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Performance Evaluation of Manufacturing Industries by Using 5S Techniques

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Abstract: The Paper Represents an application of 5s technology in `Tanmay sales corporation' at MIDC Hingna road , Nagpur. It is leading manufacturer of plastics components in the central India. The reason behind this performance evaluation is to implement the 5s technique in manufacturing industries for more efficient and progressive productivity. 5s is method of organizing a workplace to make it Safe, Efficient and effective. 5s come from Japanese words (seiri,seiton ,seiso,seiketsu, shitsuke).The 5s is implemented in various department of manufacturing industry to track the performance of individual department .Based on performance evaluation the 5s technique gives the incredible changes like expanding in viability, effectiveness in procedures, improved efficiency, cleanliness, decrease in delay good environment and improved clarity of procedures .It is the good technique it can be implement in different type of organizations like automobile industry, service sector, event management, etc.

Keywords: 5s implementation, improving efficiency, expanding in viability, elimination of waste.

Introduction: This review represents '5S' technology applications in one of the Tanmay sales cooperation situated at MIDC Nagpur,

Maharashtra which is a leading manufacturer of Plastic Product within the Central India. '5S' in simple terms is a Japanese technique which consist of 5 'S' terms which are Seiri (sorting), Seiton (set in order), Seiso (shine), Seiketsu (standardize) and Shitsuke (sustain) having a deep sense for managing the work place. Within the organization, the aim of the implementation of '5S' is to rearrange a work space for efficiency and effectiveness by identifying and storing the things which are used, maintaining the plant and items, and sustaining the new order. The decision-making process usually comes from a dialogue about standardization, which builds understanding among employees of how they have to try to the work.The need for the implementation of '5S' within the organization came into existence because of unorganized work-stations, uncomfortable working environment and thus the excessive wastes within the corporate . Hence, there was an urgent need for the successive implementation of '5S' within the organization to get rid-off of the above factors.

Types of 5S:

Sort(seiri): The first step of 5S, Sort, involves browsing all the tools, furniture, materials, equipment, etc. in a work area to work out what must be present and what are often removed**.**

Set in Order(seiton) : Once the additional clutter is gone, it's easier to ascertain what's what. Now work groups can come up with their own strategies for sorting through the remaining items. Things to consider:

Which people (or workstations) use which items?

When are items used?

Which items are used most frequently?

Should items be grouped by type?

Shine(seiso): Everyone thinks they know what housekeeping is, but it's one among the simplest things to

overlook, especially when work gets busy. The Shine stage of 5S focuses on cleaning up the work area, which suggests sweeping, mopping, dusting, wiping down surfaces, putting tools and materials away, etc.

Standardize(seiketsu): Once the primary three steps of 5S are completed, things should look pretty good. All the additional stuff is gone, everything is organized, spaces are cleaned, and equipment is in good working order .

Sustain(shitsuke): Once standard procedures for 5S are in situ , businesses must perform the continued work of maintaining those procedures and updating them as necessary. Sustain refers to the method of keeping 5S running smoothly, but also of keeping everyone within the organization involved.

Company Information:

Name of Company : Tanmay sales corporation.

Address: 09, Prateek naidu industrial park MIDC Nagpur -441110

Establishment: 2008

Owner: Ravi Deshmukh(9860034509)

Plant layout:
Material Flow

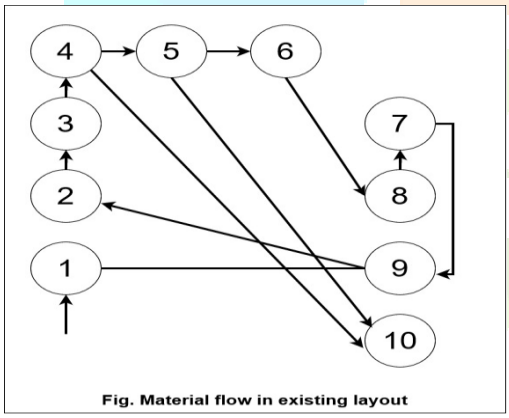

Fig. Material flow in existing layout

Figure No.1

Area of study:

1) To increase the overall effective efficiency of plant.
2) To make Proper utilization of storage space.

Objective of study:

1) Understand the working in a clean and neat environment
2) Identifying the waste in manufacturing environment.
3) Define each of the 5s principles and identifying visual management tools.
4) Explain how to implement each of 5s principles
5) Describe how to apply visual control to enhance workpiece organization
6) Identify the necessary infrastructure for starting and sustaining a 5s initiative.
7) Minimzing travelling distance in material flow.

Problem Identification:

1) Material flow pattern is not standard.
2) More travelling distance and releted time in materail flow
3) improper participation of workers in workplace management due to not standardization.
4) low productivity due to the time wastage in searching of tool, material due to improper work management.

Figure No.2

Implementation of 5S techniques: 5s is the primary tools which will be applied in a company that's starting down the trail of continuous improvement culture. A 5s implementation helps to define the primary rules to eliminate waste and maintain an efficient, safe and Clean work environment. It had been first popularized by taiichi ohno who design the toyota production system and shigeo shingo who also suggest the concept of poka-yoke . 5s implementation is step forward for to start out using. It does not require any technical analysis and may be implemented globally altogether sorts of companies starting manufacturing plant to offices, small bussiness to large multinational organisation and in both private and public sectors.Its simplicity and practical applicability and visual nature make it an enticing aid for operators, directors and customers .

Step 1) how well is industry doing well?..by preforming some test…

a) Do people in your workplace to locate the tools and equipments whether in physical or digital format ?
b) Are there loose , sagging electrical cables within the workplace?
c)Is valuable space haunted by useless items?
d)Are there papers In your workplace are does no used and are gathering dust?
e) does everybody skills to stay the workplace organised and are fully conscious of there roles and responsibilities.
And answer is yes to any of questions.

Step 2) Apply 5s on industry i.e.seiri,seiten,s seiso,seiketsu,shitsuke

Step3) Actions for 5s implementation ....

We are starting the 5s implementation from the providing information about 5s for understanding of the system.I n the first one day session, employees should look be able to meet the primary three 5s requirements:

A)Take the image of the present status of your workplace

B) Short to separate any thing that's needed and necessary from not needed

C) Organise the items you would like in order that there is an area for everything and everything features a place. You to be ready for to find anything io n only a couple of seconds.

D) Clean the workplace and obtain obviate things that make it difficult to take care of cleanliness, like boxes on the ground that prevent you from having a ability to wash the whole surface label them store them in lebel drawers.

E) prepare the action plan for the things you are not ready affect that day , but are going to be ready to within the near future this might include selling items you not use, donating them, recycling or throwing them away.

F) Take a second picture after the whole Day's work, for review.

4) seikutsu:

During the second one- day session, fortnight later, employees should take the third picture and compare it to primary to shots. Many organization found out peer audits to see how the 5s principles are being meet also on make sure the plan is moving forward. Work together to define ways to standardize the improvement overtime: Organize cleaning schedules, define roles, and responsibilities, prepare written procedures or diagram to assist everyone remember what to try to.

5) Shitsuke:

During the third day session, 15 day later, to ascertain how your workplace looks and schedule another referee. This way we 5s sustained by ensuring define schedules are being met and everybody are following the procedures.

Overall effective efficiency:

For 1 shift					
A	Given	Total time scheduled		480	Min.
B	given	Planned Downtime			Min.
		Shift huddle	-10		Min.
		Lunch Break	-30		Min.
		Tea break	-10		Min.
		other	-10		Min.
		Sum of planned downtime.		-60	Min.
C	A-B	Planned Production time		420	Min.
D	Data collected	Unplanned downtime		-10	Min.
E	C-D	Operating time		410	Min.
G	COUNTER	Total pieces /unit produced		150 000	pics
		Ideal rate of machine		400	Pic/min
i	G/(H*E)*100	performance		89.29%	
J	Quality	Acceptable pieces produced		145 000	pics
k	J/G*100%	Quality		96.66%	
	F*I*K	OEE		**84.28%**	

Project Benefits:

- Better usage of working area
- Prevention of misplacing of tools.
- Discipline in the employees and there work.
- Improvement in the internal communication.
- Improvement in the internal human relation.
- More discipline among the employee**.**

Conclusion: The study of industry demonstrates the efficient implementation of 5S technique leads to subsequent improvement in productivity of the manufacturing company.The 5S improves environmental performance and thus relate primarily in reduction of wastes in manufacturing.The implementation of the 5S system of rules leads to the following effects regarding the improvement in quality:

1) Visible results within a short period of time (2-3 Weeks).

2) Workers get used to order and discipline.
3) Reduction of physical effort, less accidents
4) During the production process.
5) Increases worker's efficiency.

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