once problems are encountered in the construction process, the heads of various departments shirk their responsibilities and shirk their responsibilities. As a result, the project schedule cannot be completed on time, which brings unnecessary economic losses to the enterprise.

2.2. In management

2.2.1. Reward and punishment mechanism is not perfect

The reward and punishment system of small and medium-sized construction enterprises is not perfect, which can not reward and punish the advantages and disadvantages in time, or formulate a reward and punishment plan but not strictly implement the system, resulting in uncontrolled costs. Failed to establish a compensation system integrated into cost control, employees lack the enthusiasm for cost control. The cost control assessment mechanism is not perfect, and the lack of strict, systematic and scientific assessment methods is easy to cause assessment errors. The incentive methods for relevant personnel to complete the cost control objectives are too single, mainly using material incentives, lacking cultural and spiritual incentives, not actively understanding what employees like best, what they care most, and not tapping the internal spiritual motivation of employees. The punishment for employees who fail to complete cost control is too harsh, which is not conducive to employee progress.

2.2.2. Cost control confusion

The cost control of the construction stage mainly includes: labor cost, material cost and construction machinery use cost.

The management mechanism of small and medium-sized construction enterprises is not perfect, the financial regulations are not perfect, and the financial personnel's awareness of cost control is insufficient, which leads to the failure of financial personnel to fully consider how to increase corporate profits and reduce various cost expenditures when conducting cost accounting. The project cost management of small and medium-sized construction enterprises lacks rated dosage and rated price standards, which can easily lead to problems in the accounting process. The relevant responsible persons and managers did not pay attention to the changes of the average labor cost, material cost and construction machinery use cost in the market in time, resulting in the untimely update of the unit price of each cost, the confusion of the enterprise's own mechanical material ledger, the failure to update and repair the problematic machinery in time, and the confusion of on-site material stacking, which increased the cost of management and maintenance.

2.2.3. Non-standard contract management

Construction contract is an important means and basis for construction enterprises to effectively control the cost of construction stage. At present, China's small and medium-sized construction enterprises do not pay enough attention to contract management. Most managers lack cognition of the basic knowledge of contract management, such as content, characteristics, methods and procedures. When signing the contract, the relevant provisions are not fully analyzed and demonstrated. The contract does not pay attention to the use of professional terms, some of the wording is not rigorous enough, there is a lack of some normative provisions, and the content of the contract is not perfect, which is not conducive to the effective development of the follow-up work in the construction stage of the construction project. In the contract, the rights and obligations of both parties have not been further clarified, and there is no strong contract guarantee for the proper handling of engineering changes and claims. The non-standard contract management has caused some obstacles to the cost reduction of construction enterprises and reduced the profits of enterprises.

2.3. Technically

2.3.1. Unreasonable construction organization design

The task of construction organization design is to reasonably plan and arrange the construction project from the aspects of human resources, materials, construction machinery, construction technology, capital investment, time and space, so as to effectively control the cost of construction project while ensuring the quality, progress and safety of the project.

There are still some problems in the preparation and implementation of construction organization design in small and medium-sized construction enterprises. First of all, the preparation work before the construction organization design is not enough, and the research and analysis of design data, natural condition data, technical and economic condition data are not deep enough. Secondly, the professional quality of the construction organization design staff is limited, and the lack of learning of new technologies and methods leads to the waste of various resources. Finally, the relevant managers lack of understanding of construction organization design, do not realize the importance of construction organization design in the construction process of construction projects, lack of management of the process, can not find and feedback the problems existing in the implementation process of construction organization design and take corresponding adjustment measures, so that the construction organization design lacks effective planning and guidance for the construction of construction projects[3].

2.3.2. Improper selection of cost control methods

At present, many construction enterprises in China do not pay enough attention to the cost control in the construction stage of construction projects. The method of cost control is relatively backward, and it has been unable to keep up with the development of current construction technology. In addition, the research ability of professionals in this field is limited. Although a set of cost management system related to cost plan, cost accounting, cost control, cost analysis and assessment has been formed in theory, it is not used in the actual cost management work. Small and medium-sized construction enterprises did not formulate a set of effective cost control scheme before construction, and there was also a lack of effective cost control in the construction process, which made it impossible to find problems in the process of cost management in the construction stage of the project. The cost after completion is only a simple

accounting without specific analysis and assessment, which is not conducive to the long-term development of construction enterprises.

Most of the project leaders of small and medium-sized construction enterprises are gradually promoted from the front-line construction personnel. Due to the lack of theoretical knowledge of cost management, most of the project department leaders with technical background only rely on years of accumulated experience to manage, rarely carry out systematic project cost management, and do not have such professional ability, resulting in confusion of various cost data after the completion of most construction projects, incomplete data information records, and no reason for profit and loss. Therefore, the backward progress and cost overruns have become the causes of project losses, resulting in poor cost management of small and medium-sized construction enterprises.

3. Improvement measures

3.1. Improvement measures in terms of personnel

3.1.1. Change the concept of cost control in construction stage

Small and medium-sized construction enterprises should take effective measures to control the cost of the construction stage in the construction process to ensure economic benefits. Change the backward concept of cost control, correct the wrong concept that only project managers and financial personnel are responsible for cost control, strengthen the awareness of full cost control, and adopt a series of cost control measures such as institutional measures, organizational measures, and economic measures. Efforts will be made to implement the target responsibility of cost control to the relevant responsible subjects, and focus on performance appraisal of the effectiveness of control.

The cost control of the construction stage of the project is a process of dynamic management of the whole construction process. It is necessary to establish the concept of process control and refine the cost control to every link in the construction process.

3.1.2. Increased cost control training

In the process of cost management in the construction stage of construction projects, personnel factors are crucial. Small and medium-sized construction enterprises should strengthen the training of cost management, improve the awareness of cost control of all staff, urge managers and construction personnel to continuously learn advanced cost control theories and methods through training, integrate cost control ideas into practical work, and always pay attention to cost savings. It is necessary to organize safety construction education and training regularly, so that construction personnel can understand and master safety construction common sense and enhance safety construction awareness.

Through the training of all personnel in small and medium-sized construction enterprises, improve the staff's understanding of the cost control work in the construction stage, and constantly improve the level of enterprise cost control.

3.1.3. Establish project cost control responsibility system

Small and medium-sized construction enterprises should establish and improve the cost management mechanism while training all staff to establish a correct sense of cost control, decompose the target cost tasks into various departments, establish a full cost control post responsibility system, clarify the main responsibility of cost control, and regularly assess and analyze the completion of cost control. Ensure that the cost control work in the construction phase of the construction project is effectively implemented.

Strengthen the construction project management personnel in the construction phase of the cost control responsibility system, project management personnel to cost control awareness throughout the job, in the completion of the job at the same time effective project cost control.

3.2. Improvement measures in management

3.2.1. Improve the reward and punishment mechanism combining responsibility, right and right

Small and medium-sized construction enterprises should rely on the internal organization of the enterprise to establish a cost control system, so that the project cost management can be effectively carried out. To clear responsibilities, the establishment of cost control reward and punishment system, strengthen the whole staff management, the whole process management. The project manager is mainly

responsible for cost management. The project manager needs to decompose the goal of cost control and implement the responsibility to the relevant departments and personnel. The project manager should constantly improve and implement the cost control reward and punishment system and other related management systems in the actual work, regularly check and assess the completion of the cost control objectives of the relevant responsible subjects, and issue corresponding rewards according to the requirements for the departments and individuals who have completed the corresponding cost control objectives and saved the construction cost. For departments and individuals who have not completed the corresponding cost control objectives, the implementation of control responsibilities is not in place should also be punished accordingly, and the reasons should be analyzed to find a correction method, so as to achieve a virtuous circle of cost control in the construction stage of construction projects.

3.2.2. Strengthen the cost control of construction stage

Labor cost has become the main expenditure of small and medium-sized construction enterprises in the construction stage. With the development of the construction industry and the impact of the epidemic in recent years, the labor cost has been rising. In combination with the construction scheme and related technical requirements, reasonable staffing, ensure the construction period, increase the construction personnel assessment and supervision mechanism, avoid the phenomenon of negative idleness of on-site management personnel and construction workers, so as to save the labor cost in the construction stage.

The material cost expenditure in the construction stage is second only to the labor cost. It is necessary to start from the aspects of material consumption and material price, strictly control the unnecessary material consumption in the construction stage, strengthen the pre-job training of construction personnel, and on-site management personnel should timely summarize the problems existing in the process of material use, thoroughly investigate the reasons, investigate the responsibilities of the main responsible persons, and achieve clear rewards and punishments. Pay attention to the material price change information of the project location in time, and select the material manufacturer as close as possible to reduce the material transportation cost under the premise of ensuring that the material model and quality meet the requirements.

Reasonable arrangement, scheduling the use of large machinery, do a good job in the rational allocation of resources, reasonable equipment purchase and rental, to avoid the phenomenon of repeated purchase (rental) or purchase (rental) equipment can not be timely entry operation. Strengthen the qualification examination, technical disclosure and safety training of special equipment staff to ensure that the operators operate in strict accordance with the construction process and avoid damaging the machinery due to improper operation.

3.2.3. Strengthening contract management

The construction contract is an important document for the construction parties to safeguard their own interests. In the construction stage of the project, the management of the construction contract should be strengthened, and the rights and obligations of the parties should be clarified to avoid disputes between the parties in the construction stage and cause unnecessary losses to the construction enterprises.

First of all, to establish and improve the contract management system. In the actual engineering construction, if there is no contract constraint, when the contract price, construction progress and other aspects of the dispute, there is no basis, and then bring some losses to the construction enterprise. Contract management covers all aspects of contract implementation, change and termination. It is necessary to standardize the signing of contracts and improve the professional quality of contract managers. Secondly, we should pay attention to contract change and management. Due to the particularity of construction engineering, in the actual construction process, it is often impossible to construct according to the drawing due to the limitation of site conditions, resulting in the change of engineering quantity. When this situation occurs, the parties to the contract should change the contract in time. Finally, we should pay attention to the project claim. In the daily contract management, it is necessary to standardize the contract management, collect and sort out the correspondence and meeting records of the parties in time, and provide sufficient evidence for the project claims.

3.3. Technical improvement measures

3.3.1. Optimization of construction organization design

Optimizing the construction organization design mainly includes reasonably determining the construction plan and optimizing the construction layout.

The core task in the construction organization design is to establish a reasonable construction plan. In the construction plan, the construction sequence and construction method should be reasonably selected and the construction organization should be reasonably and effectively carried out to ensure that the reasonable overlap and water flow between the various processes in the construction process can avoid unnecessary construction processes, save construction time and improve construction efficiency. At the same time, it is necessary to combine the on-site construction environment, select the most suitable construction methods and construction machinery, strengthen the rational allocation of resources such as people, materials and machines, ensure the construction quality, and pay attention to cost control.

Whether the construction plane layout is reasonable is the key to the orderly construction of the site. While ensuring the orderly progress of each process, it is necessary to optimize the site layout, reasonably arrange the location of on-site transportation roads, raw material stacking sites and vertical transportation machinery, reduce the construction of unnecessary temporary facilities, rationally plan the living area, and ensure that the construction site and living area meet the relevant requirements of safety and fire prevention.

3.3.2 Rational use of cost control methods

Small and medium-sized construction enterprises should be good at learning advanced cost control methods in the construction stage of engineering projects. The commonly used cost control methods are : absolute cost control, relative cost control, comprehensive cost control, quota method, cost control instant, standard cost method, economic procurement batch, cost-volume-profit analysis method, linear programming method, value engineering method, cost planning, target cost method. In the process of practice, construction enterprises should reasonably choose appropriate cost control methods, pay attention to whether the actual cost in the construction process exceeds the target cost set in advance, find out the deviation, adjust the cost target in time, and realize the dynamic management of cost.

4. Conclusions

The cost management in the construction stage is very important in the economic activities of small and medium-sized construction enterprises. Through the implementation of scientific cost management, it can effectively reduce costs, improve profit margins and enhance profitability. The cost management in the construction stage is the core of the management of small and medium-sized construction enterprises, and it is also the basis of other management. It is necessary to establish and improve the full cost control responsibility system, improve the reward and punishment mechanism, strengthen training, seriously study and implement scientific cost control methods, pay attention to the whole process cost management, and comprehensively improve the comprehensive strength of small and medium-sized construction enterprises.

References

- [1] Sun Jie. *Research on cost control in construction stage of engineering project [J]. Public Standardization*, 2022, No.369 (10): 87-89.
- [2] Song Xiaohui, Zhang Yongwei. *Research on cost control in construction stage [J]. Heilongjiang Science*, 2021, 12 (20): 132-133.
- [3] Xu Bing, Zhu Hailong. *Research on improvement of cost control mode in construction stage of engineering project [J]. Building economy*, 2016, 37 (01): 28-32.