Quality Assurance And Quality Control Of Residential Building Using Microsoft Project

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Abstract- *The construction industry plays a major role in the economic growth of a nation. This thesis aims to evaluate the use of Quality Function Deployment (QFD) as a management tool to benefit project managers. The magnitude of the quality is indeterminate at times. This paper presents a research effort on the way forward to implement quality-related metrics for construction project control. What needs to be determined is the proportion of real versus perceived quality and approval. This document is being submitted to satisfy that requirement of quality. The real import and the importance of quality control and assurance in small building construction and To determine the quality of building materials like soil, stone, brick, sand, cement, sand, aggregate, concrete, steel etc., by using Microsoft Office the importance of QA/QC will be determined. The causes of poor QA/QC management, evaluation, or standardization will be determined by the questionnaire and an interview with the selected body. This is to determine the method of our company in producing a product with proper standards.*

I. INTRODUCTION

Every company must have their own standards for their products to ensure their client's satisfaction. In the construction sector, there are also considerations of the quality of their product, such as the workability of their product or building etc. For construction, there are three (3) major considerations: Quality, Time and Cost. Generally, quality means the standard of something as measured against other things of a similar kind or the degree of excellence of something. Quality in the construction industry means the constructed building can achieve its target regarding workability.

Quality Assurance and Quality Control (QA/QC) is a tool for determining the construction's quality. Quality Assurance (QA) is a way to prevent defects in manufactured products and avoid problems when delivering services to customers. QA is applied to physical products in pre-production. To verify what will product meets specifications and requirements. Production runs during manufacturing time by validating lot samples to meet specified quality controls. QA is also applied to software to verify that features and functionality complete business objectives. Quality control

(QC) emphasizes testing products to reduce defects and reporting to management, who decide to allow or deny product release. Whereas quality assurance attempts to improve and stabilize production and associated processes to decrease issues which led to the defects in the first place. Quality control issues are among the top reasons for not renewing a contract, particularly work awarded by government agencies.

1.1 Objectives

The objectives of the research are to determine the following:

- The importance of Quality Assurance and Quality Control implementation.
- Prepare a questionaries survey to measure effective QA and QC implementation measures.
- To identify the factor affecting Quality Assurance and Quality Control Management and their consequences to the project.
- To study the various checklist for the contractor side and client side as per ISO 9000.
- To establish various visual inspection skills required for QA and QC.

1.2 Scope of Work

The scope of work for this project will focus on Quality Assurance and Quality Control. The scope of work will focus on the implementation of QA QC. In this case, this project will rely on the project manager's point of view. It is targeted to determine the importance of QAQC implementation. Furthermore, to determine the causes of problems and how it affects the product's quality. It is also to determine the problems faced during construction and how to rectify the case to ensure that the project will be completed on time, smoothly, and with expected product quality.
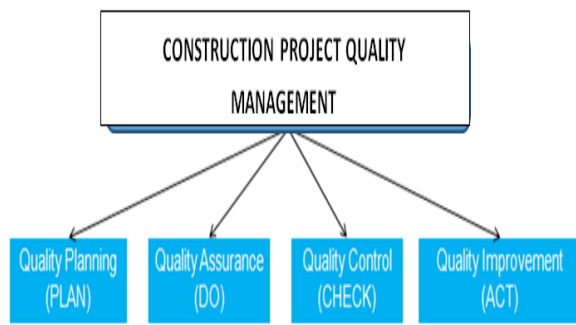
Fig. 1 Approaches to Conformance in Quality Management
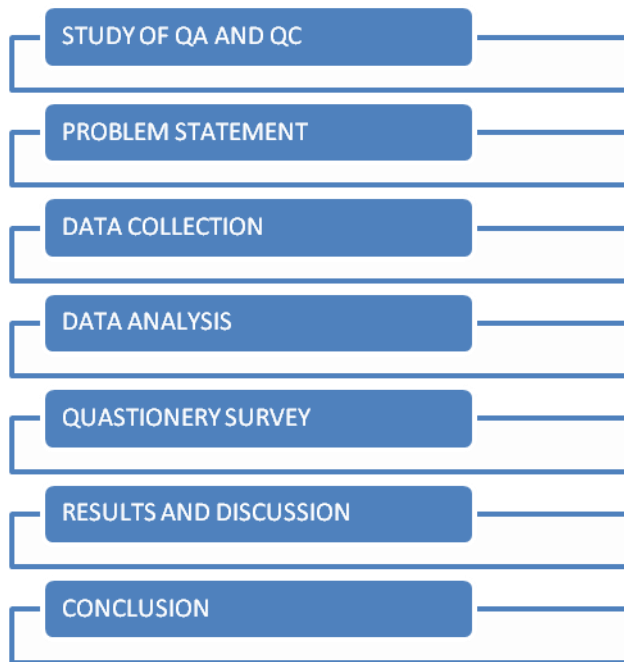
II. METHODOLOGY

Fig. 2 Project Flow

2.1 Problem Statement

The problem of this research is to determine the following:

- What is the importance of implementing Quality Assurance and Quality Control?
- What are the causes and the effects of poor Quality Assurance and Quality Control Management?

2.2 Data Collection

The Data Collection phase is to achieve the project's objectives; this stage is the most crucial part of collecting the primary data. It requires semi-structured interviews, research, and questionnaires to collect relevant data information.

Questionnaires will be gathered as the primary data. It will be drafted and given to those involved in construction projects.

The case study considered is a G+4 framed structure located at Dighigaon .name of the project is SAIPRASAD APARTMENTS. The builder's name is OM SAI ASSOCIATES, Name of the architect is Samuel sangale. RCC designer is Randhawe consultancy. The total plot area of the project is 4500 sq.ft. Total built-up area is 5440 sq.ft. The total estimated cost is 90 lakhs.

The following table is the sample checklist for site layout, concrete slab, and concrete formwork.

Sr. No.	Activity	YES	NO	N/A
1.	The building is set out correctly on the site(demarcation w.r.t. layout plan/)	✓		
	Materials and products match what was specified in plan	✓		
	Centre line Plans and material specifications are followed.	✓		
	Materials are installed to manufacturers' instructions so you get the warranty.	✓		
	Footings need to be straight and correctly positioned, though the finish doesn't have to be smooth	✓		
	Concrete slabs			
	The concrete is laid on top of several things put in beforehand. There is a layer of compacted base course, plumbing pipes and pipes taking electrical and other cable, in-floor heating and polystyrene insulation if required.	✓		

	There are additives that can be applied to the concrete to reduce cracking during or following curing; the concrete can be coloured, polished and/or ground.	✓		
	Concrete Formwork			
	Before concreting commences ensure proper access for workers involved in placing, compacting and finishing concrete.	✓		
	Presence of experienced supervisor keeping a continuous watch for any dangerous situation.	✓		
	Adequate supply of spare props, clamps, bolts, wedges and skilled workers at site.	✓		
	Alignment, camber, level and plumb (verticality) maintained while concreting is in progress.	✓		
	Effective depth between top and bottom reinforcement not disturbed.	✓		
	Cover of concrete around reinforcement steel maintained as specified.	✓		
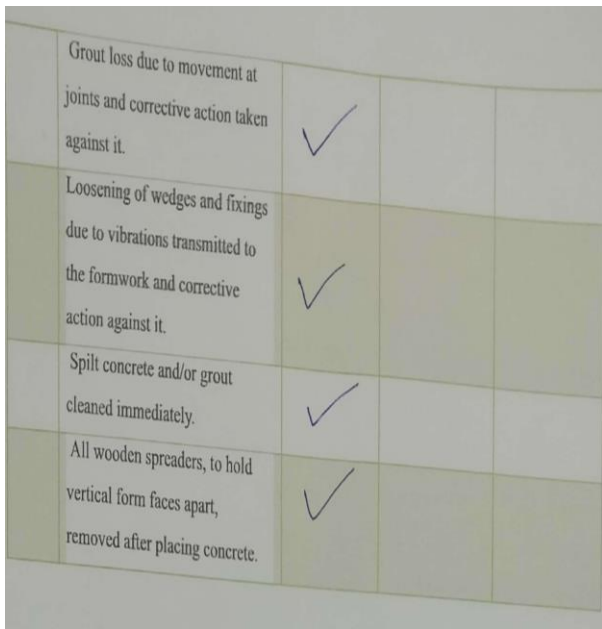
CHECKLIST AS PER ISO 9000

2.3 Data analysis

The whole project work is scheduled in the MSP in the data analysis. The total time and cost for the project work is found in the project. In the first stage, the total project is as per planning. Then the worksheet is updated as per the work completed. For QA and QC, the planning is updated by taking various checklistsduring every execution work. The quality of the product or work is controlled by taking various checks and questionnaire surveys.

Fig. 3 Work Scheduling in MSP

Fig.4 Scheduling in MSP with quality aspects

2.4 Questionnaire Design

The questionnaire will divide into three sections. Section A requests basic information about the respondents. The respondents are requested to answer questionsabout the location of their company, the type of their organization, their position in the construction industry, their working experience in the construction industry and the primary type of projects. Section B of the questionnaire asks about the importance of the QA QC implementation. Section C asks about the impacts of poor QA QC implementation. The survey questionnaire is designed with two options: an online survey and a hard copy to ease the respondents to answer the survey. Moreover, the online survey will save the respondents time, and thus they will be less reluctant to participate in this survey questionnaire.
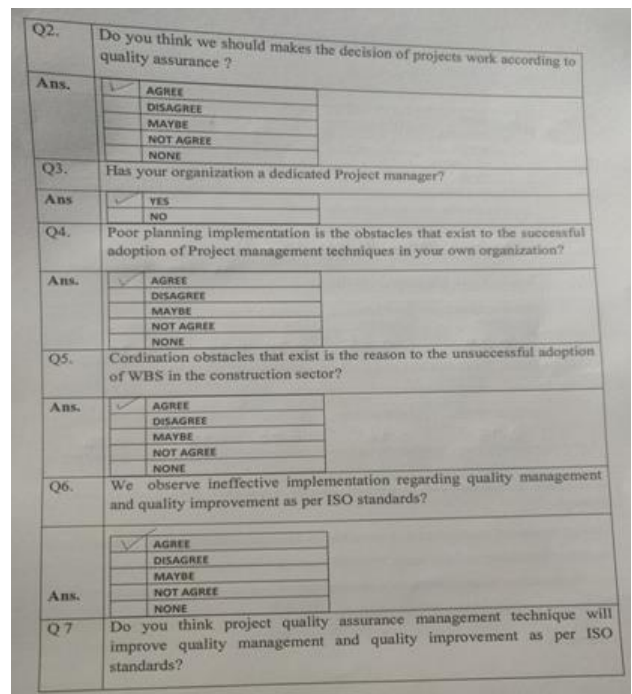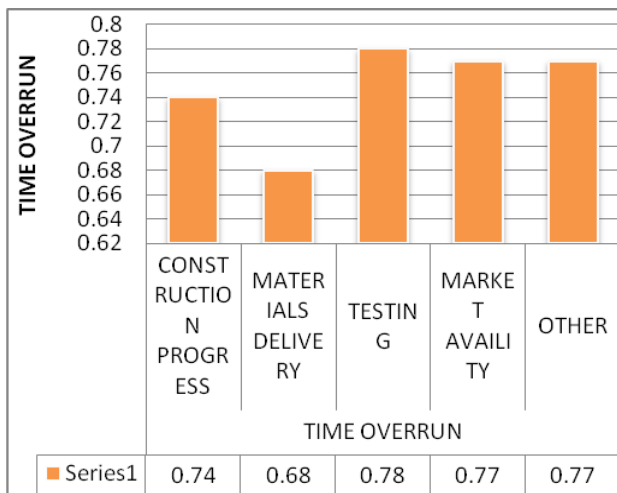
Questioners design as per work

III. RESULTS AND CONCLUSION

TIME OVERRUN
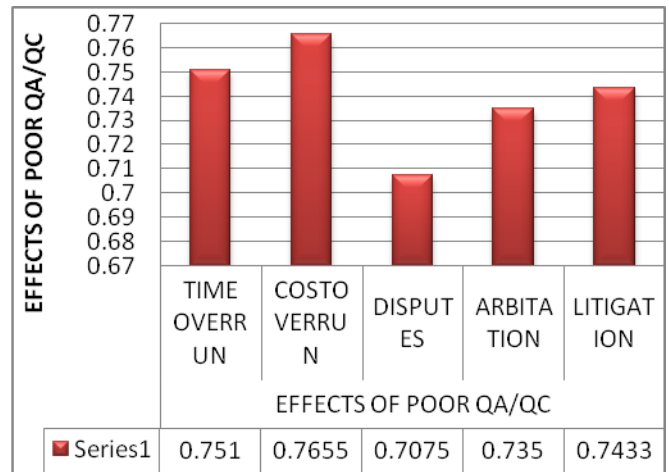
EFFECT OF POOR QA/QC

The above graphs show that construction Quality Assurance and Quality Controlare important to make the company preferable. If we don't implement Quality Assurance and Quality Control in our project, it simultaneously affects the duration of the construction time and construction cost.

CONCLUSION

In this paper implementation of quality control and quality assurance as per ISO 9000 is studied. The sample checklist is prepared per code, and its effective implementation is studied through observations and questionnaires.

Implementation of the quality control checklist is done per IS 9000 in the current schedule—implementation of quality assurance and quality control in the present case study. After analysis of the questionnaires survey,the time overrun isa major factor affecting QA and QC.

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