

The Quality Control System in A Growing Construction Industry Of China

Part One: A Growing Construction Industry

1. The economic development

A sustained GDP growth has been accomplished at the rate of over 9% per year in the past twenty years in China. Its per capita GDP has increased nearly twenty-fold from RMB379 in 1978 to RMB7078 in 2000. The total investment in fixed assets, which reached about RMB3292 billion in 2000, has been growing at an average rate of over 20% in the last twenty years.

2. The size and growth of the construction industry

The gross output value of the construction industry, which was RMB34.7 billion in 1980, reached RMB1678 billion in 2000. It accounts for 6.6% of the GDP compared with 4.3% in 1980.

3. The construction enterprises and labor force

The number of construction companies was increased from 57,404 in 1980 to 97,263 in 2000. The number of their employees was increased from 9.83 million in 1980 to 27.41 million in 2000.

4. Design institutes

In 2000, there were 10,753 design institutes with 635,198 employees. More than 50% of the employees were qualified engineers with higher education. Most of these institutes, formally under either line ministries or municipal governments, have become independent entities.

Part Two: Standardization for Engineering Construction

1. Four levels of standards

According to the stipulations of the Standardization Law of the People's Republic of China, the standards for civil engineering construction are divided into four levels, namely the national, sectoral, local and enterprises levels.

2. Two categories of standards

The standards for civil engineering construction are further divided into two categories: the compulsory standards and recommended standards.

3. The technical capability

In China, there are more than 1,300 groups and more than 30,000 full-time and part-time professionals engaged in the preparation and management of standards for civil engineering construction. Furthermore, 36 technical committees have been set up in China Standardization Association for Civil Engineering Construction.

4. Standardization activities

There are more than 3,200 standards in China. The Chinese experts are active in ISO and IEC activities. They have chaired 19 ISO technical committees and 39 sub-committees and shared their experience and knowledge with the international committee members.

5. New regulation

On Aug. 25, 2000, the Ministry of Construction issued “The Regulation on the Implementation and Monitoring of the Compulsory Standards for Engineering Construction”.

6. Future actions

Following actions shall be taken in the field of standardization for engineering construction:

1. Further development of recommended standards and improvement of the combination of compulsory and recommended standards;
2. Enhancement of the standardization level through scientific research, active adoption of international advanced standards to encourage the use of new technologies and products.
3. Provision of consulting service to enterprises to help them to make standards for themselves and encourage them to increase the level of enterprise standards;
4. Promotion of the awareness of the importance of standards among the people engaged in construction, and the training of human resources for the benefit of enforcing and monitoring standards;
5. International exchange in the fields of concrete structures, steel structures, wood structures, anti-earthquake structures and block systems.

Part Three: Quality Control in the Construction Industry

1. The legal environment

In China mainly, there are three legal acts that dominate the quality control in the construction industry, namely, “The Construction Law of the People’s Republic of China” issued on November 1, 1997, “The Regulation on the Quality Management for Engineering Construction” issued on January 30, 2000 and “The Regulation on the Prospecting and Design Management for Engineering Construction” issued on September 25, 2000.

2. Quality problems

There are various quality problems in different magnitude in China, which can be grouped into following areas:

1. Low quality of average commercial housing buildings, especially those for relocated households;
2. Potential structural safety of the buildings built with low technologies and without earthquake engineering measures in the 1950’s and 1960’s, and buildings built without proper management in 1980’s;
3. Great potential quality risks of buildings constructed without permission, design and quality control in the intersections between urban and rural areas;
4. Potential risks of some old bridges because of poor maintenance and overusing;
5. Structural destruction during owners’ decoration of their apartments built with brick-concrete structures, and indoor environmental pollution caused by the use of disqualified building and decoration materials;
6. Poor quality control management, especially at the county and township levels, and lack of training of professionals.

3. Future actions

1. To improve the management of construction projects in towns and villages so that all construction activities can be undertaken according to the laws and regulations;
2. To set up regular inspection systems for evaluating the existing buildings, and request the owners to consolidate their buildings if necessary;
3. To make new management methodologies and new qualification standards for the inspection institutions, strengthen their inspection capabilities, and enable them to become legally independent;
4. To carry out the new quality control measures, such as the examination of construction drawings, provision of quality warranties, and implementation of compulsory standards;
5. To establish credit evaluation system for construction enterprises, announce misbehaved enterprises publicly, and set up an effective quality reporting, response and supervision system;
6. To establish compulsory training system for technical staff members, and provide trainings in the disciplines of compulsory standards implementation and operation skills.

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