

# Based on the Perspective of Construction Contract of Project Quality Management Research

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**Abstract:** Aiming at the quality problems appear constantly in the field of construction engineering in China, this paper analyzes the perspective of construction contract and expounds the function of the construction contract in the engineering quality management. Compare the 2013 edition of the "construction contract (model text)" with the 1999 version of the FICIC "construction contract conditions" in the engineering quality of the relevant provisions of the analysis, to find the two contract model in the project personnel structure, engineering authority, sub-contractor selection, employer supply materials and mechanical, warranty five aspects of the difference. These differences will be the research direction of improves the quality of the construction contract clause.

**Key words:** Construction contact; Quality management; Engineering quality clause

## 1 Introduction:

Since 1980s, the quality problem in our country has been widely recognized by the whole society, but at the same time the quality of the project is still very prominent. According to Yu and Lu (2012), the construction process of the project is the process of the contractor's performance of the construction contract. The contractor should according to the contract, make the relevant resources turn into the construction capacity. Then, function in construction materials, and ultimately to achieve the target of the contract. Therefore, quality management is one of the main functions of the construction contract. In view of the construction contract, the quality of the study of

engineering quality improvement has a very important practical significance.

The main use of the field of engineering construction in China is the construction contract (model text) issued in 2013. In this paper, the model text and the International Federation of Consulting Engineers (FIDIC) in 1999 to prepare the "Conditions of Contract for Construction " (hereinafter referred to as the "new Redbook") as the research object, get research conclusion (Construction contract conditions, 2002).

## **Main body:**

### **1.Engineering project quality management in the contract**

In order to critical analysis the impact of construction contract for the quality of the project, this paper of demonstration text and new Redbook in terms of quality are summarized, tries to discuss the foundation of construction contract in the quality management.

#### **1.1 the construction contract is compulsory for the contractor to develop the quality management system.**

Demonstration of the text paragraph 5.2.2 the Contractor's quality management and new Redbook item 4.9 "quality assurance", explicitly require the Contractor shall establish the quality assurance system, and the preparation of documents related to the measures. Model text requires the contractor will submit relevant documents to contract and supervision. What's more, the new Redbook agreed engineers have the right to review any aspect of quality assurance system. The establishment of the quality assurance system can effectively improve the engineering quality, promote the continuous improvement of the quality management system, and ensure the effective operation of the organization, so as to better meet the needs of the owners, improve the level of production management.

#### **1.2 the construction contract shall clearly define the cooperation frame and behavior of the relevant parties in the quality management.**

Construction project is a process of multi participation, in the process, the employer,

the contractor, the supervisor and the sub-contractor to cooperate with each other, to achieve quality objectives. Therefore, the establishment of mutual relations and mutual restraint of the collaborative relationship, not only related to the organization's efficiency, but also directly affect the quality of the project.

First of all, the construction contract clearly the quality of the parties involved in the quality management of the work responsibilities and rights. For example, the supervisor of the contractor supervision and inspection, the contractor sub-contracting the behavior of management and organization are in the construction contract agreed. These conventions constructed the basic framework of the unified management of the construction site. Second, the construction contract specification for parties quality management in the quality of the work process.

For example, the constructions contract for the employer to supply the material and equipment of the approach process, including the time, inventory, inspection and reception. In the process of completion and acceptance, the construction contract has been standardized to the acceptance time, the acceptance process, the participants and the receiving project. These form the behavior of the relevant parties involved in the quality of the construction contract.

### **1.3 the main factors affecting the quality of the construction contract.**

Although each project has different characteristics, but in the process of project construction, for the control of the quality of the five types of factors, the requirements are the same, so the construction contract model will be the common requirements of the contract terms. All engineering projects must comply with, so as to regulate the construction market, improve the overall quality of the project.

On the human factor, the construction contract requires that the main management personnel and technical personnel should have qualification. The other personnel should have the ability to perform their duties. Build up the replacement process of project manager and general supervision engineer. What's more, establish the code of conduct in order to better standard construction site personnel.

Construction materials and equipment are mainly two sources, the employer provides and the contractor procurement, one of the sub-contracting procurement of

the case into the contractor procurement. Construction contract for two cases of material equipment approach, inspection, receiving the relevant process to make the detailed provisions of the construction process of material testing, equipment testing and on-site custody of the agreement, and the strict rules for the completion of the procedures.

Construction contract to the construction method come up with relevant standards. Requires the contractor to develop a reasonable, safe and reliable construction method, to ensure the smooth implementation of construction and quality objectives of the project.

The control of environmental factors in the construction contract is mainly reflected in the requirements of the contractor to the construction site of the natural environment full investigation. Establish a complete quality assurance system, and to implement the unified management in the field of engineering. In order to provide the necessary living conditions, safe working environment and reasonable treatment for the project construction personnel.

#### **1.4 the quality responsibility of the main parties involved in the construction contract.**

Contractual obligations, and then create the responsibility. In the process of construction, the construction contract is the important basis for the quality responsibility. In the process of project construction, the main participants are the employer, contractor and supervisor, and the three parties shall bear the responsibilities of their respective duties according to the contract of construction, and accept the quality inspection (Jin, 2012). In the event of quality problems, the main responsibility of the subject will bear the responsibility, subject to the relevant party's claim. Therefore, the fair contract in the construction of the parties to the quality of responsibility, to improve the quality of the project and the project quality management level is of great significance.

## **2 Analysis of differences between model text and new Redbook in terms of quality**

Compared the model text and new red book, the difference can be derived from the two contract agreed on in quality management. These differences reflect the differences in the process of project management in China and the international practice, this analysis can be found in the following characteristics:

### **2.1 the difference of personnel structure between model text and new red book.**

The main participants in the project construction of the model in the text is divided into contract, contractor and supervisor third party, each party has its own employees. However, the supervisor is often based on the contract award instructions to the people to carry out the work. Not in accordance with the terms of the contract as independent third party for project construction supervision. New red book construction participants are including the employer's personnel and the contractor's personnel, engineers belonging to the employer's personnel and the employer's representative to exercise powers of project management. This personnel structure more in line with the characteristics of the construction project.

### **2.2 Compared with the model text, the powers of engineers are enhanced in New Redbook**

New Redbook agreed by the engineer's management behavior are regarded as approved by the employer, to give engineers the right to change the content of the engineering test, requirements engineers and assistant should have qualifications, also did not make the replacement engineer agreed, which fully embodies the position of the Engineer in project management, and the importance of the quality of the project. Therefore, Zhang and He (2003) explained that the international engineering attaches great importance to the choice of engineers, usually more consider the ability of engineers, and less consideration of the cost of consulting.

### **2.3 the subcontractor selection, in terms of the new red book fairer.**

The model text of the agreement is vague, only in the special provisions of the agreement. Due to the construction enterprises in the construction contract signed in a

weak position, this way allows the employer to get more power in the choice of sub-contractors. The new Redbook clearly that the employer nominated subcontract concept, and the process of determining the sub contract specifies. In particular, the contractor may reasonably object to the description of the nominated sub-contractor, and avoid the risk of the employer to the contractor's failure to specify the risk caused by the failure of the project to make the contract more reasonable and fair.

#### **2.4 Contract (employer) provide the conventions of the materials, machinery, demonstrative text is paying more attention to the results, the new Redbook pays more attention to fairness.**

In the model text, the contractor shall strictly examine the employer's material and machinery, and to ensure the quantity and quality of the materials in the entry when the supervision is assisted. But, the new red book more likely by the employer to provide materials and machinery to bear the relevant responsibility.

#### **2.5 The agreement of the guarantee is a bit complicated.**

Huang and Chen (2014) stated that the model text introduces the concept of the defects in the FIDIC series contract, in the form of the defects liability period. However, in order to meet the requirements of the relevant laws, the model text continues to retain the warranty period of the agreement, which makes both the time and the work of the contents of a certain overlap (Lu, Cheng and Lu, 2012).

### **3. Conclusion**

The project is to complete the construction in the construction contract agreement. The quality of the construction contract is an important constraint in the process of the formation of engineering quality. Reasonable quality terms can play a vital role in promoting the engineering quality.

In this paper, the effect of quality clause on the quality management of the project is summarized. According to the compare model text with new Redbook, obtained in the project personnel structure, engineer permissions, contract selection, contract people supply materials and machinery, warranty five aspects differences

exist. These five aspects will be an important way to improve the quality of the model text of the follow-up study.

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