iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 **Issue:** VI **Month of publication:** June 2018

DOI: http://doi.org/10.22214/ijraset.2018.6013

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 6 Issue VI, June 2018- Available at www.ijraset.com

Effectiveness of 5s Implementation in Lean Construction (Commercial Building Construction Project)

Aman Hiwale[1], Amol Wagh[2], Vinay Waghmare[3], Devendra Khairnar[4], Sanjit Champanerkar[5], Pravin Mane[6]
[1.2.3.4.5]*Student, Dept. of Civil Engineering, DYPIEMR, Akurdi, Pune, Maharashtra, India*
[6]*Assistant Professor, Dept. of Civil Engineering, DYPIEMR, Akurdi, Pune, Maharashtra, India*

Abstract: ***5s is an essential establishment of lean assembling frameworks. It is a tool for cleaning, arranging, sorting out and giving the vital basis to work piece quality enhancement. This paper managed the execution of 5s approach in the little scale industry. By following the 5s philosophy, it demonstrates noteworthy changes to wellbeing, profitability, effectiveness, and housekeeping. The enhancements when 5s usage is appeared by pictures in the paper. It additionally means to fabricate a more grounded hard-working attitude inside the administration and specialists who might be relied upon to proceed with the great practices. Esteem stream mapping is utilized first to guide the present state used to distinguish wellsprings of waste and to recognize lean instruments to wipe out this waste. VSM is a pencil and paper representation instrument that demonstrates the stream of material and data as an item advances through the esteem stream. VSM fills in as a beginning stage to encourage administration, specialists, providers, and clients perceive waste and its sources.***
Keywords: 5s Tools, Value Stream Mapping, Improve waste management, Productivity, Time saving.

I. INTRODUCTION

Current management in the organization isn't just the quality management framework in light of the ISO arrangement 9000:2000 norms, however interest to the continuous change, so this is the reasoning of the Total Quality Management. In the casings of usage of the Total Quality Management on the working level increasingly prevalent turns into the possibility of alleged 5S.
The 5S strategy starts each program of change. The 5S is the system of creation and keeping up efficient, perfect, highly successful and excellent working environment. Its outcome is the successful association of the work environment, lessening of work's condition, disposal of misfortunes associated with disappointments and breaks, change of the quality and security of work. 5s is the list of five Japanese words: seiri, seiton, seiso, seiketsu and shitsuke. 5s is a workplace organization technique. It helps create and maintain the efficiency and effectiveness of a work area. It helps in increase in productivity.The 5S Tools was developed in Japan. The 5S consist of five Japanese words of following meanings:

A. Seiri (Sort)

Sort implies that isolate all things from the working environment that are not required and required for current creation.

B. Seiton (set in order)

Set in order means arrange items, so they are easy to use, and labeling them, so they are easy to find.

C. Seiso (shine)

Shine implies cleaning for review. Daily cleaning and assessment to comprehend work conditions.

D. Seiketsu(Standardize)

Standardization happens when the initial three 5s is legitimately actualized and kept up. It implies creating standard strategies for consistency.

E. Shitsuke (sustain)

It is not a single separate activity. It is used to measure progress and plan for continuous improvement. Determine the 5s level of achievement. Analyze results of routine checks

©IJRASET: All Rights are Reserved

The rundown depicts how to arrange a function space for proficiency and adequacy by recognizing and putting away the things utilized, keeping up the territory and things, and maintaining the new request. The basic leadership process ordinarily originates from a discourse about standardization, which manufactures understanding among representatives of how they ought to take the necessary steps. In a few quarters, 5S has moved toward becoming 6S, the 6th component being safety. Other than a particular remain only strategy, 5S is as often as possible saw as a component of extensive build known as visual control, visual work environment, or visual industrial facility. Under those (and comparable) phrasings, Western organizations were applying fundamental ideas of 5S preceding distribution, in English, of the formal 5S system. Lean development is an "approach to outline creation frameworks to limit misuse of materials, time, and exertion aligning a specific end goal to produce the most extreme conceivable measure of significant worth." Esteem stream maps ought to mirror what happens instead of what should happen with the goal that open doors for development can be distinguished. Esteem Stream Mapping is regularly utilized as a part of process duration change ventures since it shows precisely how a procedure works with the itemized timing of well order exercises. It is additionally utilized for process investigation and change by recognizing and wiping out time spent on nonvalue-adding activities. The lean development began in the car business and had since been generally connected in discrete assembling. Be that as it may, expansions to the (semi-) process industry have been much slower. Organizations in a few businesses are executing lean practices to keep pace with the opposition and accomplish better outcomes. The primary reason for LM is to fulfill client needs on the most elevated conceivable level through the disposal of waste. A few wellsprings of waste are overproduction, defective items, sub-upgraded forms, pointless pausing, development or transportation, and overabundance stock. In plants utilizing lean assembling, extensive machines standard for cluster and-line forms (regularly alluded to as „monuments") are frequently never again lined up with lean work cells and are not required or wanted. Instead, little more flexible machines should compose of work cells devoted to the generation of a group of items. Laborers at that point work the machines in the cell to limit the process duration for a group of items, limit stock, and expand esteem. VSM is a movement change procedure to envision a whole generation process, speaking to data and material stream, to enhance the creation procedure by distinguishing waste and its sources.

Fig -1: 5S Activity Cycle

II. PROBLEM STATEMENT

A. The following Problems Occurred before Implementation of „5s" in the Organization

1) Improper utilization of storage space for raw material, bins, and finished products.
2) Wastage of valuable production time in searching the raw material due to the temporary location for storage for materials.
3) Less productivity due to the time wastage in searching for tools, materials due to poor workplace management.
4) Presence of unwanted materials at the workplace which affects the morale of the worker while working.
5) Useful storage space occupied by the unwanted materials.
6) More cost and time required for the inventory process of unwanted stored materials in raw material stores.
7) Not well-defined space for storing the unwanted or rejected material.

III. OBJECTIVE

1) To assess the level of knowledge on 5s tools among construction practitioners in the Indian construction industry.
2) To identify and prioritize barriers to successful implementation of 5s tools on commercial or any construction.
3) To study the concept of 5s tools and how can it be used in day to day life.

©IJRASET: All Rights are Reserved

4) The implementation of useful tools for creating an effective work environment without bothersome and useless influences.
5) To propose a framework that has the potential of minimizing materials waste through the implementation of 5s tools.
6) To observed proper practices & continuously improve them.

IV. ADVANTAGES

A. S: Seiri (sort)
1) Process improvement by costs reduction, stock decreasing
2) Better usage of the working are
3) Prevention of losing tools

B. S: Seiton (set in order)
1) Process improvement (increasing effectiveness and efficiency)
2) Shortening of the time of seeking necessary things
3) Safety improvement

C. 3S: Seiso (shine)
1) Maintenance the cleanness of devices
2) Maintenance and improvement of the machines Efficiency
3) Maintenance the clean workplace
4) Easy to check
5) Quick informing about damages (potential sources of Damages)
6) Improvement of the work environment
7) Elimination of the accidents' reasons

D. 4S: Seiketsu (standardize)
1) Safety increasing and reduction of the industry Pollution
2) Working out the procedures defining the course of Processes

E. S: Shitsuke (sustain)
1) Increasing the awareness and morale,
2) Decreasing of mistakes quantity resulting from the inattention
3) Proceedings according to decisions
4) Improvement of the internal communication processes

V. OBSERVATION TABLE

Sr. No	Time		Description of Work	Quantity of Work	Remark
	Start	End	PLASTERING		Floor no 2
1	09.00	11.30	Wall 1	10.28m^2	
2	11.50	12.20	Wall 2	2.51m^2	
3	12.20	01.00	Break		
4	01.00	02.26	Wall 3	5.78m^2	
5	02.30	03.52	Wall 4	3.71m^2	

Table I Before Implementation Of 5s

©IJRASET: All Rights are Reserved

Table Ii After Implementation Of 5s

Sr. No	Time		Description of Work	Quantity of Work	Remark
	Start	End	PLASTERING		Floor no 3
1	09.00	11.23	Wall 1	10.28m^2	
2	11.23	11.49	Wall 2	2.51m^2	
3	12.00	01.00	Break		
4	01.00	02.21	Wall 3	5.78m^2	
5	02.21	03.39	Wall 4	3.71m^2	

VI. CONCLUSION

This strategy is new in the civil industry. This system is effective than the existing methods that are by and by use in development part. Work examining result are demonstrating impressive figure as a contrast with standard day by day efficiency. This sort of circumstance can help perform proficient working. Chiefs can without much of a stretch distinguish helpfully and squandered beneficial time alongside the primary driver. Time-motion study to remove any kind of waste, and creation of overall better work environment for everyone through 5S.

VII. ACKNOWLEDGEMENT

We express our sincere thanks to Asst. Prof. Pravin Mane (DYPIEMR, AKURDI) for his kind attitude, invaluable guidance, valuable suggestion, keen interest, immense help, inspiration and encouragement which helped us carrying out our project work. We are extremely grateful to Prof Amruta Kulkarni (DYPIEMR, AKURDI) for providing all kind of possible help throughout the semester for the completion of this project work.

REFERENCES

[1] Sunil V. Desale, Dr. Sharad V. Deodhar. (MINIMISING WASTE IN CONSTRUCTION BY USING LEAN SIX SIGMA PRINCIPLES). International Journal of Civil Engineering and Technology (IJCIET), ISSN 0976 6308 (Print), ISSN 0976 – 6316(Online) Volume 4, Issue 5, September – October (2013), © IAEME

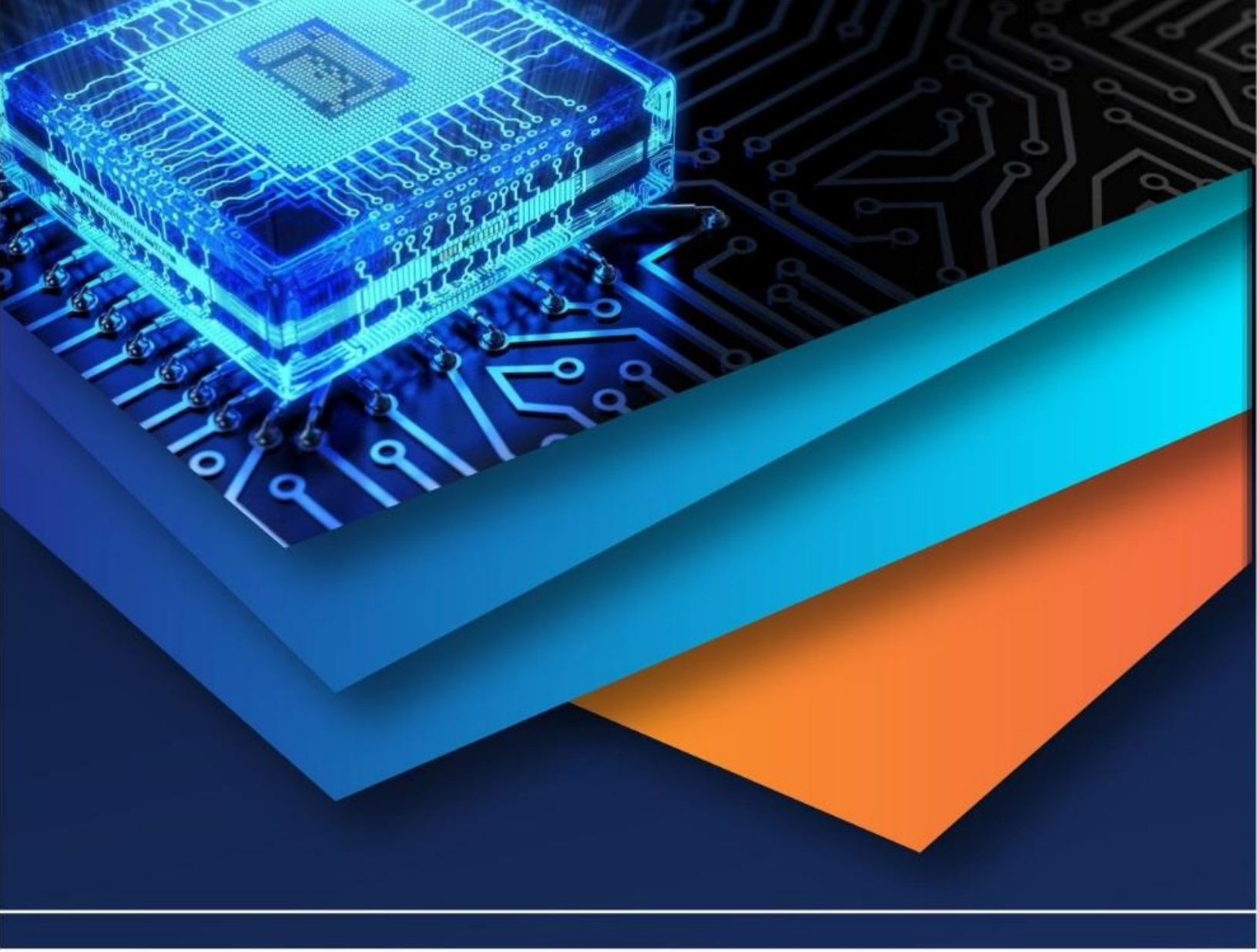
[2] Ranjit Patil, Sneha Sawant. (Review on 5s tools in lean construction). Vol-3 Issue-2 2017 IJARIIE-ISSN(O)-2395-43964629 www.ijariie.com 3540

[3] R. Ajaya, M.B. Sridharb. (INCORPORATION OF 5S METHODOLOGY IN CONSTRUCTION PRACTICES) Int. J. Chem. Sci.: 14(S1), 2016, 127-134ISSN 0972-768X www.sadgurupublications.com

[4] Shrestha, P., Yfantis, E. and Shrestha, K. (2011). "Construction safety visualization," University of Nevada, Las Vegas (UNLV),89154, U.S.A. U.S. Environmental Protection Agency, (2011): U. S. Environmental Protection Agency, 2011. "5S", http://www.epa.gov/lean/thinking/fives.htm, Last accessed date: October 2012.

[5] Sawacha E., Naoum S. and Fong D. (1999), "Factors affecting safety performance on construction sites," International Journal of Project Management, 17 (5) 309-315.

©IJRASET: All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)