

Construction Quality Auditing

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Abstract -

Construction quality is one of the most important factors during the construction projects; and in that auditing also plays very vital role to maintaining the quality of the projects during their various parameters. This study highlights the factors affecting on construction quality. A questionnaire was used to gather the relevant data from members of Kolhapur's residential projects builders. In that involves 72 factors divided into four categories which are Engineering group, Contractor Group, Quality Control Group, Customer satisfaction group. The Relative Importance Index (R.I.I.) was determined and the factors were ranked. The top factors mainly affecting to the construction quality that are to be described. Recommendations have been made in the study of address these factors.

Key Words: Construction, Quality, Auditing

1. INTRODUCTION

In construction projects quality is very major part for client as well as customer also, because almost all customers giving priority at the time of selection of their homes that in how much manner the builder will gives specifications of project, their quality and the way in which superior material is to be used in the projects, in that case customer will also accept for giving more money to the builder for having the amenities. Through the auditing is to be conducted almost 3 to 4 times in the year, either by internally or externally auditors, so due to that all help to maintain the all specification at site, and also helping for maintain safety requirements which are helpful to customers also.

1.1 Factors affecting to the Construction Quality

In this paper total seventy two factors are to be identified by the literature survey, which are to be affected construction quality are classified under the four primary groups that are 1) Engineering group 2) contractor group 3) Quality control Department and 4) Customer group. In the **Engineering group** consist of the following factors which are affected to the construction quality: 01) Quality of Material, 2) Material Variance, 3) Material Re-use 4) Test samples results 5) Structural Design 6) Mix Design

02) Contractor group having 01) skilful labour, 02) well working equipments, 03) Proper sequence of work 4) Drawing plans

03) Quality Control Department consist of the factors which are mentioned as 01) Technical knowledge to Quality Control Department group 02) mortar proportion used at site project, 03) Brand of Material, 4) Material Inspection at site, 5) All material test results, 06) Checklist filling before work starts 07) Rework

04) Customer satisfaction group consist of the factors are 01) Natural ventilations, 02) Natural Lighting, 3) Slopes of toilets, terraces, kitchen platforms, 4) Parking area space, 5) water availability 05) Fire fighting and solar system.

2) METHODOLOGY:

The questionnaire survey was carried out in the various construction projects. The total 26 samples were taken from Kolhapur city, on which 16 samples values cost of more than 10 cores, and the 10 samples are to be taken which having cost of less than ten cores. In that samples four groups were created which are Engineering group, then Contractor Group, 03) Quality control Department Group and 4) Customer satisfaction group. For the analysing data the Relative Importance Technique (R.I.I.) used.

03) QUESTIONNAIRE DESIGN: In that design of questionnaire is very simple and under stable for respondents. The advantage is in smaller timing getting more accuracy in final outcome. Factors affecting the construction quality were identified through the literature survey. The questionnaire required the respondents to rank factors affecting construction quality with the scale of rating 01) represents very low effect 02) represents low effect 03) represents medium effect 04) high effects, 05) very high effects

04)Data Analysis

During the questionnaire survey 26 construction projects have the respondents. The Relative Importance Index (R.I.I.) was used to decide various professionals’ opinions of the R.I.I. in the construction projects.R.I.I. Is calculated as stated below:

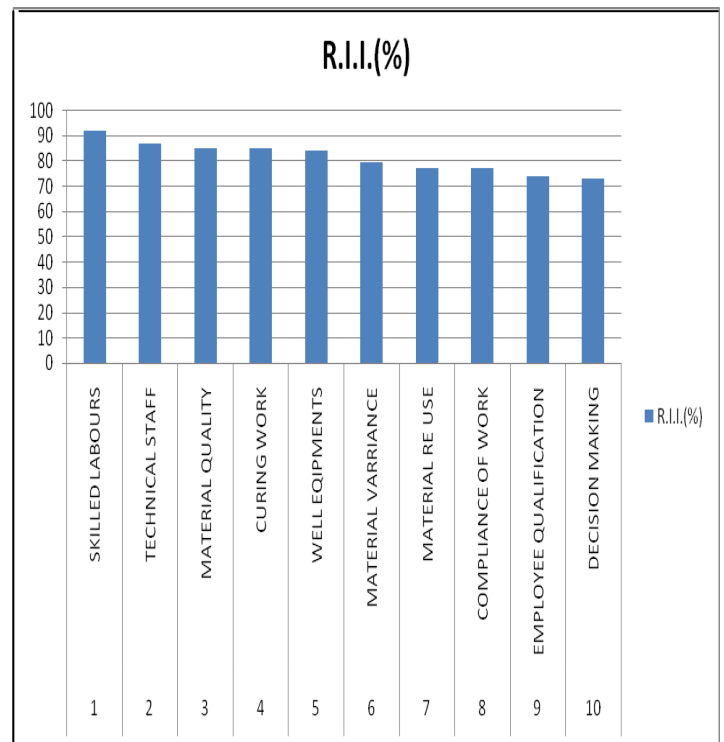
$$R.I.I(\%) = \frac{5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1}{5(n_1 + n_2 + n_3 + n_4 + n_5)}$$

The five point scale ranging from 01 which is less effective to 05 is highly effective and it is transformed to relative importance indices (R.I.I.)for each factor as follows:
 n1=number of respondents who selected factor for very low effect
 n2=number of respondents who selected factor for low effect
 n3=number of respondents who selected factor for medium
 n4=number of respondents who selected factor for high effect
 n5=number of respondents who selected factor for very high effect

05. Results:

RANK	FACTORS	R.I.I.(%)
01	SKILLED LABOURS	92.35
02	TECHNICAL STAFF	87.25
03	MATERIAL QUALITY	85.38
04	CURING WORK	85.28
05	WELL EQUIPMENTS	84.35
06	MATERIAL	79.52

	VARRIANCE	
07	MATERIAL RE USE	77.46
08	COMPLIANCE OF WORK	77.09
09	EMPLOYEE QUALIFICATION	74.03
10	DECISION MAKING	73.25



06)Conclusion:

01)The skilled labour ranked 1st among the 72 factors having R.I.I. value is 92.35%.It is very important factor in construction quality, due to that quality is not achieved.
 02) Technical staff which is present at working place is to be ranked 2nd among 72 factors having R.I.I. value is 87.25%. With the help of the knowledge and experience quality of construction is to be improved as well as maintained.
 03) Material Quality factor ranked 3rd among 72 factors at which R.I.I. value is 85.38%.The way at which builder select as per their

specification of project material quality is very important factor at which without good material quality of project not achieved.

04) Curing work is the foundation of the maintain the quality of project which is 4th factor among 72 factors having R.I.I. value is 85.28%, without curing R.C.C,Brick Masonary,Internal and External work,Florrying work ,P.C.C.work not achieved.

05) Well equipments is the 5th factor among 72 factors having R.I.I. value is 84.35%, if on site well equipments like weighbatchour, cutting machine for shuttering as well as flooring, welding and grinding machine for fabrication work .

06) Material variance is the 6th factors among 72 factors having R.I.I. value is 79.52%,if there will difference of quality between two batches of material in flooring tiles,paints, any specified material then there is ultimate result on their quality of project.

07) Material Reuse is the 7th factor among 72 factors having R.I.I. Value is 77.6%, re use material like shuttering used in R.C.C. work that used min.two or three times due to that quality may affected

08) Compliance of work is the 8th factor among 72 factors at which the R.I.I. value is 77.09%,the quality control team shows some changes in the work for improving quality that will immediately rectified and compliance by execution team.

09) Employee qualification is the 9th factor among 72 factor at which having R.I.I.value is 74.03%, if employee not qualified perfectly then having good material and good skilful labours on site the working quality is not to be improved.

10) Decision making is the 10th factor among 72 factors at which R.I.I. value is 73.25%,if any steps quality goes wrong immegiately decision will takes place, due to that helps in improving quality.

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