

Review Paper on Analysis of Causes and Impact of Defect in Building Construction

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Abstract— In countries like India, construction industry plays a significant part to develop the economy. But many time this construction industry is blamed for poor quality, delay in completion of work and losses gain during the project period. The rate of construction project accomplishment is weak because of the rapid increasing rate of major defects in building as a result of poor workmanship and poor quality materials which have been identified as the major cause of defects in the construction industry. Construction defects are very common and frequently arising in construction project, especially in the project which has poor workmanship, poor project management in the construction site. Construction defect can be known as major problem in the construction industry that could cause the value of building decreases. As the defect impact on time and cost overrun, identification of defect at early stage of construction makes easy to complete project in stipulated timing. This helps to avoid or minimize defect in future work. Numerous analytical or statistical methods are available for analyzing impacts and selection of proper method depends upon: statistical data, time limitation of method. This information further helps to fix responsibilities, penalties on various parties involved in construction. This data is also required for suggesting different selection of remedial measures for improving useful life of structure. The purpose of this study is to review various symptoms & causes of construction defects occurring in construction project. Identify the defect through questionnaire survey, interviews, also study the causes of defect of construction and impact of defect in construction project. finally in giving the conclusion, recommendation of defect in building construction.

Key words: Building Defects

I. INTRODUCTION

Construction defects are always the key concern of the construction industry. Different constructed facilities generate different types of defects and demands different levels and types of quality depending on the function, system, types and material used. Various systems have been designed to eliminate defects during construction operation. Defect cost is defined as the value of resource expenditure for rework. Various factors are measured like rework time, materials and equipments to correct the defects. Time is lost in waiting as a consequence of defects. Defective building construction not only contributes to the final cost of the product but also to the cost of maintenance which can be considerable. The cost is calculated irrespective of who is going to pay. Defective construction may lead to complete failure of structure. The construction industry all around the world is getting modern, advance and growing day by day with the help of information technology age. Defects can affect success of construction project significantly. More

specifically, it has major impact on construction cost, construction time, and productivity and sustainability aspects also on customer satisfaction. Building defect is one of the major components of building problems that needs significant attention has divided defects in three categories:

II. LITERATURE REVIEW

A. *A Study of Contribution Factors to Building Failures and Defects in Construction Industry (2011)*

“Ahzahar, N. Karim” the author discussed Failures and defects are general phenomena in construction industry. Negative impacts may occur towards cost, duration and resources of project. Failures and defects can cause needless expenditure and delays. The aim was to identify contribution factors to building defect and failures, which frequently take place in construction project especially in Penang area in order to minimize time and cost involved. The data is collectively from questionnaire from various players in construction industry. This study is succeeds in identifying the common contribution factors of structural defects and failures in construction project.

B. *A Case Study on Moisture Problems and Building Defects August 2014*

“Nur Liyana Othman” in this paper the author identified the study moisture problems. That the flat roof leaky due to waterproofing that was not applied properly by the contractor, Waterproofing function is to preserve a structure of building through accepting of natural forces and their effect during life-cycle besides that added that the chosen of wrong type of tiles and failure to follow the standard roof gradient resulted in water leakage. In Malaysia, the problems of leakage at buildings are always happen due to tropical condition, improper design and poor workmanship.

C. *Study of Some Common Maintenance Problems and Building Defects: Our Experiences*

“Ahmad Suffiana” in this paper author shows how to gain an insight into the causal predictors of defect for civil infrastructure projects, the views of contractor, site engineers, project managers etc were collected using data obtained from recent completed project. The finding of the paper was that, after the regression analysis the regression model revealed that the five significant predictors resulted for 25% variance in total cost as 1. Ineffective use of information technologies 2. Excessive client involvement. 3. Lack of clearly defined working procedures. 4. Changes made at request of client. 5. Insufficient changes initiated by contractor to improve quality.

D. *Review paper on building construction defect 2015*

“Miss. Neha.V.Bagdiya” the author said that highlights the underlying the acts of causing defect in civil project.

According to author the theoretical studies available about the defect are limited and therefore theoretical concepts related to causation of defect needs to be future research so that this may increase the skill to find the solution of the problems that are arising in construction project.

E. Appraisal of Building Defects Due To Poor Workmanship in Public Building Projects 2013)

“A. A. Shittu, A. D. Adamu in this paper the author reached on the final conclusion the workmanship is vital for reducing the insitu defect. For increasing the quality of workers training is the needed so proper training should be organized with help of institutes. Author highlighted a point that sometimes successful workers is result of experience supervisors rather than the numbers of supervisor. Some points such as responsibility of supervisors, importance of quality supervision and trainings are mentioned in paper.

F. Study of Errors, Defects and Safety Control at Construction Stage ICIE 2017

“A.Kh. Baiburin” the author identified that the paper concluded that the roots causes of rework are categorized into different groups such client related causes, design related causes, contractor related causes, site management and sub-contractor factors. Lack of communication between the parties involves also results into rework. Rework occurrence increases the project cost budget and total time period for completion. The impacts of reworks mentioned in the paper are cost overrun, time overrun, client dissatisfaction and quality degradation.

III. CONCLUSION

From review studied the paper concludes that the defect hamper the performance of the construction project which results in quality degradation , extension in project completion period and increase in budget .A proper check mechanism should be followed after every activity for checking defect. Supervision during the onsite construction helps in reducing defect. For good quality supervision program should be arrange for supervisors. Creating awareness and use of systematic management helps in reducing the defect.

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