

Study on Quality Control of Project Management System

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Abstract - This thesis present recommendation for quality control and quality assurance in building construction. Recognizing the established quality in the early stage of construction can set the standard of quality for the entire project. The factors impelling effective and continuous improvement of Indian construction industries. To improve one must look upstream at the design state. Because, that is where the quality begins. Quality must be designed in. It cannot be inspect later. In order to a have quality system planning, design and execution stage must be given more importance. In this thesis the actual requirement and model checklist for quality Control is incorporated. Further development and format governing all quality aspects. This thesis presents recommendation for quality control and quality assurance in building construction. Recognizing the established quality in the early stage of construction can set the standard of quality for an entire project in order to a have quality system planning, design and execution stage must be given more importance. The actual requirements and model checklist for quality control is incorporated. Further development and format governing all quality will summarized in next phase.

Key Words: Quality control, Total quality management, Quality assurance, Continuous improvement, Quality management system.

1. INTRODUCTION

Construction environments are full of uncertainties in respect of labor and Equipment productivity, market forces, materials availability and changes, variations in regulatory agencies influence and variation in weather. So for not enough knowledge in the field of construction engineering and management has been formalized and encoded in textbooks. The industry runs on conventional knowledge and experience based judgment. This has led to the implementation of quality assurance practices during design and development of product. As the Quality of design is vital, quality assurance systems during design and development of product shall be followed strictly. Assurance provides for certainty and quality Assurance involves a systematic approach in which actions are performed within the enterprise quality system to ensure that the quality requirements for the particular product are met

1.1 QUALITY CONTROL

Quality control is the part of quality management that ensures products and service comply with requirements. It is a work method that facilities the measurement of the quality characteristics of a unit, compares them established standards, and analysis the difference between the results obtained the desired results in order to make decisions which will correct any differences.

One way of controlling quality is based on the inspection or verification finished products. The aim is to filter the products before they reach the client, so that products that do not comply with requirements are discarded or repaired.

1.2 QUALITY ASSURANCE

Is the total efforts and activities by a group of specialists to achieve quality results (product, outcome) Quality assurance is set of planned and systematic action to ensure that products and services comply with specified requirements. it not only involves checking the final quality of products to avoid defects, as is the case in quality control, but also checking product quality in planned way in all the production stages.

1.3 Project quality management

The modern project quality management is based on ISO (International Organization for standardization) quality standards. Quality management today complements project management. Both the disciplines recognize the importance of the following five elements:

1.2 Continuous Improvement

The Plan-Do-Check-Act (PDCA) Cycle is the basis for quality improvement. The concept of PDCA was pioneered by Stewart and was later modified by Deming. It is one of the basic tenets that form a basis for initiation, planning, execution, monitoring and controlling, and closing; thereby enabling continuous improvement.

1.3 Total quality management (TQM)

Total quality management consists of organization-wide efforts to "install and make permanent a climate where

employees continuously improve their ability to provide on demand products and services that customers will find of particular value. While there is no widely agreed-upon approach, TQM efforts typically draw heavily on the previously developed tools and techniques of quality control. TQM enjoyed widespread attention during the late 1980s and early 1990s before being overshadowed by ISO 9000.

2. Objectives

- To identify the quality control and quality assurance to suggest some ways to and managing the checking the quality.
- To investigate the current status of quality management system being implementation by Indian construction companies.

3. Research methodology

This thesis identifies the quality controlling and quality assuring and management system in construction projects. Primary data collection includes personal site visits, personal interviews and questionnaire survey, Personal observation of quality control, conditions on sites and from the collected responses, the factors related to checking the quality control.

- Research approach.
- Research context
- Questionnaire survey
- Data collection
- Data analysis
- Result and discussion
- conclusion.

4. Analysis

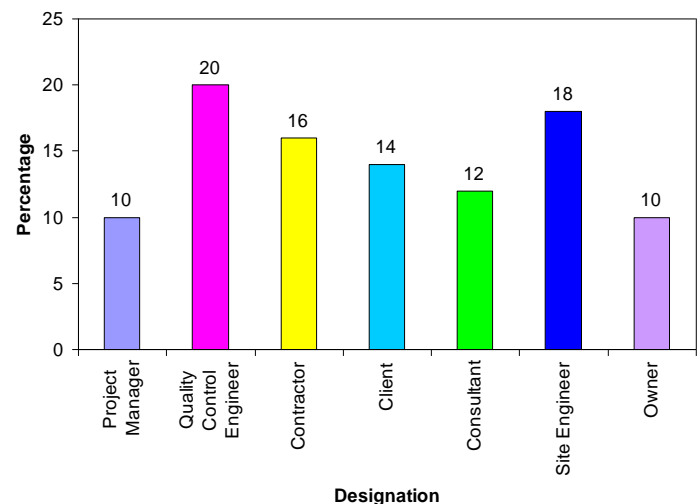
Table 1: Distribution of the respondents according to designation

Designation	Number of Respondents	Percentage
Project Manager	5	10.0
Quality Control Engineer	10	20.0

Contractor	8	16.0
Client	7	14.0
Consultant	6	12.0
Site Engineer	9	18.0
Owner	5	10.0
Total	50	100.0

Table 1 reveals that out of 50 respondents selected for the present study, 10% are from Project Manager, 20% are from Quality Control Engineer, 16% are from Contractor, 14% are from Client, 12% are from Consultant, 18% are from Site Engineer and 10 are from Owner.

Graph 1: Distribution of the respondents according to designation.

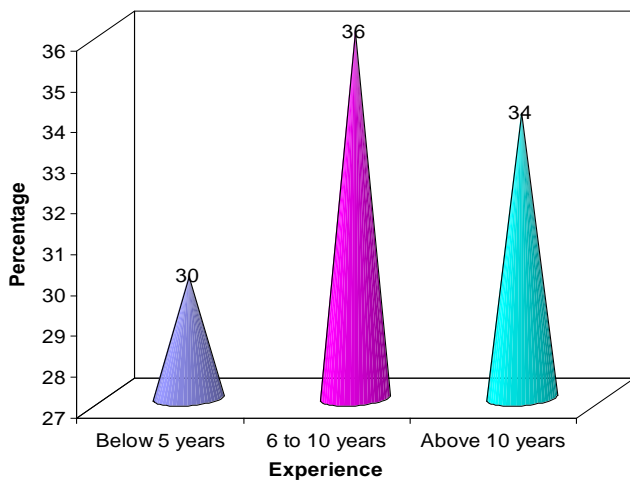


Distribution of the respondents according to Experience

Experience	Number of Respondents	Percentage
Below 5 years	15	30.0
6 to 10 years	18	36.0
Above 10 years	17	34.0
Total	50	100.0

Table 3 exhibits that out of 50 respondents selected for the present study, 30% are from below 5 years, 36% are from 6 to 10 years and 34% are from above 10 years.

Graph2: Distribution of the respondents according to Experience



4.1 DESCRIPTIVE STATISTICS

Descriptive analysis involves the calculation of the measures of central tendency, the mean, measures of variability, the standard deviation. These two are useful to determine the central tendencies and dispersion of the variables selected for the study. The computed values of the mean and the standard deviation are used to describe, the properties of particular samples and descriptive statistics is used to reduce the bulk of data to manageable size.

In the case of the prediction of most quality check list project management, Spacing/no .of rods checked scored (4.98±0.328) higher mean value than the other group. So, Spacing/no .of rods checked have high level of the prediction of most quality check list project management than the other groups.

	Factor Number and Name	Mean	Std. Deviation	Ranks
	PROJECT			
Q1	Scope of the project(type of nature)	4.30	0.463	23
Q2	Location of the project	4.76	0.431	6
Q3	Site access	4.78	0.418	5
Q4	Period of the project.	4.16	0.738	29
Q5	Commitment of all parties	4.10	0.707	33
Q6	Coordinating ability and Relationship of projects participants.	4.34	0.798	20

4.2 ONE WAY ANALYSIS VARIANCE (ANOVA)

One way ANOVA was done between groups of respondents to compare their means of responses for each of their factor. For those factors with significance less than 5%, Turkey’s B Post Hoc Tests were conducted to identify the group which differs in their perception of the importance of the factor

- Q1 - Scope of the project (type of nature)
- Q2 - Location of the project
- Q3 - Site access
- Q5 - Commitment of all parties
- Q7 –Coordinating ability and relationship of project manager with owners.
- Q9 - Project manager’s technical capability
- Q10 - Top managements backing up the plans and identify critical activities
- Q11 - Positive attitude of project manager, and project participants.
- Q16 - Bill of quality is detailed & accurate
- Q19 - A written contract with clear condition.
- Q29 - Measurement of equipment productivity
- Q31 - Equipment maintenance.
- Q32 - Using integrated project execution system
- Q34 - Clear procedure for accepting performed activities

4.3 CORRELATION ANALYSIS

Relationship between quality control on checklist and their Demographic Profile

Demographic Variables	Quality control on checklist
Designation	0.623**
Age	0.516**
Experience	0.472**

Table 16 reveals that quality control on checklist is positively related to their demographic characteristics of designation, age and experience. So there is a positive significant relationship between quality control on checklist and their Demographic Profile.

4.4 REGRESSION ANALYSIS

Showing the Stepwise regression analysis predicting quality control on checklist

S. no	Step/Source	Cumulative R ²	ΔR ²	Step t	P
1.	Designation	0.043	0.039*	3.092	0.01
2.	Age	0.066	0.054*	2.772	0.01
3.	Experience	0.075	0.066*	3.924	0.01

* P < 0.01

Constant value = 15.294

Three variables viz experience, age and experience have significantly contributed for predicting the quality control on checklist. The variable designation predictive value of quality control on checklist seems to be 0.043, when paired with the variable age it is 0.066 and with experience is 0.075. The predictive value of these variables separately

5. DISCUSSION

The research methodology of this study, the survey was carried around 50 set of questionnaire among the participants of construction project configuring experiences and positions mentioned in table 5.1. responses of respondents the most important quality tools used at construction site is checklist lists followed by statistical analysis.

The analysis of most important question for survey indicates that customer satisfaction is very important followed by client satisfaction, stakeholders satisfaction, management commitment and competitive markets.

The research also indicates that quality planning, quality control and quality assurance are the main elements of Quality management system and for success of construction project it is necessary to give attention towards all these elements.

6. CONCLUSIONS

In this study, the construction industry suffers from the several problems. The challenge of resolving the issue construction quality and its management lies in seeking the long lasting solutions to the problems facing the construction industry. The total quality management is practiced by many construction industries around the world. It is proven method for implementing a quality conscious culture across all the vertical and horizontal layers of the company. Total quality management is a management approach centered on quality, based on the participation of an organization's people and aiming at long term success. This is achieved through customer satisfaction and benefits all members of the organization and society. In other words, Total quality management is a philosophy for managing an organization in a way which enables it to meet stakeholder needs and expectations efficiently and effectively, without compromising ethical values.

The application of total quality management helps in streamlining processes, and ensures a proactive work system ready to counter deviations from the ideal state, total quality management implementation has positive effects on employee satisfaction, product quality, customers' satisfaction, and strategic business performance. For employee satisfaction, which will give them positive effects are employee participation, recognition and reward.

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