Journal of Advances in Science and Technology
Vol. 19, Issue No. 1, March-2022, ISSN 2230-9659

Implementation of Effective Quality Control System in Highway Construction by Reiteration of Checklist (A Review Paper)

Mr. Dinesh Kadam*

PG Scholar, PVPIT Bavadhan, Pune

Abstract – The primary goal of the construction business is to accomplish projects on time, within budget, and with the highest possible quality while utilising the least amount of resources. Implementing a Quality Control System (QCS) in the construction sector aims to help the industry boost the management system's efficiency and effectiveness, which should lead to better business outcomes. An increasingly competitive global economy necessitates the formulation of effective international business strategies, which can only be achieved via the deployment of a Quality Control System (QCS). But the main problem with quality control system implementation in construction industry is that the check parameter is not easy to understand for employees.

The quality parameters should easy to understand specially checklists should be easy to understand and easy for implementation in this study is carried out to analyze the scenario of Quality Control System application, to identify factors affecting the construction organization and to issue recommendations on how to improve the implementation of Quality Control System in Construction Industry.

The growth in infrastructure increases in our country which leads the construction of new roads Pavement Quality Concrete (PQC) is one most the key elements in this Initially the checklists are observed from different site the defects will identify in check lists and suggest new checklists for each items of construction. This study also examines root causes of plastic shrinkage cracks to Six Sigma Problem solving approach by taking suitable case study by taking suitable case study modify checklists are implemented by applications of six sigma principles.

Keywords – Construction Industry, Quality Control System, Checklist

----------X----------

INTRODUCTION

Quality Control is checking for conformance materials specifications and methods of construction or workmanship. Control on the correct plan interpretation, proper engineering construction methodology, and strict compliance of the standard specifications. Includes all procedures, which are necessary to insure that the materials used, and workmanship employed conform to the standard of quality specified. Instituted during the course of construction as a preventive tool, not as a corrective measure. Preventive measures are always more economical. A technique that ensures to fulfill the requirements for quality in any operational procedures. A process that is done to eliminate causes of unsatisfactory performance of the works

LITERATURE REVIEW

Ahmad Huzaimi (2016), The Integration of Construction The authors discover that a systematic approach to improving waste reduction through the simultaneous application of Sustainable Construction (SC) and Lean Construction (LC) principles and practises is achievable, resulting in both beneficial environmental and economic consequences. Organizations are still having trouble properly integrating both concepts and practises, according to the paper, despite the fact that they are potential of yielding considerable environmental and economic advantages. Paper In many nations, the building sector has struggled to incorporate and integrate both approaches, according to this conclusion. For that reason, this research attempts to create the framework by analysing many elements of SC and LC, where the theoretical and practical findings offered a platform for merging the

two projects to achieve effective use of important resources.

Ahmed S. Agha (2016)." Total Quality Management In Construction Industry Author finds that total quality management (TQM) is a management philosophy which has been widely implemented in the manufacturing and other services industries, and it shows how significant it can improve the quality in these fields. Further it is stated few articles and studies attempted to bring the benefits of this philosophy to construction industry. The findings of this paper is to point out the latest studies which focused on increase the business quality through implementing TQM in construction industry and its suitable applications in the different phases of project construction.

M.S. Abd-Elwahed (2018)." ***Impact of Implementation of Total Quality Management*** Quality management tools are examined in Saudi Arabian industry in order to see how well they are known, understood, and implemented, as well as to keep tabs on different policies for putting them into action, as well as the degree to which they are integrated into overall industrial management systems. Quality management (QM) methodologies and tools were examined by the author in the form of a questionnaire that was administered to participants. The influence of the executive management technique and its compatibility with the correct deployment of quality instruments on the degree of real growth of industrial organisations are both proved. It is clear from the study's findings that industrial organisations participating in the survey continue to employ a variety of QM techniques and policies. The level of understanding and execution of Quality Management (QM) methods and procedures also varies.

Maha Alkasisbeh (2018)." Implementation of Six Sigma Tools Building projects in Amman are plagued with excavation collapse, a defective waterproofing system at the roof, a poor drainage system, and a lack of ventilation, which account for 52.2 percent of all issues. Pareto analysis and cause-effect diagrams have been around for a long time, but the study has showed how to utilise these easy Six Sigma techniques to uncover the fundamental causes of a problem and allocate resources to eradicate such issues. The findings of this paper have the potential to spark an important discussion on Six Sigma research and implementation in the construction sector of developing countries, which might substantially benefit from higher project quality.

Sarathkumar (2016)" Evaluation of Six Sigma Concepts Paper concludes that six sigma is a novel concept in the construction industry, and that its goal is to eliminate building faults. The purpose of this research is to assess Six Sigma as a method of process improvement in the construction industry. Construction process improvement requires an in-depth knowledge of the elements that influence construction and an analysis of the aspects that may be improved. Authors Propose implementing the DMAIC process to enhance the quality of a building's painting, tiling, and brickwork. Corrective action plans for the problem were carried out in accordance with the Six Sigma philosophy. The author of the questionnaire meets all of the requirements for the final stage of building project control plans. Site Engineers, Contractors, Consultants, and Project Managers filled out questionnaires. The acquired data was then examined with SPSS software. Researchers conclude that implementing Six Sigma in a construction environment will reduce faults, which is the study's ultimate goal.

Savita Sangle (2017) Total quality Management in Construction Industry In a case study of a residential construction, the author employed the DMAIC concept to apply seven quality control measures. This is what the paper said Using six sigma approaches, the quality of the product has been improved. Research shows that effective training and management support and modest adjustments in present work procedures may assist enhance the quality and ultimately customer happiness, which is of paramount value to the organisation.

Sneha P. Sawant, (2014),Applying Six Sigma Principles In the industrial and other industries, six Sigma is a quality improvement approach that has been applied. The building business has never heard of six sigma. Basic ideas, approach, and different tools were explained in a paper. The Six Sigma technique has been employed to increase quality and is verified against the sigma level in a case study of a residential building where the concepts of Six Sigma are being applied for internal finishing work. Quality and customer happiness are of the utmost importance, thus good training and management assistance and modest adjustments in the present work routine can help.

CONCLUDING REMARK:

As a result, it is concluded that checklists should not only be employed as theoretical concepts, but also put into reality on building sites for quality control in order to obtain their advantages in terms of customer happiness, economy, time factor, and so on.

To ensure that the cast-in-place concrete process for PQC is executed effectively, the difficulties that have been highlighted in the literature and the contractor survey must be addressed on a thorough, integrative basis. For example, a checklist can improve the quality of the project's implementation and minimise time and costs by improving the quality of the construction team's work and the

client's happiness, therefore increasing the project's performance.

REFERENCES

Ahmad Huzaimi Abd Jamila,b,, Mohamad Syazli Fathia (2016*)," The Integration of Lean Construction and Sustainable Construction*: A Stakeholder Perspective in Analyzing Sustainable Lean Construction Strategies in Malaysia" Science Direct 100 (2016) pp. 634 – 643

Ahmed S. Agha (2016*)." Total Quality Management In Construction Industry".* International Journal of Scientific & Engineering Research, Volume 7, Issue 4, April-2016

M.S. Abd-Elwahed & M.A. El-Baz (2018)." *Impact of Implementation of Total Quality Management an Assessment of Saudi Industry"* South African Journal of Industrial Engineering May 2018 Vol 29(1), pp. 97-107

Maha Alkasisbeh (2018)." Implementation of Six Sigma Tools in Building Construction", Proceedings of the International Conference on Industrial Engineering and Operations Management Paris, France, July 26-27, 2018

Sarathkumar K, Loganathan R (2016)" *Evaluation of Six Sigma Concepts in Construction Industry"*, International Journal of Scientific & Engineering Research, Volume 7, Issue 4, April-2016

Savita Sangle M.C. Aher, R.V. Devalkar (2017) *Total quality Management in Construction Industry*" International Journal of Technical Research and Applications e-ISSN: 2320-8163, www.ijtra.com Volume 5, Issue 3 (May-June 2017), pp. 111-115

Sneha P. Sawant, Smita V. Pataskar (2014)," *Applying Six Sigma Principles in Construction Industry for Quality Improvement"* Advances In Engineering And Technology - ICAET-2014 Copyright © Institute of Research Engineers and Doctors.

Tapan Vora, 2014, *Journey from six sigma to Lean Six Sigma,* International journal of Modern engineering research, Vol. 4, Issue 2.

Hamad M.A, 2014, *How to reduce waste on industries by using Lean sigma tool,* International journal of Scientific Engineering research, Vol. 5, Issue 8, pp. 442-445.

Elliot Boldt, 2013, *Total Sustainability assessments for Manufacturing operations through Six Sigma,* Science Journal of Environmental Engineering Research, Vol. 2013 pp. 1-6

Mamatha K, 2014, *Application of Six sigma methodology to reduce rework at earth moving Equipment,* International journal of Engineering science and Technology, Vol.6, pp. 417-422.

Prabir K B, 2011,*Using Six Sigma in Adopting Business excellence Model*, International Journal of Business and Management, Vol .6 pp. 273-277.

Uddin S.M, 2014, *Minimization of defects in sewing section of Garment factory through DMAIC,* Research Journal of Engineering sciences, Vol .3, pp. 22-25.

Corresponding Author

Mr. Dinesh Kadam*

PG Scholar, PVPIT Bavadhan, Pune