A STUDY ON SAFETY AND QUALITY ISSUES IN CONSTRUCTION INDUSTRY

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Abstract— Quality and safety are two important issues in the construction industry. The industry not only looks for good quality buildings but is also keen to promote a safe working environment on construction sites. Quality management systems (QMS) as well as safety management systems (SMS) are already in place in many countries where quality and safety issues are dealt with respectively. Unfortunately, both systems are frequently considered separately. Although dramatic improvements have taken place in recent decades, the safety record in the construction industry continues to be one of the poorest. Research shows that the major causes of accidents are related to the unique nature of the industry, human behavior, difficult work site conditions, and poor safety management, which result in unsafe work methods, equipment and procedures. Quality is one of the critical factors in the success of construction projects. Although quality management at every stage of project life cycle is important but the quality management at the execution (construction) stage contributes significantly on final quality outcome of construction projects. This project mainly focuses the importance and factors that affects the safety management and quality management in the execution (construction) phase. The project also includes visiting of some construction companies and conducts the questionnaire survey, then analyzes the difficulties (major factors) and the cost variance due to safety and quality defects in safety and quality management and suggests some proactive measures for the improvement of safety and quality in the execution phase of construction projects.

Index Terms—Quality, Safety, Construction industry, QMS.

I. INTRODUCTION

A. CONSTANT AND PERVERSIVE

Both quality and safety relate to the successful performance of the job and pervade the entire process from design to estimating to contract negotiation and throughout the construction process. Both quality and safety require constant vigilance and effort; everyone, including subcontractors, must participate in the effort. Another similarity in scope is that while many of the results are dear at the end of a project, both quality and safety have long term implications. Quality problems and chronic health problems may be discovered years after the project is completed.

B. SCOPE OF STUDY

Safety management in the construction industry helps to identify the risks and reducing accidents to improve site productivity and project. While in quality management it helps to produce good quality products to work in the construction industry. Sometimes quality products control the accidents in construction site. In this project it explains about the safety and quality issues in construction industry and how to rectify from the accidents and to produce good quality products. This project proposes to investigate the adoption and implementation of QMS and SMS in the construction industry and develop a “measurement methodology” of construction processes for customer satisfaction and continuous improvement. The main concept of this project will be to identify “what” processes can be measured and “how” to measure them. To identify the above objectives literature search and questionnaires will be used. For the local construction industry, this project helps to use of safety measures in construction industry and use of good quality products and produce good infrastructure for the buildings. The questionnaire will be prepared by SURVEY MONKEY software so that we can compare the companies very easily.

C. METHODOLOGY

From the literature survey it had been learnt concluded there are many issues about safety and quality in construction industry. Due to time constraint for the project, the descriptive survey method is to be adopted, whereas other methods may take long duration. Several methods for collecting information from the industry were evaluated from various literatures. The following steps are carried out in the project. These are

1. After title conformation relevant literatures were collected.
2. From the literature the problem and issues were identified.
3. Framing the questionnaires based on the analysis from the various people of construction industry, literature review.
4. Group the companies based on the methodology
5. Conduct the questionnaire survey in predefined companies
6. Find out the factors that affects the quality of construction

II. RESULTS AND DISCUSSION

Sites are visited to perform questionnaire survey. Usually; a questionnaire consists of a number of questions that the respondent has to answer in a set format. While questionnaires are inexpensive, quick, and easy to analyze. The main aim of this survey is to find out factors affecting the
project in terms of quality and safety. Survey was actually conducted in newly constructed buildings. Survey was conducted to engineers and labours.

III. DATA ANALYSIS

**Is there any kind of quality problem due to manpower in site?**

- Yes: 22.08% (8)
- No: 32.08% (8)
- Sometimes: 30.08% (9)

Total: 25

**Does the column marking affect the quality?**

- Yes: 68.99% (12)
- No: 26.00% (4)
- Sometimes: 1.00% (1)

Total: 25

**Does the improper cover block placement affect the quality of columns?**

- Yes: 76.00% (15)
- No: 18.99% (4)
- Sometimes: 5.00% (1)

Total: 25

**Does the mortar proportion affect the quality?**

- Yes: 54.47% (13)
- No: 28.90% (8)
- Sometimes: 15.00% (4)

Total: 25

**Does the starter course lying is affect the quality of block work?**

- Yes: 62.00% (13)
- No: 28.90% (7)
- Sometimes: 15.00% (3)

Total: 25

**Does the reinforcement is not providing as per reference drawing?**

- Yes: 96.00% (11)
- No: 4.00% (1)
- Sometimes: 8.00% (1)

Total: 25
### High accident rates on construction site are due to

<table>
<thead>
<tr>
<th>Lack of legislation</th>
<th>Lack of safety knowledge</th>
<th>High staff turnover</th>
<th>Careless worker attitude</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>30%</td>
<td>20%</td>
<td>20%</td>
<td>10%</td>
</tr>
</tbody>
</table>

**Total Respondents:** 26

### What do you think are the three things that could help improve safety in the workplace?

<table>
<thead>
<tr>
<th>The common cause of the...</th>
<th>The Safety Executive</th>
<th>The Safet Executive...</th>
<th>Reasons should be...</th>
<th>Transgression of...</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>10%</td>
<td>20%</td>
<td>50%</td>
<td>10%</td>
</tr>
</tbody>
</table>

**Total Respondents:** 26

### Do you have a program for regular training regarding Safety (e.g. Induction, Training)?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>15%</td>
<td>85%</td>
</tr>
</tbody>
</table>

**Total Respondents:** 26
IV. CONCLUSION

The result of this thesis will expose the main factors which affect the construction safety and quality and also increase in cost of construction due to safety and quality defect. This study will create the quality and safety management awareness to all level construction companies especially small scale companies. From this thesis we get the major factors and issues which affects the construction safety and quality and that create a chance for find out the remedial measure. This thesis is useful for minimize the material wastage, workmanship wastage, time wastage and indirect cost. Then increase the customer satisfaction and company reputation.

REFERENCES

[5] Alistair Gibb; Sophie Hide; Roger Haslam; Diane Gyi; Trevor Pavitt; Sarah Atkinson & Roy Duff, construction tools and equipment – their influence on accident causality, 2005


