On-site Management Optimization of Civil Engineering Construction Based on Civil Engineering Analysis

Ji Litian

Zibo Normal College, Zibo, Shandong, 255130, China

Keywords: Civil Engineering; Construction Technology; Field Management

Abstract: At present, there are many problems in the production limit management of civil engineering construction in China. It has seriously affected the improvement of the management level of civil engineering construction site and hindered the development of civil engineering construction technology. The rapid economic and social development has led to the increase of the number of construction projects, which also put forward higher requirements for the quality of civil engineering construction. The quality of construction site management is an important measure to ensure the smooth completion of construction. Reasonable and scientific management of civil engineering construction site is of great significance to the proper handling of the combination of financial, material and human resources in the construction of Engineering projects. To ensure the quality of construction projects, a strict quality assurance system and a strict quality management responsibility system must be established. It is difficult to ensure the construction quality and construction safety of the project only by relying on the traditional construction experience and construction technical measures in the past. Only by raising the awareness of the construction site management of civil engineering and reaching a consensus can we jointly promote the construction of scientific civilization.

1. Introduction

At present, there are many problems in the production limit management of civil engineering construction in China. It has seriously affected the improvement of the management level of civil engineering construction site and hindered the development of civil engineering construction technology [1]. The rapid development of civil engineering construction has a great impact on the quality of construction projects. Therefore, strengthening the quality management of civil engineering construction is the main problem that construction enterprises need to pay attention to [2]. The quality of civil engineering construction site management is an important measure to ensure the smooth completion of construction, which plays a decisive role in the construction process [3]. High-quality on-site management is an important prerequisite to ensure the smooth progress of the project, and at the same time it helps to improve the construction quality of the construction project and achieve high investment returns and social benefits [4]. Only strict management of each link can ensure that the quality of the final overall construction project meets the standards and the final quality of the building is closely related to the time limit of use and the benefits of construction [5]. While improving the quality of civil engineering construction, we should actively explore the problems existing in the construction of civil engineering construction sites, and propose corresponding solutions to solve these problems [6]. This paper analyzes the problems existing in the construction of civil engineering construction site and discusses the optimization measures for reference.

Civil engineering construction site management is one of the core tasks of daily management in construction engineering. The rapid development of the economy and society has led to an increase in the number of construction projects, and it has put forward higher requirements for the quality of civil engineering construction [7]. The rapid development of construction engineering has a great impact on the quality of construction engineering. Strengthening the quality management of construction engineering construction is a major problem that construction enterprises need to pay attention to. Good and orderly construction site management is conducive to strengthening the

  DOI: 10.25236/etmhs.2019.071

management of personnel and raising awareness of safety prevention [8]. Effectively reduce the possibility of accidents and the cost of the whole construction project. Civil engineering site construction units should reasonably and scientifically design and plan construction schemes, and scientifically arrange the progress of civil engineering site construction [9]. The quality of construction site management is an important measure to ensure the smooth completion of construction, which plays a decisive role in the construction process. Reasonable and scientific management of civil engineering construction site is of great significance to the proper handling of the combination of financial, material and human resources in the construction of Engineering projects.

2. Materials and Methods

Scientific construction site management should be scientifically and rationally configured. Construction projects pursue a certain economic benefit and investment income. The ultimate goal of civil engineering construction site management is to achieve higher economic benefits. While improving production schedules, we must also pay attention to cost control to eliminate unnecessary waste and unreasonable expenses. At present, most of the construction enterprises in China have a lack of management mechanism or a simple phenomenon, and lack a sound and reasonable management system. It is often the case that management work cannot be implemented, and the requirements of the upper level are not conveyed, etc. [10]. The organization and coordination should be fully done, and the management of the project construction should be assisted through the rational use of the on-site construction management system. It plays an important role in promoting the progress of the project, guaranteeing the construction quality and safety, and controlling the construction cost.

Civil engineering site construction personnel need to have a certain degree of safety responsibility and safety awareness, to ensure safety operations, professional operations, scientific operations. To enhance the safety awareness and professional level of construction personnel, it is necessary to rely on the construction site management of civil engineering to establish and improve the safety management system and improve safety literacy. In the parametric calculation of civil construction, the calculation and analysis of the whole structure are carried out. According to the parameters of artificial seismic wave, the elastic time history analysis under multiple earthquakes is carried out. Table 1 shows the maximum acceleration and duration of seismic waves.

Table 1 Relevant parameters such as maximum acceleration value and duration of seismic wave

Adaptation	Maximum acceleration value (cm/s^2)	Duration (s)	Wave number	Time step (s)
Artificial shock wave	86	41	1791	0.03
Natural shock wave	82	34	1860	0.02

China's economy is at a special stage of rapid development, and the number of civil engineering projects is also expanding. It satisfies the current status quo of urban development, and also causes many civil engineering enterprises to have different levels of problems in the procurement, use, storage and management of raw materials in order to grab the progress and hide a considerable number of hidden dangers. As the civil engineering construction industry develops faster and faster, construction projects increase, construction processes become more complex, and the types of materials required vary widely. Accompanying this is the technical requirements for the construction workers on civil engineering sites will be diversified and specialized. Insufficient supervision has prompted some construction units to purchase substandard materials of considerable quantity and quality. Engineering managers must strictly control the procurement, storage, use, return of materials and other details of the construction process joints need to be fully supervised and strengthened management, especially for the large consumption of engineering

materials to focus on supervision. In order to obtain higher economic benefits, some construction enterprises only pay attention to the control of construction cost, and pay less attention to construction management. This can easily directly affect the quality of the project.

3. Result Analysis and Discussion

Construction personnel play a very important role in the construction of construction projects. In the whole process of construction management of construction projects, the management of construction personnel is also a link that can not be ignored. From the point of view of the current civil construction site management in the field of construction in China, the environmental protection and site management of most construction projects are not standardized. Improper execution system and operation of process management will reduce the construction quality of actual projects and greatly affect the safety of construction projects. The possible problems in construction can not be predicted in time, and the awareness of construction prevention is weak. On the other hand, the poor comprehensive quality and low educational level of construction personnel are the characteristics of construction personnel at this stage. In the process of construction, it has insufficient understanding of specific construction and poor awareness of prevention of construction safety accidents. Construction engineering materials are littered, materials protection measures are inadequate, materials are randomly used, and material management is chaotic. It not only affects construction progress, wastes construction materials, increases construction costs, but also poses a safety hazard for construction safety.

In order to ensure the efficiency of civil engineering materials and reduce the project cost, the project management personnel must strengthen the management of the materials and their use on the construction site and strictly control them. Use existing technology to create a multi-modal collaborative work environment. A collaborative work support platform with an integrated and integrated multimedia model. The cooperative design operation process is shown in Figure 1.

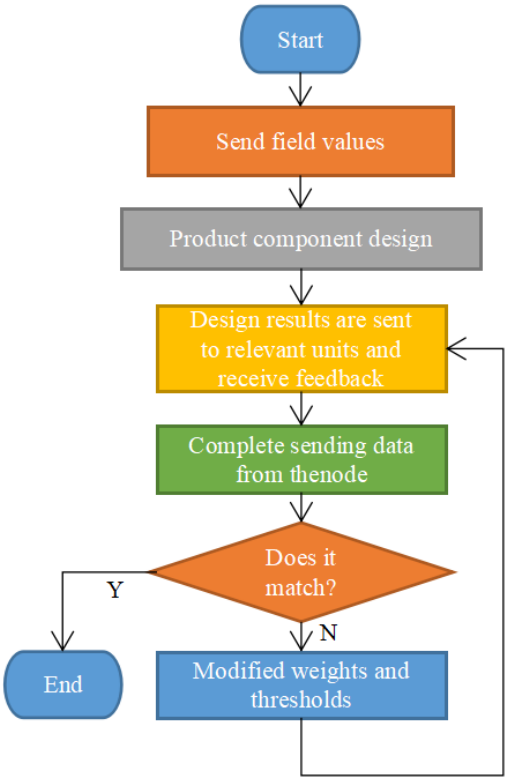

Fig.1. Civil engineering cooperation design and operation process

Reasonable innovation and improvement of the construction site management system is necessary for the current civil engineering construction. Under certain circumstances, it is necessary to send a corresponding organization to set up a project branch, and manage the corresponding

projects with special personnel. We also need to clarify the continuous implementation of the contract throughout the life cycle during the project construction management process. Strengthening the management of construction technology is the prerequisite for ensuring the smooth development of construction activities. It is necessary to introduce high-level technicians, improve the technical command system, and standardize and clarify the operational procedures. Since the on-site construction of civil engineering often needs to last for quite some time, various emergencies will inevitably occur during the entire on-site operation. The progress control of the construction project is characterized by a reasonable progress division of the project objectives at the beginning of the project. At the same time, it also has a greater economic burden. In order to control this shortcoming in time, the efficiency of information transmission can be improved, the characteristics of timeliness can be guaranteed, and the cost can be controlled in time. The data management can be fully applied and the corresponding information system can be established. Business flow can be accomplished directly by the system itself.

The urban civil construction model based on parametric design task can be built by collision detection and other forms, aiming at the design problems and quality problems that may arise in advance. The simulation comparison of topology reliability optimization is shown in Figure 2.

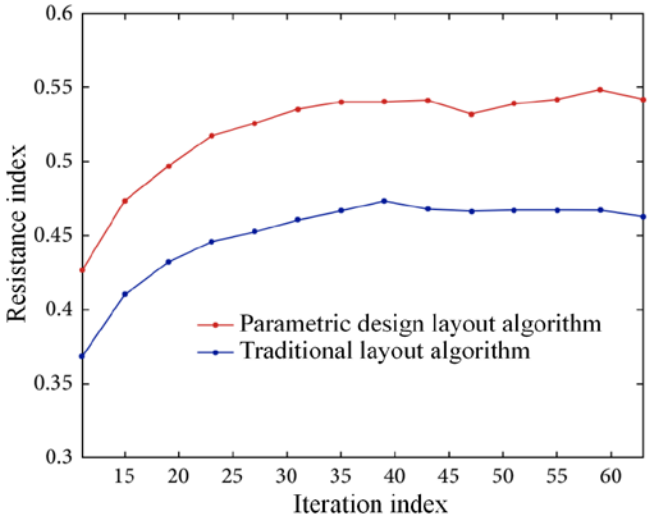

Fig. 2 Comparison of civil construction layout optimization simulation

Quality inspections should be carried out on a regular basis, at least once a week. According to the actual situation of the project, a targeted quality inspection plan should be formulated. And check the construction records, inspection results and amendments in a timely manner, as an important basis for performance appraisal. Civil construction workers and installation staff are also planned in the plan, in order to better match the civil works and installation. Only by aligning people, equipment and materials according to the planned progress can the progress goal be guaranteed. At the same time, the responsibility of the entire project quality is subdivided. In case of discovering safety hazards and responsible persons, it is necessary to impose penalties and rectification according to regulations. In order to prevent quality problems, we should strengthen supervision and inspection, and carry out targeted, comprehensive, internal and external inspection. In the construction process, according to the design drawings and the objective conditions of the construction environment, the implementation of the inspection to ensure its safety. Professionals are regularly invited to check and test the equipment and make actual adjustments to the field equipment. Based on this, the dynamic adjustment of the construction situation is done well, and the basis for other similar projects is also provided.

4. Conclusions

With the acceleration of urbanization in China in recent years, the diversification of functions and the artistic level of appearance of civil construction projects have been constantly improved. This has put forward higher requirements for the construction management of civil construction

projects, which has resulted in more and more unconventional civil construction projects. To ensure the quality of construction projects, we must establish a strict quality assurance system and a strict quality management responsibility system. It is very difficult to ensure the construction quality and safety of the project by relying solely on the past traditional construction experience and construction technology measures. Therefore, the application and management measures of information technology have become an important part of civil construction project management. In order to better promote the development of society, we need to give greater play to the value of the building itself. Strengthening construction site management to ensure the quality of construction also makes the society develop better. Optimizing and attaching importance to the construction management of civil engineering sites is of great significance for reducing the waste of construction materials, ensuring the safety of on-site personnel and improving the economic and social benefits of enterprises and countries. Only by raising the awareness of the construction site management of civil engineering and reaching a consensus can we jointly promote the construction of scientific civilization.

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