

Discussion on Quality Management and Control in Construction Engineering

Shuo Yuan, Yanqing Wang, Limin Kang, Zhengquan Yu, Yong Feng

Shijiazhuang Tiedao University, Shijiazhuang 050100, Hebei

Hebei Agricultural University, Shijiazhuang 050100, Hebei

Hebei University of Economics and Business, Shijiazhuang 050100, Hebei

Shenyang Aerospace University, Shijiazhuang 050100, Hebei

Hebei University of Architecture, Shijiazhuang 050100, Hebei

Abstract: With the progress of the times, the construction industry has undergone great changes and development, and has received more attention. When people treat a thing, it is necessary to consider its quality. The quality of engineering is of vital importance to a construction project, which should not only meet people's living needs, but also guarantee people's life and property safety. Therefore, this article will from the significance of quality management and control in the construction engineering, respectively discuss the architectural engineering quality problems causes and solutions, so as to effectively enhance the level of the current construction project quality. In fact, it is also a 'shortcut' to improve the competitiveness of enterprises^[1].

Keywords: —

1. Significance of quality management and control for construction projects

1.1 The quality management and control of construction projects can improve the quality average of current Chinese construction projects to a certain extent. More than once, the news has exposed the "beancurd project", the construction accidents are more frequent, the common people are terrified, the overall image of the construction industry is naturally "ugly". Therefore, improving the level of quality management and control of construction projects can effectively improve the quality of the whole construction industry.

1.2 The implementation of quality control in construction projects can effectively improve the safety factor of people's life and property. Architecture is still an indispensable part of people's life. In private, too many people are striving to buy houses. In public, hospitals, schools, shopping malls and other public buildings, it is a part of people's life. Therefore, the hidden danger of project quality is the biggest threat to people's life and property security.

1.3 Quality is fundamental to the sound and long-term development of the national economy. Any construction enterprise wants to be big and strong for a long time. Quality is its fundamental, core and foundation. In this era, the population is oversaturated and competition becomes fierce. From the fierce competition to the final enterprise, its engineering quality must be qualified. The implementation of quality management and control of construction projects is to ensure the quality of the project, to ensure that every stage of the construction project is subject to timely inspection, and to ensure that the final product quality is qualified. The construction of a country is a reflection of its economic strength and development level. Therefore, the steady improvement of the quality of construction projects in

Copyright © 2018 Shuo Yuan *et al.*

doi: 10.18063/scr.v2i4.653

This is an open-access article distributed under the terms of the Creative Commons Attribution Unported License

(<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

China also means the steady improvement of the overall level of the national economy. Therefore, in the process of practice, the quality management and control in construction engineering must be given high attention to fully understand its important significance. Scientifically and scientifically improve the overall quality of the country's current projects, eliminate 'tofu slugging project', build high-quality buildings, and promote the development of the Chinese economy and the entire construction industry.

2. Causes of quality problems in construction engineering

2.1 Quality of construction materials

The quality of construction projects has always been the most direct and closely related to the quality of raw materials. The quality of materials can be said to be the core of engineering quality, while the quality of construction engineering has some quality problems, and the quality of raw materials is largely irrelevant. Enterprise in order to save costs, low using poor quality raw materials to build a building, the finished product is undoubtedly "jerry-built projects", bear the test of time, very prone to accidents such as collapse, is a great threat to people's life and property. Inferior construction materials are not only irresponsible to consumers and users, but also a potential danger to the construction personnel themselves. The safety accidents caused by this are also frequent. Therefore, when purchasing construction materials, enterprises must have a full understanding of building materials to ensure that the materials meet the quality inspection standards. Can never covet the immediate profits, depending on people's lives and to strengthen the management of the enterprise personnel, to prevent corruption, in case of greedy people, let the inferior materials enter the project, the consequences are irreversible.

2.2 The use of mechanical equipment

In the construction project, the large machinery construction equipment is used, and its use requirement is higher than the common equipment. Therefore, the construction personnel should be strictly required to operate the machine in accordance with the use specifications. This also reflects the high standard of mechanical equipment operators from the side, must have rich experience and solid theoretical basis. Professional mechanical equipment management and maintenance personnel should also be provided to carry out regular maintenance of mechanical equipment, so as to reduce the probability of delay of project progress due to mechanical failure.

2.3 Construction workers

Construction project involves more professional, building team members is relatively complex, therefore, every member in the team should have a higher comprehensive quality requirements, both leaders and builders. Leaders should be able to coordinate the overall situation, allocate the human resources of the whole project in a scientific and reasonable way, and prevent the occurrence of quality accidents from management, so as to maximize the benefits of the enterprise. The quality of a construction project is closely related to the basic operation of the construction personnel. In order to carry out scientific and reasonable control and management of project quality, it is necessary to ensure the comprehensive quality of relevant members of the project, so as to improve the quality of the construction project.

2.4 Management supervision

The construction period of the construction project is usually very long, and the construction quantity and difficulty are relatively large. Therefore, in the construction process, there is no lack of construction personnel to save time and energy, in order to simplify the construction procedures. In addition, the quality inspection of construction enterprises is not strict, leading to some unqualified or even unqualified construction enterprises mixed in. These phenomena of blind construction and random construction are all the manifestations of the imperfect engineering quality management system of construction enterprises. In addition, some enterprise' construction contractors are highly mobile and not stable enough, and there is often a phenomenon of "taking charge of the project by insurance and rejecting the project by insurance". The management level of some construction companies is not up to the standard, the

technical level and operation ability of the construction operators are not up to the standard, and the cutting-off of materials during the construction process and the shoddy materials of the construction materials have had an extremely bad influence on the quality and quality of construction projects. Therefore, the management and supervision of the quality of construction projects must be strengthened, and the unqualified construction enterprises should be strictly screened out, so as to eliminate the emergence of the above “intractable problems”^[2].

2.5 Environmental issues

Construction engineering construction time is long, and mostly operates in the open air environment, and China is a country with complex geology, climate and changeable, this gives construction engineering construction caused a lot of constraints. At the same time, every link of the construction is interlinked, and environmental problems have a decisive impact on the quality and duration of the construction to a certain extent. Therefore, we should attach great importance to environmental problems and try our best to avoid the influence of environmental factors on the construction process, so as to ensure the construction progress and the quality of construction projects.

2.6 Business management

The aim of implementing quality management and control on construction projects is to improve the quality of construction projects. Therefore, for China’s construction laws and regulations and industry standards must be strictly observed, strictly control the design process, will be the development of the local feature and existing practical experience, the combination of build qualified construction guarantee. However, in the construction process, there have been many kinds of building materials and not all of them are qualified. Construction units can’t strictly follow the standard in the process of practice process, in a number of specific aspects of the management efficiency is low, so that the construction engineering is always large and small problems, seriously affecting the quality of the buildings^[3].

3. Direct response to quality management and control in construction projects

3.1 Strengthen the comprehensive quality education for employees

In view of the problem of the construction personnel in the construction project, the construction enterprise should build a team with high comprehensive quality and strong working ability. Excellent employees are the foundation of the construction enterprise. In today’s society, industry competition is to some extent talent competition. To stand out from competition, an excellent talent team is indispensable. For the construction industry, the “three high” talent team with high professional quality, high comprehensive quality and high working skills can be said to be the core competitiveness of construction enterprises. Therefore, in the construction project, the introduction of high quality and high capacity professional technicians is the primary task. Of course, in addition to improving the core competitiveness of enterprises, enterprises should also strengthen cultural construction and actively expand their influence. In addition, the construction enterprises should also make a specific analysis of the specific situation and design specific solutions for the construction. On enterprise human resources management, the innovative mode should be adopted, to let in the line of construction technology to control the quality of the project, to ensure the operation of the construction in strict accordance with the standards, fundamentally ensure the construction quality. As for developers, they should enlarge their horizons and pay attention not only to immediate interests, but also to long-term interests. The quality management and control of the construction project can not only ensure the quality of the project, but also beautify the image and reputation of the construction enterprise, which is conducive to the establishment of the enterprise in the market competition.

3.2 Controlling the quality of construction materials

As building materials are the core of architectural engineering, the advantages and disadvantages of materials are almost equal to the advantages and disadvantages of architectural engineering quality, so strict control should be carried

out on building materials. The reasons for the inflow of poor quality building materials into the project are usually related to the purchaser. Because their personal professional insufficiency, in the procurement of construction materials, not memorizing standards of various materials, in the test material quality is also not in strict accordance with the regulation process, so that the inferior building materials into the building. Moreover, the current economic society, it is inevitable that some people are mercenary, counterfeiting, violating regulations or even using power for personal gain is difficult to control. The quality of building materials is even more difficult to be guaranteed if the purchaser is not determined and tempted by the outside world. Therefore, the enterprise when choosing procurement staff, must strict inspection on their professional integrity, professional requirements should also improve, to ensure the quality of procurement staff to identify qualified building materials. After the purchase of materials, the protection of building materials should also be paid attention to to prevent material deterioration. Thus, the use of building materials and consumption system sound should also be enterprise value, intensify supervision, establish and improve the system of rewards and punishments, once found the phenomenon of illegal use of material, must impose harsh punishment^[4].

3.3 Increase the management of construction machinery

The mechanical equipment required in the construction process of a building is not only relatively large, but also has a variety of models. This requires the project manager to select the mechanical equipment according to the actual situation of the construction site and to do the maintenance and care of the equipment. In terms of operators, fixed man-machine combination can effectively improve the construction efficiency and maximize the effectiveness of the machine.

3.4 Quality and management of construction process

The construction of the construction project is composed of many links connected with each other, and the quality of each link affects the overall project quality. Therefore, for each construction link should attach importance to it, do it scientific and reasonable, strict quality management and control of through in each link of design quality control core which can effectively control counter construction of engineering quality. For example, vibration and timely pressing are the core of quality control in the concrete pouring process. If it is not well controlled, it will lead to low vibration, leakage, overvibration or no secondary wipe pressure, and there will be quality problems such as hemp surface, holes and so on.

3.5 Technically manage and control quality

In terms of technology, the technical person-in-charge shall, in accordance with the comprehensive technical documents for guiding the construction developed by the management department, and the professional technical personnel involved in the project construction, complete the written disclosure. Requirements in strict accordance with the construction plan of construction personnel of construction technology and quality requirement specification, and at the end of the disclosure work instead of signing relevant documents, as a guide each link construction technical credentials.

3.6 Establish a comprehensive and meticulous quality management supervision system

In the construction project quality management and control work, the comprehensive quality management supervision system will play a very key role. To improve the whole purpose of construction engineering, we should guarantee the overall quality of the project finally and corresponds to the set of standard before construction, and sum up experience from practice, and the need to control the quality of management to achieve. Therefore, it is very necessary to establish a perfect supervision system of project quality management, which can clarify the different responsibilities and tasks of different departments in the construction project and ensure the overall quality of the construction project. Construction engineering quality management and control to process combined with specific construction practice, set up corresponding standards and specifications, which constitute a complete system of structure, to fully realize the goal of construction engineering quality improvement.

4. Indirect countermeasures for quality management and control in construction engineering

4.1 Increase environmental protection

In the process of construction, will inevitably produce a lot of construction waste, which requires the enterprise to strictly control harmful substance content detection of materials, the waste generated in the should carry out scientific and reasonable green processing, at the same time as far as possible to reduce noise pollution. Specific measures include: Construction materials and machinery parts with excessive toxic content shall never enter the construction site. Noise generated during the rest periods from 12:00 to 2:00 p.m. and from 0 to 8:00 p.m., such as tamping and vibrating concrete, can protect the environment. Due to the inevitable existence of fine particle materials such as cement, lime, sand and gravel in the construction materials, the anti-dust work should be strengthened to reduce the damage to people's bodies and the pollution to the environment. When the project is completed, the indoor air quality and pollutant concentration shall be tested and the unqualified projects shall be excluded in accordance with relevant acceptance rules and regulations^[5].

4.2 Identify different duties in different positions

In any industry, there are different positions and responsibilities. Define different responsibility of the construction projects in different positions, strengthen the responsibility consciousness, the engineering quality management and control and staff quality consciousness, construction technology, so as to effectively implement the quality control management. Generally speaking, the project department should achieve an organic combination of quality control management objectives and actual quality management operations. Should be according to the concrete construction technology and related engineer to prepare the project quality plan, technical documents and construction design, and quality inspection department shall timely and effective on construction engineering quality inspection. In this way, various departments cooperate with each other, so as to truly achieve the quality management and control objectives in construction engineering.

4.3 Improve construction enterprise culture construction and management

In the fierce market competition, a good corporate image has a positive influence on enterprise development and basic protection, therefore, enterprises should improve their own enterprise culture construction, strengthen the management of enterprise culture should be strengthened. Enterprises should establish their own corporate culture system according to their own innovative development direction, so as to be in line with the development of enterprises. To a certain extent, correct values are the basis for the steady development of an enterprise. In addition, any enterprise should attach importance to the service spirit, define the concept of enterprise serving society, and add the concept of service management into the enterprise culture, so as to promote the long-term and healthy development of the enterprise.

5. Conclusion

As a matter of fact, architecture has become a strong support for China's current economic development, which is directly related to the livelihood of its citizens and plays an important role in the development of the national economy. As an important part of architectural engineering, the quality management and control of architectural engineering is of great significance to people's work and life and social development. Therefore, it is necessary to strengthen the quality control management of the project, strictly follow the relevant operation norms of the construction law, ensure the quality of the project and promote the long-term and healthy development of the enterprise^[6].

References

1. Chong Meng, Huawen Song. Systematic thinking on the construction of integrated equipment quality management system [J]. Military Operations and Systems Engineering 2011; 4: 35-40.

2. Jianbing Yu. Discussion on quality management strategy in construction of civil engineering and civil engineering [J]. Jiangxi Building Materials 2015; (3).
3. Zhizhong Chen. Analysis of construction safety management and construction quality management of construction projects [J]. Architectural Engineering Technology and Design 2016; (6).
4. Xin Ye. Construction engineering construction quality management control [J]. Henan: The Hundred Schools of Analects of Confucius No. 35.
5. Bin Chen, Shaofang Li. Problems and countermeasures in construction project quality management [J]. China Construction Information 2010.
6. Ran Fang, Wenzhong Liu. Optimizing construction management and improving construction quality [J]. Technology and Business 2016; (9).