Analysis of Influencing Factors of Construction Engineering Management and Discussion of Strategies

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Abstract: At present, China’s construction industry is constantly developing and progressing, various new materials and technologies are emerging, and the competition in the construction market is becoming increasingly fierce. Under these circumstances, in order to protect their own competitiveness and market position, construction enterprises must fully meet the various requirements of the construction, not only beautiful, but also safe and durable. To this end, construction companies should do a good job in engineering management, clarify the various influencing factors in engineering management, and comprehensively optimize and improve engineering management to ensure the quality, efficiency and safety of engineering construction. This article has carried out related elaboration and analysis.

1. Introduction
Nowadays, people’s demand for construction is increasing and increasing. Modern people not only require beautiful and practical buildings, but also require solid and safe buildings. In order to meet the needs of users, construction enterprises should constantly improve technology and strengthen management, and start from many aspects to improve the management level of construction engineering. On the one hand, engineering management helps to control costs. In the process of construction, good supervision can reduce the problems of illegal operation and excessive material, thus avoiding additional cost expenditure such as rework and repairs. Meanwhile, it can improve the construction efficiency. On the other hand, engineering management can guarantee the quality of the engineering. Specifically, the engineering management includes supervision, planning, control and other work. It should not only ensure the quality of construction, but also ensure the safety of construction. At the same time, it should strengthen the connection of all links to ensure the smooth completion of the construction.

2. Influencing factors of construction engineering management
(1) Subjective factors
In the process of construction, engineering management can guarantee the quality and safety of the engineering. It is necessary to start from the aspects of material quality, equipment management, engineering supervision, etc., to enhance the manager’s subjective initiative and strengthen the safety and quality awareness of construction personnel. In the process of actual management, the subjective factor affecting management is human factors. First of all, the construction engineering management personnel must have professional ability, knowledge and rich experience. They must not only have a full understanding of the main structure and architectural functions of the construction engineering, but also have experience in practical operation and personnel management. They need to give full play to the spirit of seeking truth from facts, seeking truth and being pragmatic, effectively combining the theoretical knowledge and experience they have learned, and adopting measures suiting local...
conditions to ensure that management is truly rigorous. Secondly, construction engineering management involves more content and consumes a longer time, so managers need to invest a great deal of energy. Management can not only judge the quality of the engineering and construction according to the report and data, but also go to the site for survey and inspection, strictly implement the management system, and standardize the daily behavior of personnel. It is necessary to enhance the sense of responsibility of managers and establish a sound responsibility system to ensure that responsibility management, rewards and punishments are well-founded. Finally, the engineering construction involves many aspects of management, such as safety, quality, progress and so on. Managers need to coordinate with the personnel of different departments and units. However, many managers lack professional competence and management skills, which leads to poor communication and affects the progress or quality of the engineering.

(2) Objective factors

From an objective point of view, the factors affecting the quality of construction engineering management include three aspects. Firstly, the concept of construction engineering management is relatively new. China has not yet established sound laws and regulations in this regard, which leads to inadequate and accurate standards, and affects the unity and scientificity of construction management in China. At present, engineering management faces many serious problems, which need to be regulated and solved by legal means. Secondly, the lack of a dedicated construction management department, most of China’s construction engineering establishment departments are based on functional units to form or delegate other teams spontaneously, this method will directly affect the supervision. Some construction units even commissioned third-party supervision units to inspect and supervise the engineering after the completion of the engineering, which led to an increase in various quality and safety hazards during the construction process. Therefore, it is necessary to establish a sound establishment system and ensure the independence and legality of the establishment of the unit. Thirdly, the competent government departments in the construction industry have neither given full play to their functions, nor have they assumed corresponding responsibilities. This is mainly due to the impact of objective environmental factors, the lack of effective implementation of government regulatory functions of the environment and legal support, in the process of fulfilling obligations and implementing rights, there are often some obstacles, resulting in the lack of management, affecting the quality of engineering management [1].

3. Analysis of the status quo of construction engineering management

Specifically, there are still many problems in the management of construction engineering in China. In November 2018, there were 40 accidents and 43 deaths in the production safety of housing and municipal projects in China. As shown in the table below:

Table 1 Safety accidents in production of national housing and municipal engineering in November 2018.

| Provinces (autonomous regions and municipalities) | Accidents No. | Toll |
|-------------------------------------------------|---------------|------|
| Szechuan                                        | 5             | 6    |
| Tianjin                                         | 4             | 4    |
| Gansu                                           | 3             | 4    |
| Guangdong                                       | 3             | 3    |
| Yunnan                                          | 3             | 3    |
| Liaoning                                        | 2             | 2    |
| Heilongjiang                                    | 2             | 2    |
| Jiangxi                                         | 2             | 2    |
| Shandong                                        | 1             | 2    |
| Guangxi                                         | 2             | 2    |
| Hainan                                          | 2             | 2    |
Chongqing 2 2
Beijing 1 1
Neimenggu 1 1
Jiangsu 1 1
Zhejiang 1 1
Fujian 1 1
Henan 1 1
Hubei 1 1
Shanxi 1 1
Xinjiang 1 1

In terms of subjective factors, some managers of construction engineering lack professional skills and pay little attention to safety management. In the actual management process, the quality of the engineering will be affected by many factors, such as environment, technology and so on, so there are many hidden dangers to the quality and safety of the engineering. Managers need to master a variety of knowledge, including management knowledge, engineering and safety education knowledge. But in fact, although many managers have graduated from colleges and universities, they still lack knowledge and skills or experience, and can not adapt to the on-site management process, resulting in poor management quality. There are two main points in objective factors. The first is the lack of a sound regulatory system, followed by the lack of effective supervision and management. At present, the loopholes and defects in the traditional regulatory system have gradually been exposed. In the process of actual management, some enterprises have not recognized the importance of engineering management, so they lack specific regulatory measures and programs, which may lead to construction safety and quality issues. Some enterprises fail to do well in the design and handover work, which leads to the inconsistency between the design drawings and the actual construction, and then leads to construction problems such as confusion of working procedures and contradictions between the front and back. Furthermore, due to China's laws and regulations on construction management need to be improved, and the independence and legitimacy of the supervision department need to be strengthened, there is still much room for improvement in supervision and management.

4. Optimizing strategies of construction engineering management
(1) Promoting understanding and strengthening engineering management

Construction engineering has the characteristics of complexity, multi-process and long construction time. In the process of actual engineering management, it is essential to improve, perfect and refine the management work step by step, and improve the efficiency and level of engineering management in an all-round way. On the one hand, enterprises should pay more attention to engineering management and make clear the importance of engineering management in construction. It is needed to strengthen management education and propaganda so as to lay a good ideological foundation for the implementation of management work. In the actual management process, the level of engineering management has a direct impact on the quality of the engineering, but also reflects the strength of the enterprise. It can promote the social influence and market position of the construction enterprise, and then promote the development of the construction enterprise. On the other hand, it is necessary to establish a sound regulatory system. Construction enterprises and units should fully understand the relevant laws and regulations of China, improve the management system according to relevant national laws and regulations, and clearly plan various construction procedures and construction steps. Before the construction starts, it is necessary to do the relevant approval and inspection work. If the construction materials such as materials and equipment have not passed the examination and approval, the enterprise cannot start work without authorization. In the case of approval of the refusal, the enterprise shall conduct a detailed analysis of the reasons for rejection, modify and adjust the construction content and links according to the reasons for rejection, and then conduct the approval. After the completion of the construction, the engineering shall be inspected by a special quality
inspection agency.

(2) Making clear the key points and doing a good job of quality control

In the process of construction, construction materials and equipment will have a direct impact on the quality of construction. Therefore, construction enterprises and construction units must do a good job in checking the quality of raw materials and equipment, starting from planning, procurement, acceptance and other links, strengthening the management and control of each link. Before purchasing materials, a detailed material purchasing plan must be formulated to ensure that the materials to be purchased are in line with the materials required for construction engineering. In the process of material purchasing, it is necessary to screen raw material factories and ensure that material manufacturers have special qualified certificates so as to ensure the quality of materials. In addition, it is necessary to strengthen the material acceptance work. Before the materials enter the site, detailed inspection and inspection should be carried out on the quantity, specification and quality. If materials that are not of good quality or that do not conform to the specifications are found, be sure to adjust and replace them in a timely manner. After the material comes into play, it is necessary to set up the storage and stacking management of the materials, and set up a special storage area or stacking area. (As shown in Fig.1) In terms of equipment, especially electric mechanical equipment, safety management must be done to avoid dangerous problems such as electric shock. The number and type of equipment should also be screened according to the construction requirements. The maintenance and care of the equipment should be carried out regularly to ensure that the equipment can be used normally, thus ensuring smooth construction and reducing safety hazards.

![Fig. 1 Material stacking area at construction site](image)

(3) Strengthen training and attaching importance to the selection of excellent talents

In order to reduce the influence of human factors in construction management, it is necessary to strengthen the selection and training of engineering managers. In the stage of talent selection, strict audits should be carried out to ensure that personnel have professional knowledge and corresponding qualifications. At the end of the selection, pre-job training should be carried out for the recruits, management experience should be increased, and managers should be familiarized with the actual construction process and links, so as to ensure that managers can quickly adapt to their posts and carry out management work in accordance with local conditions. Thereafter, the training of managers should be carried out regularly, and managers can be organized to participate in educational lectures, refresher studies and other activities, so as to ensure that managers’ personal ability and technical level can be continuously improved. Moreover, it is indispensable to strengthen ideological work education, especially in safety and quality, not only to carry out on-site publicity, but also to carry out thematic
speeches and other activities to enhance the safety management awareness of managers, and make relevant construction personnel and technicians realize the importance of construction safety. Managers can draw banners and set up warning signs at the construction site. They can also carry out safety education lectures at the construction site to enhance safety awareness. At the same time, they should take effective accident prevention measures and risk warning mechanism [3]. If there are safety problems, managers should come out for management at the first time and take corresponding emergency measures to minimize dangerous hazards. Furthermore, managers should strengthen communication and cooperation with various departments and units to ensure the smooth completion of construction engineering.

5. Conclusion
In summary, in the process of construction engineering management, human and environmental factors will affect the quality of construction engineering management. If the management is not comprehensive and in place, it will not only affect the quality of engineering construction, but also lead to the increase of potential safety hazards. Therefore, construction enterprises and units should pay more attention to it. It is needful to strengthen team building and improve the system and norms.

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