

Study on the Relationships of the Construction Technology And the Cost Management Based on Enterprise Quota

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Abstract. Enterprise quota is the foundation of project cost management. With the appearance of advanced construction technology, enterprise quota should be constantly updated and improved, so as to improve the level of enterprise cost management. This paper studies the impact of construction technology on cost management based on enterprise quota, and then demonstrated by the Value Engineering. From that, we know the advanced construction technology can help enterprise save the cost and improve the economical benefits.

Introduction

With the development of economic system reform in our country, the construction market is more and more competitive. There are some new national norms to provisional quota for construction engineering tender offer. Construction project bidding should be based on provisional quota which was issued by industry building department. But now many of the construction enterprises did not establish their own enterprise quota so that they take the use of industry and local quota, or the established enterprise quota has not be updated after new construction technology emerged. For all these reasons, the construction enterprise bidding must exist deviation, not only affect the account of cost and profit, but also can not reflect advanced construction technology and management level. So enterprise quota should be modified and improved in the future use, increasing sub-divisional works with used new materials, new process, new technique in timely^[1]. It not only can achieve cost savings, but also benefit for the cost management of construction enterprises.

Construction Project Cost Management

Construction enterprise project cost management is based on the requirement of engineering quality, downtime and contracts, using knowledge and skills to control the cost in project, in order to reduce the cost.

The steps of construction project cost management: the construction project cost management is a core part of construction project management, throughout the entire implementation process of the project. Construction project cost management includes six steps: cost prediction, cost plan, cost control, cost account, cost analysis, cost assess^[2].

The procedures of construction project cost management: the procedures of construction project cost management is from the beginning of cost estimates, drawing up the cost planning, until the cost account.

Relationship Between Enterprise Quota And Cost Management

Enterprise quota is base of construction enterprise confirm the technical measures consumption in labor cost, material cost, machinery cost and measure cost. In bill of quantities construction system, enterprise quota reflects the level of enterprise productivity. It is the foundation of enterprise cost management^[3]. Enterprise quota is made up of labor consumption, material consumption and machinery consumption.

Construction cost is made up of direct engineering fees, indirect fees, profits and taxes. Each part of the cost is based on direct fees, the select the relevant rates and calculation rules to calculate and determine. Direct costs can be calculated by enterprise quota^[4]; is shown in table 1.

Table 1 Construction project cost

Cost	Direct project cost			Indirect cost	Profit	Taxes
	Direct cost	Other direct cost	Site funds			
Calculation basis	Enterprise quota	Direct cost	Direct cost	Direct project cost	Direct project cost+Indirect cost	Direct project cost+Indirect cost+profit

(1) Define the consumption of labor, material and machinery. Construction enterprises must follow the uniform calculation rules calculation and the division of engineering quantity list in the bidding process, then according to the enterprise quota to calculate the consumption of labor, material and machinery.

(2) Define the direct costs of sub Engineering. After defining the consumption of labor, material and machinery, according to different factors prices and cost calculation methods in the quota system, both separately and then multiplying the sum, in order to calculate the direct costs of sub Engineering.

(3) Define the measure cost. Construction enterprise on the basis of measure item provides by owners, calculate engineering quantity, then use relevant enterprise quota work out measure cost.

Analysis Influence of Construction Technology on Cost Management Based on Enterprise Quota

Current situation of cost management: at the present stage, on the one hand, most of enterprises do not have own quota, they only rely on consumption of labor, material and machinery in social average quota published by construction sector; on the other hand, small part of enterprises even though have own quota, since the development of new materials, new technology companies advanced production technology continues to emerge, there are some Construction products to be eliminated and construction technology behind, so enterprises have some fixed lag. If there is no time for enterprise complement and improved enterprise quota will lead to cost control emerge deviation.

Analysis influence of construction technology on cost management: strengthen the construction project cost management is an important means for enterprises to obtain good economic benefit, Labor cost, material cost, machinery cost and other costs will be reflected in the project cost indicators. Using advanced technology is an important way for construction enterprise to control cost and improve the efficiency.

(1) In the construction process, according to the site conditions of engineering, construction enterprise had better appropriate to adjust and optimize the construction technology program, avoids cost increased by the error of construction technology^[5].

(2) In addition, construction should activity promote the use of new technology and new craft, it can continue reform traditional construction craft and improve construction quality. Because of these, labor cost, material cost and machinery cost will be decreased, thus, construction cost also be reduced^[6].

(3) The use of advanced construction techniques to reduce the construction cost, mainly on the number of saving labor cost, material cost, machinery cost and other cost. For control labor cost, enterprise can provide technical guidance for long-time cooperation workers, thus, workers' technical levers would be improved. In addition, as far as possible use new technology, reduce the amount of labor workers and shorten the labor time, there for, labor cost can be reduced. For control material cost, adhere to in accordance with the quota, use the new technology, which can reduce material cost; For machinery cost, according to the needs of engineering, construction enterprise

scientific and rational use new technology, new material, make full use of machinery and equipment, in order to improve the utilization of major construction machinery and reduce the machinery costs.

Demonstration of Value Engineering For Cost Management In Construction Technology

A project for the office building, frame structure. There are 25 floors on the ground, 3 floors underground. The outer decoration is Granite. The project is divided into four parts: Excavation and support engineering, underground structural engineering, main structural engineering and decoration engineering. The budget cost and function score is shown in Table 2. Now in order to achieve the target of cost management, enterprise can use value engineering so as to reduce cost by 10%.

Table 2 Predicated cost and function analysis

Divisional engineering	Function score	Predicated cost
Excavation and support engineering	10	1780
Underground structural engineering	16	1620
Main structural engineering	34	5030
Decoration engineering	40	5890
Total	100	14320

As you can see from Table 3, for the excavation and support engineering, main structural engineering, the value coefficient is equal to 1, it reveals function evaluation value are match to function current cost; for the underground structural engineering, the value coefficient is equal to 1.27, it reveals the function current cost is less than functional evaluation value; for the decoration engineering, the value coefficient is equal to 0.93, it reveals the function current cost is more than functional evaluation value.

From table 3 column ⑦, you can see the most potential reduction is decoration engineering, the second is the main structural engineering, excavation and support engineering. According to value engineering, and combine with actual situation of the project, the following methods can be taken to reduce cost.

Table 3 Unit: wan yuan

Divisional engineering	① Function score	② Function coefficient	③ Budget cost	④ Cost coefficient	⑤ Value coefficient	⑥ Target Cost	⑦ cost reduction
Excavation and support engineering	12	0.12	1780	0.12	1.00	1546.6	233.4
Underground structural engineering	14	0.14	1620	0.11	1.27	1804.3	-184.3
Main structural engineering	35	0.35	5030	0.35	1.00	4510.8	519.3
Decoration engineering	39	0.39	5890	0.42	0.93	5026.3	863.7
Total	100	1.00	14320	1.00		12888	1432.1

(1) Construction enterprises should organize construction rationally, make a good convergence of various processes, reduce 4300000 yuan of labor cost.

(2) Improving decorative scaffolding and reducing turnover rental cost, it can save 2580000 yuan.

(3) Using template and tower bracket, it can save 4260000 yuan.

(4) Using adhesive method instead of G.R.C craft on granite, it can reduce construction period, in order to save 3650000 yuan.

Total: save cost = 4300000 + 2580000 + 4260000 + 3650000 - 14321000 = 4690000 yuan

Conclusions

With the application of new technology,new building materials,new construction technology and new equipment in construction,the construction technology and management level must be increased,so the construction enterprises should revise and improve its quota in time,make it in the advantageous position in the increasingly fierce competition market.

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