

Implementation of 5 S Practices in Training Institute: A Case Study

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Abstract— 5S is implemented in training institute which is used to impart training to different professionals to enhance the operating and working skills. 5S is implemented in major areas of the institute as a pilot project. This research deals with implementation of 5S methodology in an institute, which is a training institute for power plant employees and trainee located in industrially developed region. The paper highlights about steps carried for implementation, initial review photographs before implementation, day wise plan, material required, standardization of 5S. The research document also shows before and after photographs, issues in implementation, benefits achieved and lessons learned from conducting case study, paper concludes with overall benefits and main points in 5S implementation.

Keywords— 5S, implementation, benefits, Lessons learned

I. INTRODUCTION

5S is work place organization method used by different industries i.e. manufacturing industry ,service industry and also other industries and institute. 5S is basically used to organize a workplace for efficiency and effectiveness by identifying and storing the item used, maintaining the area .5S was developed in Japan and was identified as one of the technique for proper workplace management. There is an acute competition for excellence everywhere around us. This competitive market requires 'better quality products and services at lowest price. Only those organizations which manage both quality and productivity on continuous basis would be in a position to compete output and increased productivity in the system would ensure result for the organization to stay in operation and service.

To stay competitive, we not only have to pay attention to what we are doing now, but also to what we plan or have to do tomorrow.

Modern industries call for high level of process accuracy, dust free atmosphere, proper maintenance, clean habits, proper training etc., for sharpening the skills in all of us, we have to learn continuously to manage the present and also plan the future. For this purpose, continuous efforts are required periodically year after year for creating a congenial environment in factory and thus create a healthy working atmosphere. The concept of 5 S techniques was originally

developed and implemented successfully in Japan. They have identified 5 steps in improving housekeeping in work place for higher quality & productivity. They are

- 1S – Seiri - Sorting out
- 2S – Seiton - Set In Order (Systematic Arrangement)
- 3S – Seiso - Shine (Spic & Span)
- 4S - Seiketsu - Standardization
- 5S – Shitsuke - Sustain (Self Discipline)

As all the five steps start with the letter “S” it has been termed as 5S techniques in short form.

The case study is carried out in a training institute unit located in industrially developed area, regarding implementing 5S as a pilot study project in training institute.

II. INTRODUCTION ABOUT THE INSTITUTE

The Institute is involved in the training and development of middle and senior level engineers, technicians & other staff. Training Center is committed to provide State Of Art training in Power Sector Technologies to meet the needs of the Power Professionals, Phenomenal growth having executed critical and challenging assignments.

III. WHY IMPLEMENTATION OF 5S?

The following problems identified before implementation of lean tool i.e.5S in the organization:

A. Office Premises:

1. Helmets are kept in disordered way and no standard place for Helmets.
2. No standard place for fire extinguishers
3. No standard place for Dustbins
4. No marking on stairs to ensure safety
5. Lack of Safety and Cleanliness posters

B. Conference Room, Auditorium and Classrooms

1. No standardized place for chairs
2. Lack of marking on floor
3. No identification of chairs, tables, writing tools and other instruments

4. Mixed chairs
5. No record of chairs
6. Chairs are found out here and there.
7. Missing coordination of Lights and Fans buttons
8. No particular place for Dustbin
9. Lack of Cleanliness and Energy saving posters

C. VIP Dining Hall, Kitchen and Common Dining Hall

1. No standardized place for chairs
2. Lack of safety posters
3. No identification of chairs
4. No record of chairs
5. Chairs are found out here and there.
6. Missing coordination of Lights and Fans buttons
7. No particular place for Dustbin
8. Lack of Cleanliness and Energy saving posters
9. No identification of wash.

IV. STEPS FOR IMPLEMENTATION

The following problems identified before implementation of lean tool i.e.5S in the organization:

A. 5S Team Formation

For implementation of 5S a team is formed with total 6 members are divided in three different areas, two members each are divided for three different areas for total 10 days of duration for implementation of 5S.

B. Review Photograph

After the formation of three different teams, the members take the photographs in their assigned areas to know the condition of area before implementation; these photographs are called as before photographs. The photographs are as follows.



Fig. 1. Position of Helmet



Fig. 2. Position of Helmet



Fig. 3. Position of Helmet



Fig. 4. Position of Tables & Chairs



Fig. 5. Computer wiring



Fig. 8. Record Keeping



Fig. 6. Record Keeping

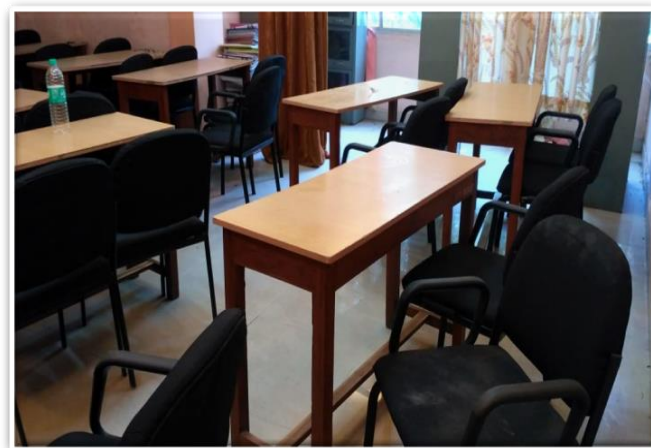


Fig. 9. Position of Tables & Chairs



Fig. 7. Record Keeping



Fig. 10. Tables & Chairs in Canteen



Fig. 11. Stairs



Fig. 12. Tables & Chairs

These are before photographs from which we will access the areas for improvements by using the 5S methodology. The photographs are studied and analyzed regarding different actions to be carried out in seven different important areas of the institute to improve overall workplace management.

C. Location (Decide areas to implement 5S):

After review photographs of all major areas of the plant, it is decided based on importance of areas that 5S is to be implemented in following in different areas:-

- 1- Office Premises
- 2 – Conference Room
- 3 – Auditorium
- 4 – VIP Dining Hall & Kitchen
- 5 – Class Rooms
- 6 – Common Dining Hall
- 7 - Record Room

These seven area covers about all the major portion of the institute and are important areas of the institute.

D. Day wise Planning (10Days):

First day: On the first day all the members are divided in three different groups, initial review photographs are taken of all the areas of the institute area. Then photographs are analyzed to know the planning for implementation of 5S in different areas.

Second day: for second day it was decided to divide the groups in seven different areas for further work, planning was done for implementation in their specific area, discussion is held with in charge and other people of the defined area.

Third day: for third it is decided to carry on 1 S activity i.e. Sorting of necessary and unnecessary things, decide red tag area for waste items.

Fourth day: on this day it was decided to carry on next 2S activity to keep the things at its place i.e. set in order.

Fifth day: on the fifth day 3S ,cleaning and inspection activity is carried out along with inspection.

Sixth day: on the sixth day it is planned to conduct standardization with respect to 5S.

Seventh day: Standardization works for 4S.

Eighth day: training for sustain of 5S, visual display boards to be prepared.

Ninth day: Plan to do photographs to assess changes after implementation, i.e., after photos.

Tenth day: To conduct program for sustaining 5S.

E. List of material required for 5S implementation:

For the effective implementation of 5S following material is used:

1. Line marking: Industrial floor tapes of three colors basically yellow, red and green (0.25” to 2” width), cross tapes for fire extinguisher and steps.
2. Shadow board /tool outlining
3. Sign board, banner posters
4. Red tags
5. Display for fire extinguishers.



Fig. 13. Materials Used

V. STANDARDIZATION

A. Labeling:

For visual management and identification of all items, furniture, and training items labeling is done. Similarly labeling was done in area, all the office equipment's, all tables' chairs, books and all the files.

B. Font size:

For all items font size range between 12-16 is used and for small equipment's font size between 10 to 16 was used depending on size of item.

C. Fire extinguisher:

First the location is marked with tapes i.e. cross tapes of yellow and black, on the beside the visual management boards are placed to easily usage of fire extinguisher.

D. Stair case:

Stair cases are marked with cross tapes and visual board to be kept for avoiding accidents during step-up or step-down.

VI. ISSUES IN IMPLEMENTATION

1. Resistance to access area for implementation.
2. Resistance of people for shifting of material.
3. Finalization of red tag area.
4. Maintaining store space as per requirement.
5. Cleaning of work area.
6. Maintaining safety rules.



Fig. 15. Before & After (AC & Chairs)



Fig. 16. Before & After (Tables & Chairs)



Fig. 14. Before & After (Positions of Helmet)





Fig. 17. Before & After (Conference Room)



Fig. 20. Before & After (Record Keeping)



Fig. 18. Before & After (Computer Wire Positioning)



Fig. 21. Before & After (Record Keeping)



Fig. 19. Before & After (Record Keeping)



Fig. 22. Before & After (Record Keeping)



Fig. 23. Before & After (Record Keeping)



Fig. 26. Before & After (Meeting Hall)



Fig. 24. Before & After (Conference Hall)



Fig. 27. Before & After (Meeting Hall)



Fig. 25. Before & After (Conference Hall)



Fig. 28. Before & After (Meeting Hall)



Fig. 29. Before & After (Dustbin & Matting)

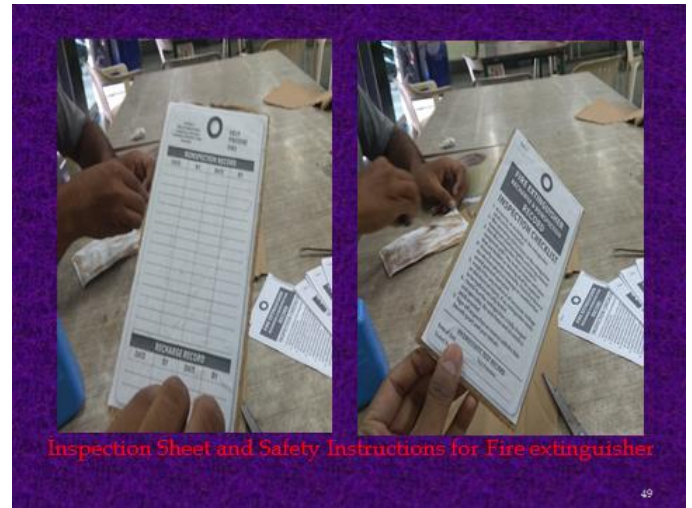
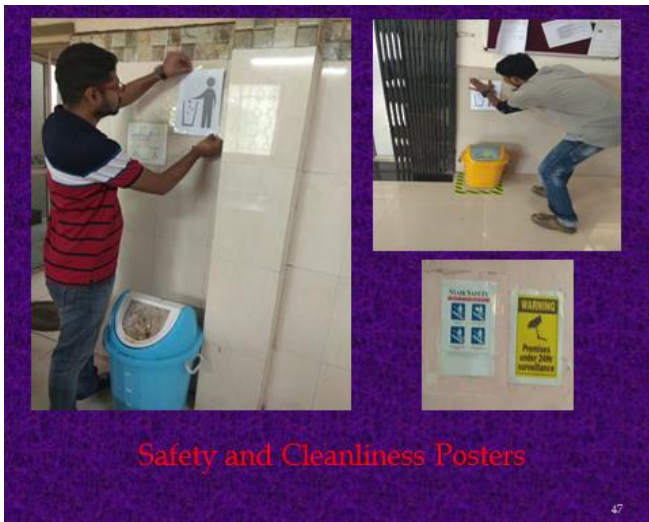


Fig. 32. Before & After (Fire Extinguisher Leaflet/information)



Safety and Cleanliness Posters

Fig. 30. Before & After (Washroom)



Fig. 33. Before & After (Cabin & Washroom)



Fig. 31. Before & After (Fire Extinguisher)



Fig. 34. Before & After (Canteen)



Fig. 35. Before & After (Library)



Fig. 36. Before & After (Canteen)



Fig. 37. Before & After (Canteen)

VII. BENEFITS ACHIEVED

1. Better workplace management
2. Increased Workplace Safety
3. Effective area utilization
4. Ambient atmosphere for working
5. Good ambience and cleanliness
6. Location and proper marking of items
7. Reduction in searching time for items.
8. File management and labeling.

We save our floor space, helps us to get rid of obsolete items and better utilization of existing material.

Easy access to the items and materials can be easily retrievable

Time taken to search can be minimized.

Clean areas and floors expose problems like e cracks / oil leakages fast and allow us immediate corrective action.

VIII. LESSONS LEARNED

1. Planning of 5S implementation.
2. Interaction with different people for implementation.
3. How to handle with difficulties occur during implementation.
4. Implementation of all 5S at different locations
5. Visual management activities.
6. Management of different task in company.

IX. CONCLUSION

The 5S is an effective management method to enhance environmental conditions and workplace management standards. 5S sort stage will help to reduce the wastage, after sorting space is increased for utilization, by set in order items location is fixed and they can easily assessed which save searching time, also other steps are implemented which improve overall working condition of institute. Results of 5S are seen in very short span of time, which makes employees self-discipline during working. For effective implementation and sustainability support from all the institute is must.

X. RECOMMENDATIONS FOR SUSTENANCE AND FURTHER IMPROVEMENT

1. Permanent marking and outlining of temporarily improved areas by 5S team
2. Red tag area is to be seen by management team and appropriate decision is to be taken
3. Similar job can be done in other areas to ensure productivity, safety and smooth running of company
4. Workers and staff should be trained to understand 5S methodology to sustain the productive change
5. Audits should be performed periodically to ensure better implementation
6. 5S posters, Safety posters, Cleanliness posters are to be pasted at proper place to aware the workers and employees

REFERENCES

- [1] Patel, V.P. and Thakkar, H. (2014), "Review of implementation of 5S in various organization", *Int.journal of engg. Research and application*, Vol.4 Iss:3 pp. 774-779.
- [2] Lingareddy, H., et al. (2013), "5S as a tool and strategy for improving workplace ", *Int. journal of advanced engg. technology*, Vol.4 Iss2 pp.28-30
- [3] Ghodrati, A., Zulkifi, N., (2012), "A review on 5S implementation in industrial and business organizations", *IOSR journal of Business and management*, Vol.5, Iss.3, pp.11-13.
- [4] Ghodrati, A., Zulkifi, N., (2013), "The impact of 5S implementation on industrial organizations performance", *Int. journal of business and management invention*, Vol.2, Iss.3, pp.43-49.
- [5] Khanna, V.K. (2009)., "5S and TQM status in Indian organization", *The TQM journal*, Vol.21, Iss.3pp.236-248.
- [6] Michalska, J., Szewieczek, D., (2007) "The 5S methodology as a tool for improving the organization", *AMME journal*, Vol.5, Iss.3pp.11-13.
- [7] Khamis, N., et al., (2009), "Development of 5S practice checklist for manufacturing industry", Vol.11, proceedings.
- [8] Ab Rahman, M.N., et al., Implementation of 5S Practices in the Manufacturing Companies: A Case Study. *American Journal of Applied Sciences*, 2010. 7(8): p. 1182-1189.
- [9] Ho, S.K.M., (1999), Japanese 5-S where TQM begins", *The TQM journal*, Vol.11, Iss.5pp.311-320
- [10] Ho, S.K.M., (2012), "Global sustainable development through the integrated lean management", *Nang Yan Business journal*, Vol.1.1, Iss.5pp.27-37
- [11] Warwood, S.J., (2004), "An investigation into Japanese 5S practice in U.K. Industry", *The TQM journal*, Vol.16 Iss.5, PP.347-353.
- [12] Khedkar, S.B., et al, (2012) "Study of implementing 5S technique in plastic molding", *Int. journal of modern engg. Research*, Vol.2, Iss. 5, PP.3653-3656.
- [13] Sevim, D., et al, (2009), "5S activities and its application in sample industry", *American journal of biotechnology*, Vol.8 iss.3pp.1720-28.
- [14] Pasale, R.A., Bagi, J.S., (2013), "5S strategy for productivity improvement A case study", *Indian journal of research*, vol.2.Iss .3PP.151-153
- [15] Rojasara, P.M. Qureshi, M.N., (2013), "Performance improvement through 5S in small scale industry a case study, *Int. journal of modern engg. And research.*, Vol.3, Iss.3, PP.1654-1660.