Research on Construction Project Management Strategy Based on EPC General Contracting

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Abstract: At present, the rapid development of urban economy in our country and the rise of the construction industry make the contract management model more specialized and standardized. Among them, EPC is a common type of project general contracting mode, which can be divided into design, procurement, construction and other modules according to the requirements and actual conditions of project construction. When carrying out project management of construction projects, the use of EPC general contracting mode can achieve good management results. Therefore, from the perspective of EPC general contracting, this paper discusses the relevant countermeasures of construction project management, aiming to realize the unified and standardizing management of all aspects of engineering construction and improving the level of project management.

Keywords: EPC; General Contracting; Construction Engineering; Project Management

Introduction

With the increasing improvement of our country's construction industry, the construction technology system and management system of construction projects are becoming more and more perfect, which has laid a good foundation for the overall development of the industry. At present, the application frequency of the EPC general contracting model is getting higher and higher. Compared with the traditional contracting model, this contracting model can not only connect all aspects of the project, but also optimize the engineering design and improve the construction quality, which is favored by the industry. Therefore, under this background, it is very necessary to intensify the in-depth research on the EPC general contracting model and discuss the specific strategies of project management.

1. The necessity of applying the EPC general contracting model

The construction industry is the backbone of our country's national economy. It can not only promote the development of chemical, building materials, machinery and other industries, but also play a vital role in my country's economic development. However, the construction industry will generate a lot of energy consumption and discharge a lot of pollutants, which does not meet the requirements of our country's environmental protection and ecological civilization construction. In order to achieve the full utilization of resources and ensure the further protection of the environment, it is necessary to optimize the traditional construction project management. The EPC general contracting model mainly refers to the turnkey project contract of engineering design, construction, equipment procurement and operation signed by the general contractor (including the contractor consortium) and the construction investor. It has become one of the main project construction forms in our country, and has been widely used in large-scale projects, public construction projects and public infrastructure construction projects. Under the EPC general contracting mode, the general contracting enterprise must undertake the design, construction and other related tasks of the project in strict accordance with the contract requirements, which puts forward strict requirements on the strength of the enterprise. Under this new contracting mode, the project management plan will be further optimized. At the same time, it will help to penetrate the concept of green construction, while ensuring the quality of

the project, so that the construction project has a good effect of environmental protection and energy saving.

2. Management scheme of EPC general contracting mode

2.1 Quality management

Project managers should combine engineering quality with technical management to successfully achieve quality management goals. First of all, it is necessary to build a sound design and construction quality management system to ensure that the project is effectively inspected, to ensure that the behavior of construction personnel is effectively supervised, and to improve the sense of responsibility of the staff. Secondly, from the design stage, it is necessary to determine the quality and standard of materials and equipment. Especially when it comes to important materials and equipment with high cost, the construction needs should be fully considered to ensure that the materials and equipment meet the construction requirements. The person in charge of each link should regularly inspect the construction site, should pay attention to the inspection and acceptance of concealed projects. Once a problem is found, it needs to be rectified in time. Third, strengthen quality management and supervision, formulate a sound quality supervision system, combine regular inspections with irregular inspections, improve the quality control awareness of staff, and reduce quality hidden dangers in the project. In quality management, enterprises should pay attention to introducing excellent management talents to ensure that managers have professional knowledge, skills and rich work experience, and it can undertake important responsibilities. Enterprises should strengthen the training of management talents, providing them with a good learning environment, and creating a suitable learning atmosphere. Finally, we must pay attention to the management of construction technology. Technology plays an important role in building construction. Managers need to ask every construction worker to understand the technology required for construction and the application standards of the technology, operating in strict accordance with this standard, so as to better ensure the construction quality.

2.2 Safety management

Construction safety management is an important part of project management, but in order to save costs, some units use suppliers without industrial and commercial business licenses. Using unqualified construction personnel, construction methods have not been rigorously demonstrated, and problems such as untimely rectification occur frequently. Engineering accidents occur frequently, and the occurrence of engineering accidents seriously affects the progress of construction projects which will greatly reduce the quality of projects. The occurrence of engineering accidents caused by similar management errors is a problem that needs to be faced and solved urgently. Therefore, in the EPC general contracting project, we must pay attention to safety management and reduce the probability of safety accidents. First of all, it is necessary to strengthen the safety education of construction personnel, organizing them to participate in safety simulation exercises, and formulating a sound safety management system, so that construction personnel can work in strict accordance with the requirements of the system. Do a good job in corresponding protection and improve safety awareness. Secondly, the project management personnel takes effective measures to ensure the safety of the construction site, ensuring that the personnel in each post work in strict accordance with the requirements, and regulating their own behavior. We can build a safety production responsibility system to ensure that every staff member has a sense of responsibility for their work and ensure that tasks, responsibilities and rights are refined. At the same time, it is necessary to reward those who perform well and improve the safety awareness of the staff. Finally, build a special safety management team to ensure project safety from the source and avoid risks. At the same time, it is necessary to further improve the safety production conditions of subcontractors, reasonably regulating their safety production behaviors, and reducing the possibility of safety accidents. For example, the construction site is closed and managed, and clear signs are set up on the site to prevent idle people from entering the site. Increase and reinforce the fence and require construction workers to wear safety helmets and fasten seat belts as required.

2.3 Cost management

Cost management is one of the most important links in the EPC general contracting model. It is also the link that is most prone to problems. There are many possibilities for cost management to get out of control. Because the project management level of the general contractor is not comprehensive and professional. It is easy to have problems that the investment is difficult to control and the cost management is unbalanced. In order to improve the rationality of the project cost, when

carrying out cost management, it is necessary to start from the design stage to ensure that the cost is effectively controlled. First of all, in the design stage, it is necessary to strictly carry out the estimation and construction drawing budget to ensure its rationality and scientificity. The project management personnel should strengthen the investigation of the site to ensure that the content of the design scheme is complete and feasible and provide a reference for the construction. During the construction stage of the project, the engineering construction enterprise purchases a large amount of building materials before the sub-project construction. Once the engineering construction enterprise ignores the material control and management work, or does not realize the importance of building material cost control, there will be a large amount of materials. The phenomenon of scale waste will eventually make it difficult for the project to achieve the expected management goals, which is not conducive to the sound development of construction enterprises. Therefore, when preparing the plan, it is necessary to repeatedly calculate the project cost in combination with the requirements of the contract to ensure that the design plan is in line with the requirements of the approved plan and reduce the possibility of exceeding the budget. Secondly, the introduction of advanced BIM technology to carry out collision detection, timely detection of problems, solve problems, and reduce construction costs. In the project settlement stage, this technology can also be used for review to avoid double accounting and omissions.

2.4 Progress management

In order to ensure that the progress of the project is effectively controlled, the project management personnel can combine the design and construction when formulating the management plan to create an integrated management plan, so as to ensure that the cooperation between the design unit and the construction unit has a good tacit understanding. At the same time, we can ensure the smooth completion of the project within the construction period. The person in charge should build a sound management system, putting forward strict requirements on construction personnel, and ensuring that resources such as equipment and materials which can meet the construction requirements. At the same time, according to the requirements of the design plan, the construction should be reasonably scheduled. Once problems are found, they should be dealt with at the first time to avoid affecting the construction period.

2.5 Procurement management

Before making a purchase, it is necessary to formulate a reasonable procurement plan in combination with the project requirements, bidding documents and other related content to ensure the timely supply of materials, so as to better meet the construction requirements. First of all, when formulating a procurement plan, it is necessary to clarify the procurement scope, combining procurement principles and review requirements, and reasonably selecting materials, equipment and other resources. Secondly, set up a flexible and adjustable space to ensure that the procurement plan is consistent with the time node of the construction schedule, and ensure that materials are delivered in time. Then integrate the idea of dynamic management, regularly check the implementation of the plan, and understand the supply of materials. Once the actual situation is found to be quite different from the plan, it is necessary to carefully analyze the cause of the problem and make improvements in time. Thirdly, it is necessary to use special software, determining the progress nodes, formulating resource cost arrangement plans, ensuring that the plans are fully implemented, and adjusting the plans at any time according to the actual situation, not only to ensure that resources are fully utilized, but also to reasonably guarantee the construction progress.

Conclusion

In a word, the application of the EPC general contracting model can ensure the scientific and rational allocation of construction resources, thereby helping to maximize the benefits of construction projects. However, in the implementation process of the EPC general contracting model, there are still problems such as inadequate cost management, low efficiency of safety and quality management. Therefore, the project management party should further optimize the construction project management system from the aspects of quality, safety, cost, progress, etc., formulating a feasible management plan, and optimizing the management process from various aspects, so as to ensure the quality and progress of the project. Successfully achieve the project construction goals.

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