

# Quality Control Approach for Civil Engineering Construction

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**Abstract:** In recent years, along with the continuous development and progress of society, the process of urbanization has been accelerating. At the same time, the scale of production of construction companies has also been continuously expanded. Civil engineering is an important component of construction engineering. The quality of civil engineering construction directly affects the image and development of construction companies. Therefore, we should focus on strengthening the control of the quality of civil engineering construction to ensure that the company is moving in a better direction. The author explores and analyzes the main factors affecting the construction quality of civil engineering, and puts forward an effective way to control the quality of civil engineering construction to improve the construction quality of civil engineering.

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## 1 Introduction

The specific construction process of civil engineering is usually affected by various external factors, and the impact of these factors will seriously hinder the improvement of civil engineering construction quality. In response to this problem, construction companies should strengthen the control of civil engineering construction quality according to the actual construction conditions, and improve the construction efficiency of civil engineering, thus promoting the long-term development of construction enterprises.

## 2 The main factors affecting the quality of civil engineering construction

### 2.1 The overall quality of construction workers needs to be improved

In the actual construction process of civil engineering, the overall comprehensive quality of construction workers directly affects the construction quality of civil engineering<sup>[1]</sup>. The comprehensive quality of construction workers mainly includes: job responsibility, quality control awareness, construction awareness, safety awareness, work attitude and professional skill level. However, at present, most construction workers in construction enterprises are mostly migrant workers. Relatively speaking, migrant workers receive relatively low levels of education, which not only lacks safety awareness, but also lacks comprehensive understanding of specific construction procedures. It is difficult to accurately grasp the key points of construction skills, lack of professional construction skills, and poor quality control awareness, and these factors will have a direct impact on the construction quality of civil engineering<sup>[2]</sup>.

### 2.2 Influence of environmental factors on the quality of civil engineering construction

At present, most of China's civil engineering projects are open-air construction. Therefore, the specific construction process of civil engineering can only be blamed, and it is easily affected by the climatic environment and geological factors, thus seriously hindering the improvement of civil engineering construction quality. In the actual construction of civil engineering, there are some differences in temperature, geological environment, etc., so the overall quality of

civil engineering also has certain differences. Therefore, before the specific construction, the construction enterprise should strengthen the exploration of the surrounding environment of the construction site, and combine the results of the construction site exploration to put forward specific requirements for the quality control of civil engineering construction, and at the same time formulate a practical and detailed construction plan to realize the civil engineering improvement of construction quality<sup>[3]</sup>.

### **2.3 Influence of construction material quality on construction quality of civil engineering**

In the civil engineering construction process, the performance and quality of construction materials directly affect the construction quality of civil engineering. However, some construction companies usually pursue economic efficiency too much. In the actual construction of civil engineering, in order to save the construction period, the construction method is chosen blindly. When selecting the construction materials, in order to save construction costs, low-priced and poor quality materials are chosen. The construction materials that do not meet the standards will seriously affect the improvement of the quality of civil engineering construction<sup>[4]</sup>. Waterproof materials and fireproof materials required for civil engineering construction that have not reached the corresponding quality standards, will cause certain defects in civil engineering and seriously affect the construction quality of civil engineering.

### **2.4 Influence of construction quality control mechanism on construction quality of civil engineering**

If we want to effectively implement the quality control of civil engineering construction, we must build a perfect construction quality control mechanism, and with the continuous development of construction enterprises, endure to innovate and improve the quality control mechanism of civil engineering construction, so as to promote the ordered civil engineering construction<sup>[5]</sup>. At this stage, in the civil engineering construction, there is a lack of perfect construction quality control mechanism. On the one hand, the construction quality control mechanism has not been well integrated with China's relevant laws and regulations, and the relevant staff members' legal awareness is relatively weak, which has laid a lot of hidden dangers for the quality of civil engineering construction. On the other hand, the construction quality

control work should run through the whole process of civil engineering construction, so as to effectively improve the overall quality of civil engineering.

## **3 The importance of quality control of civil engineering construction**

### **3.1 Effectively improve the technical level of civil engineering construction quality control**

The quality control of civil engineering construction is to control the construction quality of the entire civil engineering project by using a series of systems and related regulations. In the modern civil engineering construction process, we should pay attention to the use of advanced technology to control the construction quality. For the quality control of civil engineering construction, the application of control technology is very important, combined with the quality requirements of civil engineering construction, strengthening the application of new technical means and processes, and improving the technical level of construction quality control from the level of resource conservation<sup>[6]</sup>. It can be seen that the quality control of civil engineering construction has a close relationship with the improvement of control level.

### **3.2 Improving the quality of civil engineering**

In the process of civil engineering construction, the important purpose of strengthening quality control is to improve the actual quality of civil engineering and effectively avoid inferior civil engineering. Under the premise of effective construction of civil engineering, the quality control objectives of civil engineering are clarified, and the civil engineering construction site is comprehensively analyzed and controlled to improve the construction quality of civil engineering<sup>[7]</sup>. Actively take corresponding measures to strengthen the optimization of quality control measures, and actively integrate modern technology into it, so as to improve the level and efficiency of construction quality control.

### **3.3 Impressively improve the industrial image of construction enterprises**

Strengthening the control of the quality of civil engineering construction will help construction companies to establish a good industry image in the fierce market competition environment. Construction companies should regard quality control as the first criterion for development, which not only helps to improve the image of the company, but also helps to

ensure the order of development of the construction industry<sup>[8]</sup>. In the process of construction of each civil engineering project, the construction enterprises should clarify the difficulties and key points of quality control, so as to improve the scientific and precise construction of civil engineering.

#### 4 Effectual ways to control the quality of

### civil engineering construction

#### 4.1 Pay attention to improve the overall quality of construction workers

If you want to effectively control the quality of civil engineering construction, you need to pay attention to improve the comprehensive quality of construction workers. The specific approach is shown in Table 1.

Table 1. Specific approach to improve the comprehensive quality of construction workers

Measure	Specific methods
Improve requirements	When introducing civil engineering construction workers, they should be required not only to have a high level of professionalism, but also to have a strong sense of quality control and responsibility
Strengthen workers	For existing construction workers, training on their professional skills and safety awareness should be enhanced to improve the quality of civil engineering construction and reduce the chance of safety accidents.

#### 4.2 Strengthening the inspection of the quality of civil engineering construction

In the process of controlling the quality of civil engineering construction, the construction enterprises

should strengthen the inspection of the quality of civil engineering construction. The main performance to be accomplished is shown in Table 2.

#### 4.3 Strengthening the control of the quality of

Table 2. Main performance on strengthen the inspection of the quality of civil engineering construction

Main performance	Specific contents
Find inadequacies on time	Through quality inspection, we will find out the shortcomings in the construction process of civil engineering on time, and take corresponding measures to make up for the shortcomings on time, so as to effectively improve the quality of construction.
Improve the quality of construction materials and equipment	When testing the quality of civil engineering construction, the management of construction materials and equipment should be strengthened, and construction materials and equipment should be inspected regularly to improve the quality of construction materials and equipment.
Strengthen management of related data	In the civil engineering construction process, a large amount of data is usually generated, especially the relevant civil engineering construction quality data. Therefore, in the process of testing its quality, relevant data information should be strictly controlled, so as to provide more reliable construction quality for data support civil engineering

#### civil engineering construction materials

There is a close relationship between the quality of civil engineering construction materials and the overall quality of civil engineering. Under such circumstances, construction enterprises should strengthen the control of the quality of civil engineering construction materials. In combination with the specific requirements of civil engineering construction, special personnel are arranged to purchase materials, and the purchased construction materials must meet the corresponding quality standards<sup>[9]</sup>. For example, in the process of purchasing materials, it is necessary to comprehensively examine the material market and conduct a comprehensive analysis of the actual situation of the material suppliers. Inclusively compare the type, specification and quality of the construction materials, and strictly check the materials entering the construction site to strictly

control the quality of the construction materials. After the construction materials enter the construction site, special personnel are required to manage the construction materials. It should be noted that the construction materials should not be stacked in the exposed air to avoid the construction materials being affected by climatic factors thus reducing the quality of the materials. Thereby the quality of civil engineering construction is improved.

#### 4.4 Strengthening the improvement of civil engineering construction management system

During the civil engineering construction, the construction enterprise should combine the actual construction of the civil engineering project and strengthen the improvement of the civil engineering construction management system, so as to effectively manage the whole process of civil engineering

construction. In the process of perfecting the civil engineering construction management system, we should pay attention to improve safety awareness, do a good job of safety precautions, and avoid accidents, so as to ensure that all aspects of civil engineering construction can pass the inspection, thus ensuring the smooth progress of civil engineering construction<sup>[10]</sup>. In addition, we should pay attention to strengthen the overall control of the key links in civil engineering construction, and the special personnel should strictly monitor all aspects of civil construction, so as to effectively improve the construction quality of civil engineering.

#### 4.5 Strengthening the innovation of civil engineering

**Table 3. Comparison between traditional construction techniques and new construction techniques**

<b>Traditional civil engineering construction technology</b>	<b>New civil engineering construction technology</b>
More manual links are required	Mechanized equipment is widely used
Long construction period consumed	The use of mechanical equipment greatly improves the construction efficiency
Safety construction accident is easily caused	Effectively reduce safety hazards and improve the safety of civil engineering construction

Therefore, construction enterprises should strengthen the continuous innovation of civil engineering construction technology to make up for the deficiencies in the traditional construction technology, thereby improving the construction quality.

### 5 Conclusion

In summary, the factors affecting the quality of civil engineering construction mainly include: the comprehensive quality of construction workers, construction materials, construction environment and the perfection of construction quality control mechanism. The quality of civil engineering construction not only affects the overall efficiency of civil engineering, but also affects the long-term development of construction enterprises. Therefore, construction enterprises should strengthen the control of civil engineering construction quality.

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### construction technology

In the civil engineering construction process, it is necessary not only to strengthen the management of construction equipment, materials, staff, etc., but also to focus on strengthening the innovation of the construction foundation. This is because, in addition to construction equipment, materials and staff and other factors that will affect the quality of civil engineering construction, construction technology will seriously affect the construction quality of civil engineering. New construction techniques are created by removing many shortcomings in traditional construction techniques. Comparison between traditional construction techniques and new construction techniques is shown in Table 3.

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