

Implementation of 5S & Amp; Kaizen in ABC Industry

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Abstract— Manufacturing industries is one of the rapidly growing industries today. In the present competitive business, the manufacturing companies has to pay attention for the enhancement in productivity, quality, efficiency, safety and its service. Today, many industries are more involved and interested in the improvement of standards and techniques for best performance so they can reign over the present market scenario. Among various important parameters which considered being very important, two most important primary parameters are safety and quality. In this project I had studied various literatures related to 5S & Kaizen. Data is accumulated from different papers, this assisted me to study success factor of 5S & Kaizen. Primary data collected by personal observation and originated by the researchers for specific purpose for addressing research problems. Secondary data collected from the 3 weeks personal observation of the manufacturing department. With the study and observation I had suggested the best suitable place for all movable and stationary items, to reduce the manufacturing time and also to hype the productivity. Implementing the suggested layouts in diffusion engineer's limited will led to the better quality productivity and safety. I had implemented 5S & Kaizen in Diffusion Engineers Ltd by applying PDCA cycle.

Key words: 5S, Kaizen in ABC Industry

I. INTRODUCTION

A. 5S

5S is a Japan originated technique and first developed by Hiroyuki Hirano. It include five words Seiri, Seiton, Seiso, Seiketsu and Shitsuke, which means Sort, Set in order, Shine, Standardize and Sustain respectively. It is one of the efficiently working tools of Lean Manufacturing. 5S is the foundation of all improvements and is the key component of establishing a visual workplace. The benefit of 5S technique is improvement in productivity, quality, efficiency and safety. Term of 5S given as:

- SEIR (sort): It this step the removal of all unwanted, unnecessary, and unrelated materials in the workplace is performed.
- SEITON (set in order): This process defines the setting things in a particular place so that it can be found quickly as well as returned in that same place quickly.
- SEISO (shine/clean): This stage consists of cleaning up the workplace and giving it a 'shine'.
- SEIKETSU (standardize): This stage involves, establishing the standard rules to maintain the hygiene and safe environment at the workplace. Standards should be very communicative, clear and easy to understand.
- SHITSUKE (sustain): The last step involves installing the self-discipline and culture that will sustain the program. And build awareness of the importance of 5S through re-training.

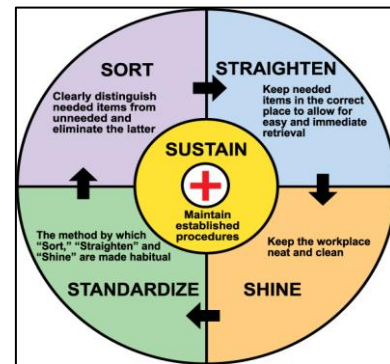


Fig. 1: 5S Processes

B. Kaizen

Kaizen is a technique for continuous improvement of industry involving everyone in the organization from top management to managers then to supervisors, and to workers. Kaizen is a culture of continuous improvement by focusing on eliminating waste in all systems and process of an organization. The Kaizen strategy begins and end with people.

There are two elements that construct Kaizen, improvement/ change for the better ongoing and continuity. Lacking one of those elements would not be considered Kaizen. For instance, the expression of "business as usual" contains the elements of continuity with improvement. On the other hand, the expression of "breakthrough" contains the element of change or improvement without continuity. Kaizen should both elements.

II. AIM & OBJECTIVES

- To increase the communication between the Employees and Management.
- To beautify the workplace by simple means (reduction of waste).
- To enable the participants/Employees to learn about the 5S steps.
- To increase the safety and security issue of industry.
- To motivate participants/Employees to adopt 5S practices.
- To maintain discipline at workplace.
- To develop ideal guidelines for an effective implementation of 5S & KAIZEN for operation in the industry.

III. PROBLEM STATEMENT

- Lack of communication between the Employees and Management.
- Need of improvement in productivity, quality, efficiency and safety in lean manufacturing industries.
- Lack of safety and security issue of industry.
- Need To motivate participants/Employees to adopt 5S practices.

- Lack of discipline at workplaces.
- Need to develop ideal guidelines for an effective implementation of 5S& KAIZEN for operation in the industry.

IV. DATA ACCUMULATION

- 1) Primary data will be collected by personal observation and originated by the researchers for specific purpose for addressing research problems.
 - 2) Secondary data collected from various books, material, reports, etc. The data which is stored in the organization and provide by the HR people are also called secondary data.
- From Both the Data Fish-Bone diagram has been made.
 - Then implementation is done by using 5S & Kaizen.
 - Applied PDCA cycle
 - Plan.
 - Do
 - Check
 - Act.
- In this research we have divided the industry layout in number of sections and recorded every movable item for six days to trace the movement frequency of objects.

A. Before Modification

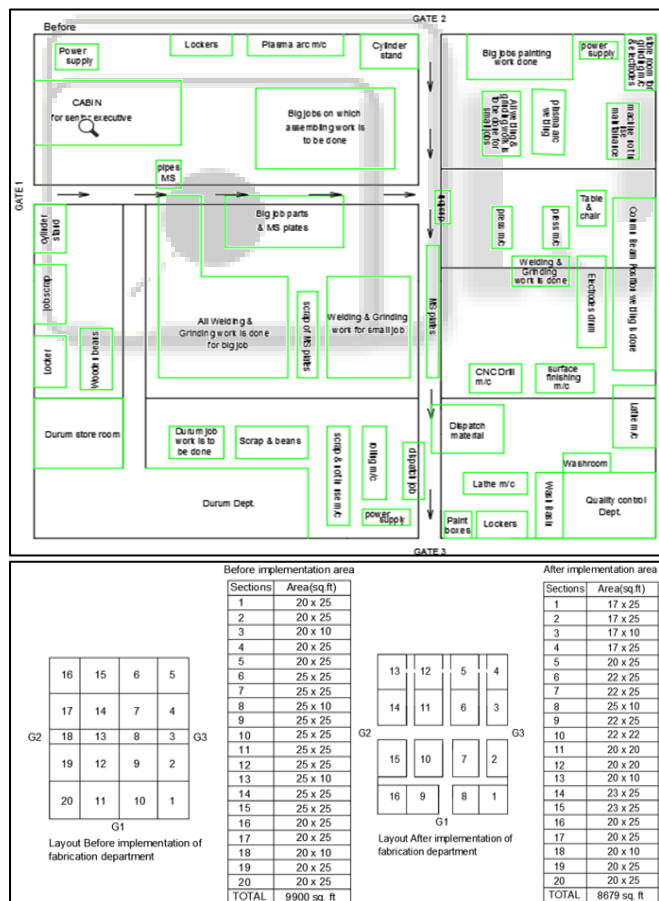


Fig. 2: Layout Diffusion 9900 square feet from the observation we conclude that following moveable item should be placed in their suitable places as mentioned.

V. RESEARCH OUTCOME

By performing the extensive literature review. It has been observed that research up to day has studied the various

parameters for improvement in productivity, quality, efficiency and safety. But there is limited research on the improvement in productivity, quality, efficiency and safety in lean manufacturing industries. The objectives of this research is to increase the communication between the Employees and Management. To beautify the workplace by simple means (reduction of waste). To enable the participants/Employees to learn about the 5S steps.

To increase the safety and security issue of industry. To motivate participants/Employees to adopt 5S practices. To maintain discipline at workplace. To develop ideal guidelines for an effective implementation of 5S & KAIZEN for operation in the industry. The below figure represents modification after research and study:

A. After Modification

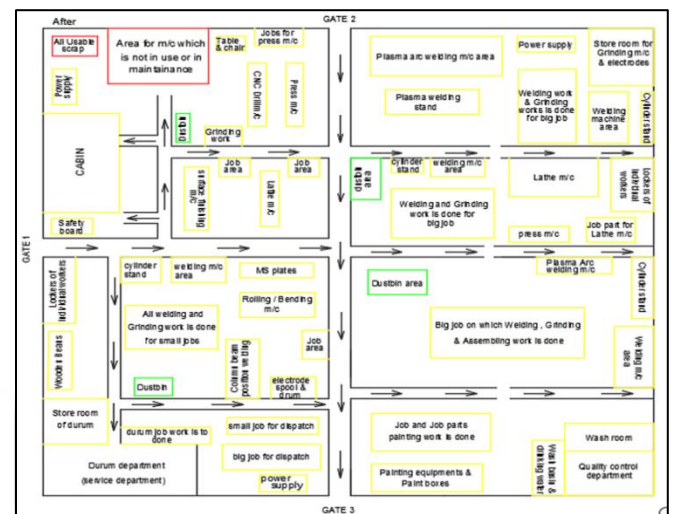


Fig. 3: After Modification

B. Existing Flow Process of pipes

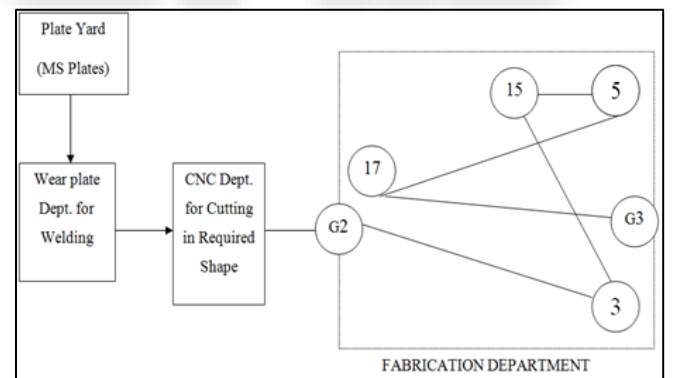


Fig. 4: Existing flow process

G2. Gate2, 3. Rolling machine, 15. Column beam welding machine, 17. Painting yard 5. Quality control, G3. Gate3 for dispatch.

| Sr.No. | SECTION | TIME (MIN.) |
|--------|---------------|-------------|
| 1 | FROM G2 to 3 | 5.20min |
| 2 | FROM 3 to 15 | 3.33min |
| 3 | FROM 15 to 5 | 1.27min |
| 4 | FROM 5 to 17 | 3.47min |
| 5 | FROM 17 to G3 | 4.13min |
| TOTAL | | 17.4min |

Table 1: Existing flow process time for manufacturing pipes

VI. PROPOSED FLOW PROCESS OF PIPES

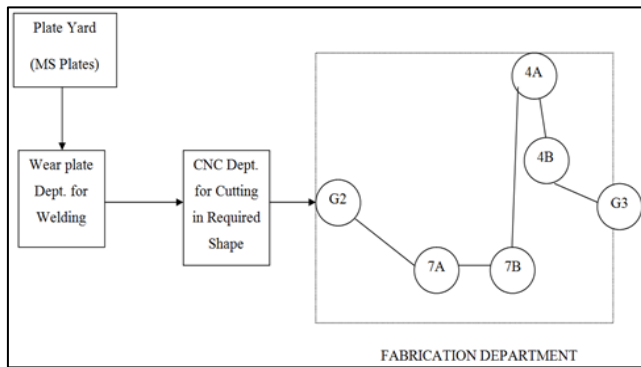


Fig. 5: Proposed flow process

G2. Gate2, 7A. Rolling machine, 7B. Column beam welding machine, 4A. Quality control, 4B. Painting yard, G3. Gate3 for dispatch.

| Sr.No. | SECTION | TIME (MIN.) |
|--------|---------------|-------------|
| 1 | FROM G2 to 7A | 5.12min |
| 2 | FROM 7A to 7B | 0.40min |
| 3 | FROM 7B to 4A | 2.53min |
| 4 | FROM 4A to 4B | 1.43min |
| 5 | FROM 4B to G3 | 1.27min |
| TOTAL | | 10.75min |

Fig. 6: Proposed flow process time for manufacturing pipes

VII. CONCLUSION

In this research we studied and observed the suitable place for all movable and stationary items and suggested to remove the unnecessary items, to reduce the manufacturing time and to increase the productivity. Implementing the suggested layouts in diffusion engineers limited will led to the better quality productivity and safety. Suggested portable bin design will increase the safety and cleanliness of the department by removing the scrap items from the working area. Guided paths with safe movement of items increases the quality and safety.

From the results it is concluded that the implementation of suggested layouts with 5S technique to the diffusion engineers limited can led to the better quality productivity and safety.

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