

## STUDY ON QUALITY MANAGEMENT IN HOUSING AND MULTISTOREY BUILDING CONSTRUCTION PROJECT

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**ABSTRACT:** Quality management systems are being operated in some sectors in India. But it is rare to meet this system in construction industry. There are many hindrances that make it difficult to apply the system effectively due to the nature of construction and therefore no objective way to measure the effectiveness of this system exist in construction industry. There are various sectors in India that have implemented quality management systems. Encountering this system in the construction business is infrequent. Various obstacles hinder the effective implementation of the system in the construction industry, making it challenging to objectively quantify its efficiency. The current study focuses on three primary issues. The primary objective is to assess the efficacy of the quality management system (QMS) in building projects. The second step involves identifying the key factors that have a significant impact on the quality management system. The third objective is to suggest a structured plan for implementing quality management in building projects. A survey questionnaire is used to investigate the optimal quality management strategies for building projects. Through a survey questionnaire, an attempt will be made to explore the best quality management practices to be followed in construction projects. The main objective of this research work is to evaluate the critical factors that affect the quality management system on quality improvement and performance in construction projects.

**Key Words:** Construction projects, Management, Organization, quality assurance and quality management systems.

### INTRODUCTION:

The construction business is a fundamental component of the economy in every country, including India. This activity is constrained by time and requires significant amounts of manpower, materials, and equipment. Consequently, its breakthrough has had a significant impact on the construction industry. The construction sector has experienced significant fluctuations in its business cycle on a daily basis. Construction fosters the expansion of other interconnected businesses, including the fabrication of construction materials such as cement, pipelines, sanitary products, tiles, and ready mix concrete. In addition to being a valuable asset that delivers economic gain for the country, the construction industry fosters the growth of human capital and creates a greater number of jobs compared to other industrial sectors.

Given the importance of construction, it is imperative to identify key factors that impact the effectiveness of this industry. The construction sector in many nations suffers from inadequate technology and a disjointed relationship

between construction cost and time delay, which therefore impacts the quality of construction projects. Several clients are currently concerned about the cost and accuracy of providing a completed product that meets their quality requirements. Currently, construction company management is prioritizing the quality aspect as a means to get a competitive advantage. Ensuring client satisfaction has become a paramount concern in maintaining business connections. Therefore, the construction sector should establish standards at every stage to offer good outcomes.

Quality management in construction projects is an essential element that guarantees the effective completion of a project in line with predetermined standards and client demands. It involves a methodical approach to organizing, overseeing, and managing all operations and processes in construction to get the necessary degree of quality. The process commences by identifying quality objectives and creating unambiguous criteria for the successful completion of the project. Quality is continuously managed during the whole project lifecycle using inspections, testing, and other verification

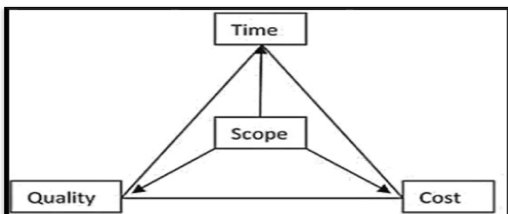
procedures to identify and rectify any deviations from the defined standards. Efficient communication and cooperation among project stakeholders, such as contractors, architects, and suppliers, are essential for upholding quality standards. Continuous improvement is an essential component, as insights gained from past projects are integrated to optimize future construction procedures. Quality management in construction projects is a complete framework that aims to enforce standards, reduce errors and faults, and ultimately guarantee the provision of a high-quality constructed environment.

**QUALITY**

Quality can be broadly described as the capacity of a product or service to meet the expectations and needs of customers. Quality is defined as the capacity to fulfill both expressed and implied needs, according to international standards. Quality can be broadly described as the capacity of a product or service to meet the expectations and requirements of customers. Quality is defined as the capacity to fulfill both expressed and implied needs, according to international standards.

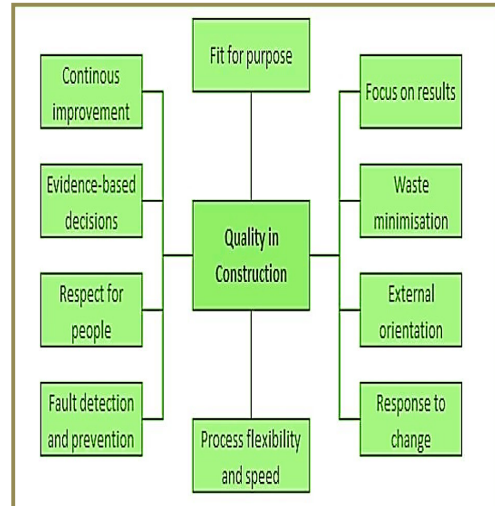
**CONSTRUCTION QUALITY**

Construction quality can be regarded as a constituent of a triangle.. The contractor is expected to retain the intended cost level while meeting the requisite quality standards and scheduling deadlines. It is important to maintain uilibrium among the three aspects as they determine the project scope. The prioritization of cost savings and time reductions necessitates the ignoring of component quality.



**Figure 1.1 Construction Triangle**

Quality is involved in every stage



and every aspect of construction. Construction projects and quality are inseparable. Construction quality cannot exist without a construction project and a construction project cannot exist without quality. The modern construction market requires construction companies to guarantee the product quality to their clients.

**Aspect of construction quality**

**Figure : Aspects involved in the concept of construction quality**

Figure 1.2 illustrates a range of concepts that are believed to impact the quality of the product and can be linked to quality in construction. The figure illustrates the product features, production processes, organizational structure, and business/industry concerns of the company.

**TOTAL QUALITY MANAGEMENT(TQM)**

The total quality management process comprises both quality assurance and quality control in order to ensure a merchantable, modest product for today's demanding customer. Objectives of total quality management are:

- Improvement in process
- Fault prevention
- Priority of effort

- Cause-effect relationship development
- Measuring system capability
- Improvement in checklist and check forms
- To take better decisions
- Development of operational definitions
- Separating trivial from significant needs
- Observing behavior changes over a period of time.

Continuous improvements are possibly the most powerful concept to guide management through the achievements of total quality management. Continuous improvements are based on organized, incremental and characteristic improvements of processes rather than non-revolutions and innovative advances. The process concentrates on elimination of waste and non-value-added activities through collective and continuous involvement of all employees.

The following components are required for this systematic approach to quality management:

1. Planning the procedure and inputs
2. Providing inputs
3. Functioning the processes
4. Gauging the outputs
5. Probing the performances of the processes
6. Adjusting the processes and their inputs.

#### **QUALITY MANAGEMENT SYSTEM (QMS)**

The quality systems are organizational structures, responsibilities, procedures, processes and resources for implementing quality management. The quality systems should function in such a manner as to provide proper confidence that: The system is well understood and effective; The products of services actually do satisfy customer expectations; The emphasis is placed on problem prevention rather than

dependence, after occurrence.

The International Organization for Standardization (ISO) was established in 1946 in Geneva, Switzerland, where it is still based. ISO is an association of National Standards Bodies of more than 150 countries. The ISO 9000 family is distinguished with 'quality management'. This rule of thumb is what the institute does to fulfill the customer's satisfaction requirements, and suited regulatory requirements, at the same time aiming to raise the value of customer load off one mind, and achieve steady improvement of fit, finish and give in bid of these objectives

#### **REASON FOR IMPLEMENTING QUALITY MANAGEMENT SYSTEM**

- To improve customer satisfaction in construction industry.
- To improve safe working condition.
- To reduce customer complaints.
- To reduce inspection efforts in construction industry.
- To reduce the quality cost in construction industry.

#### **OBJECTIVES OF THE STUDY**

- ✓ To evaluate the effectiveness of quality management system in construction projects.
- ✓ To evaluate the critical factors that affect the quality management system on quality improvement and performance in construction projects.
- ✓ To propose an implementation framework for quality management system in construction projects.
- ✓ To propose regression equation for the identified strongest predictor among the independent variables which have a cause and effect relationship on dependent variables.
- ✓ To propose suitable recommendation for effective quality management and quality system

### LITERATURE STUDY SUMMARY

All the facts discussed above led the researcher to a fact that everything on paper, when put into execution, encountered practical difficulties and the ground reality is an important issue to be addressed. It is necessary to identify those factors that need to be monitored real time during the progress of the project, make necessary remedial measures to overcome the factors that are responsible for the implementation of quality management in construction projects. Hence it is imperative to identify the critical factors to be monitored in the real time management of construction projects.

### METHODOLOGY OF ANALYSIS

#### DATA COLLECTION

A survey questionnaire was prepared based on background information, general quality aspect and standard quality aspect. A total of 60 questionnaires have been sent to the respondents through e-mail, directly through hardcopy, softcopy, postal and courier. The types of projects involved in this survey are multi-storied corporate / commercial buildings, residential buildings and industrial buildings. The project cost varied from 1crore to 100 crores. The private sector has been considered in this survey. Period for collection of data took 2 months.

### CONCLUSIONS

The following conclusions have been derived from an analysis of literature and a visit to the construction site.

- ✓ The questions have been formulated based on the elements that influence each area of quality management.
- ✓ The 14 distinct categories are determined through analysis of previous research and on-site examination.

- ✓ Several private construction firms have been chosen to gather data in the Coimbatore region. The acquired data will be analyzed using SPSS software to identify crucial parameters.

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