

# Study and implementation of 5S method at Mechmann Engineering Pvt. Ltd.

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**Abstract :** The main desire of this paper to study remedy the productiveness, efficiency and housekeeping of available resources at Mechmann Engineering Pvt. Ltd. And try to reducing variation and decrease the material waste. This paper focused the step by step administration ground rule demanded for robust practice of 5s as a part of the daily management. It describes the idea to implement each and every base of 5s methodology-Seiri, Seiton, Seiso, Seiketsu and Shitsuke in the industry in continuity to bring about a broad perfection in its performance.

**Index Terms – 5S Methodology, Lean Production, Decent, Desolate.**

## I. INTRODUCTION

5S tools is the track to sequence, order, clean, standardize and continuously improve the work area. 5S was developed in Japan and examined as one of the techniques that enabled Just in Time manufacturing (JIT). The word 5S consist of five Japanese word Seiri, Seiton, Seiso, Seiketsu and Shitsuke which are summarize as sort, set in order, shine, standardize and sustain. Sort advice the segregation of nod needed, needed but not now, etc. set indicate to give locations and embarrassment essential for adequate operation. Shine shows unblemished through study. Standardize implements sighted display and switch. Sustain help to care the cooperative power in place through assignment and total coworker involvement.

The main objective of this paper is to robust 5s methodology and calculate the adaptation in Mechmann Engineering Pvt. Ltd. A small-scale industry situated at Rabale, Navi Mumbai (MIDC). 5s is lean production method for sorting, cleaning, organizing and give essential base work improvement. Decision making is quantitative analysis that contains many of conflict criteria.

## II. PROBLEM STATEMENT

Mechmann Engineering Pvt. Ltd., new Mumbai is fabrication industry located at Rabale (MIDC) which was related to manufacturing department because it forms the base of any industry. Due to small scale industry, the synergistic product being produced with unsteady dimensions, quantity, nature and exertion with different and unsteady production process at the same, the concern imply to normalized in many ways, the required tools and product placed in improper order due to product requirement, due to grater of wastage area, space consideration problem was to be faced the industry, every time material handling is cost effective to the company and workers not wear safety equipments while doing operation.

## III. PROPOSED SOLUTION

as find of above problem the 5S method is determined as better solution to each and every problem under single method.

<b>SEIRI-SORT</b>	<ul style="list-style-type: none"> <li>•Seiri is sorting through all component in a region.</li> <li>•Eliminating all unessential component from the region.</li> </ul>
<b>SEITON-SET IN ORDER</b>	<ul style="list-style-type: none"> <li>•Seiton is placing all essential parts in the optimal place.</li> <li>•Make the functions simple and soft</li> </ul>
<b>SEISO-SHINE</b>	<ul style="list-style-type: none"> <li>•Seiso is cleaning and testing the workplace, device and mechanism on a usual basis.</li> <li>•Prevent worsening.</li> </ul>
<b>SEIKETSU-STANDARDIZE</b>	<ul style="list-style-type: none"> <li>•Seiketsu is to standardize the operations used to sort, order and clean the workplace</li> <li>•Demonstrate methods and plans to assure the replay of the first three 'S' exercises</li> </ul>
<b>SHITSUKE-SUSTAIN</b>	<ul style="list-style-type: none"> <li>•Shitsuke or sustain the grown operations by self-corrections of the workers</li> </ul>

## IV. LITERATURE REVIEW

[1] Soumya R. Purohit [1], V. Shantha, have presented the 5s method stepwise and they gave explanation of 5s step by step plan method claimed for successful exercise of 5s as a part of the everyday routine practices.

[2] R. S. Agrahari [2], P. A. Dangle, K.V.Chandratre , have introduced the system and integration 5S in the company. They have explicated on the 5s method implementation in small scale industry where negligible efforts are taken by the workers to implement this method which indirectly causes a loss in the industry and Efficiency and Productivity of the industry increases and also significant improvement takes place in safety and housekeeping.

[3] Shaikh Mohd Aftab [3], Khan Abdurrasheed, Prince Baranwal, Ansari Usama, Ghazi Altamash, have presented the 5s method in industry and interpreted the 5s system in terms sorting, arrange the material in order and clean all the scrap material.

[4] Mr. Nikunj S Patel [3], Mr. Chetan U Patel, Dr. Pragnesh Brahmhatt, have introduced the study, performance of lean manufacturing industry in terms reducing inventory and wastage and more space is available for work area, his literature review is on the 5s method implementation in small scale industry where negligible efforts are taken by the workers to implement this method which indirectly causes a loss in the industry economy so here are some tricks to achieve it in better and simple way like coin system dashboard for common tool. Bin for arrangements of different raw material with respect to their use in the industry.

## V. METHODOLOGY

### 1. seiri (sorting)

The sorting is the primary action to eliminating all excess parts from the work center which is needed but not in continuation process and in this stage decided which is actually needed and which is not needed. This section is dividing in five categories such as not needed, needed but not now, needed but not here, needed but not so much quantity and always needed.

Procedure to experiment sorting-

- Primarily, the observation takes out all necessary and unnecessary product, material and scrap part.
- We collected the data with help of workers and supervisor
- In next step, categorization of items is done as per requirement.

The sample of data checklist maintains as follows

materials	Not needed	Needed but not now	Needed but not here	Needed but not so much quantity	Always needed
Scraped part	✓				
Produced part		✓			✓
Machine tools				✓	✓
Operation related part			✓		✓

### 2. Seiton (Set in order)

Seiton is the secondary action in which placing all essential part in best place for accomplish their operation in the workplace. The main advantage of this step is making the flow of work smooth and simple.

By observations, it is found that the common tools such as spanner, hammer, measuring tape, calipers, jigs and fixtures etc. were not used and placed properly, no proper arrangement was made for the placing of common tools and due to this there was major time consumed in finding the tools Which causes various problems. This can be implemented by making a shadow board and a token board. Shadow board consists of different types of common tools and it is commonly required to the workers in their respective specified work.

Procedure to perform this method-

- We collected all data about basic tools which was used in industry during operation
- We suggested shadow board in which we used standard image of shadow board by internet.
- We introduced workers token which includes token number, token holder name and job which assigned by them



Fig.1 Shadow Board

Token board consists of name tokens of every individual worker in the company.

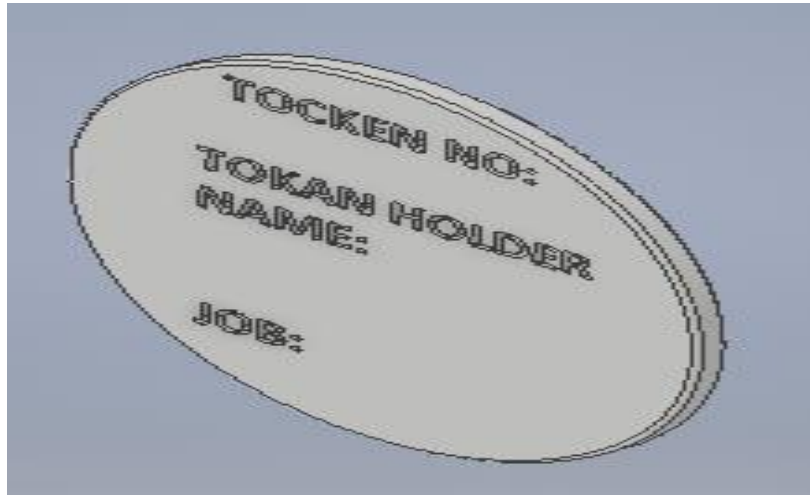


Fig. 2. workers token

How will this work? Let us understand with an example.

Ram is a worker who needs hammer so what he will do is, he will put his name token in the place of hammer. Now raju is another worker who also needs hammer but by seeing on shadow board he will come to know that the hammer is with ram so he will directly contact ram. This will save time as well as space of keeping tools.

### 3. Seiso (shine)

Once the sorting is done the unnecessary part is thrown out of the industry and set in order placed, it is now hygiene stage. Shine is sweeping or cleaning the workplace on daily basis. The advantage of this stage is that when in place anyone is not conversant to the environment then problem to be detect in around 45feet in 5seconds.

5s project that about emphasized on cleaning, sorting, simplify inspection and increase the safety with productivity. In this step shelf and bin is recommending to industry, all material can be placed in this self by using bin. This was making systematic pattern of keeping all tools, material and product. This was help to the workers for smooth working and easy availability of material. All the materials are kept inside the self, remaining entire space would be clean and systematic.

Procedure to perform this method-

- We collected all information regarding material which is going to use for this method.
- We gave sample of shelf and design created by using Autodesk inventor software
- We used cost effective material for self
- We arranged all material in shelf with help of bin.

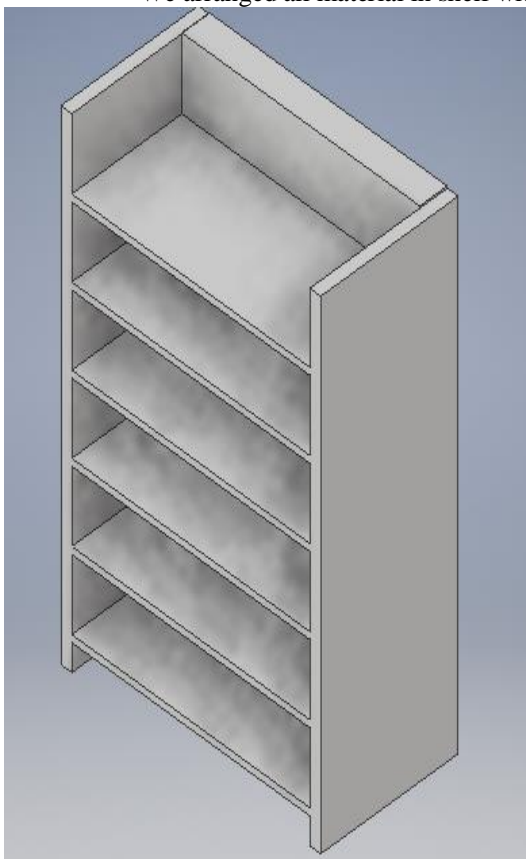


Fig.3 shelf

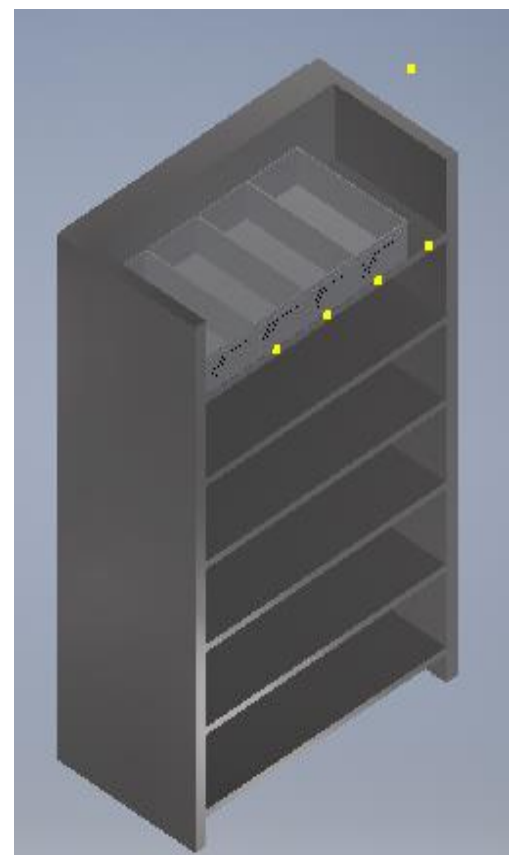
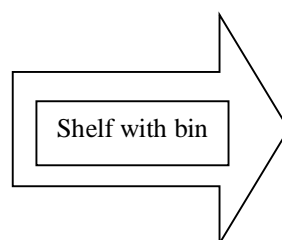


fig.4 shelf with material collector bin

The shelf and its assembly with material collector bin diagram is shown in below diagram.

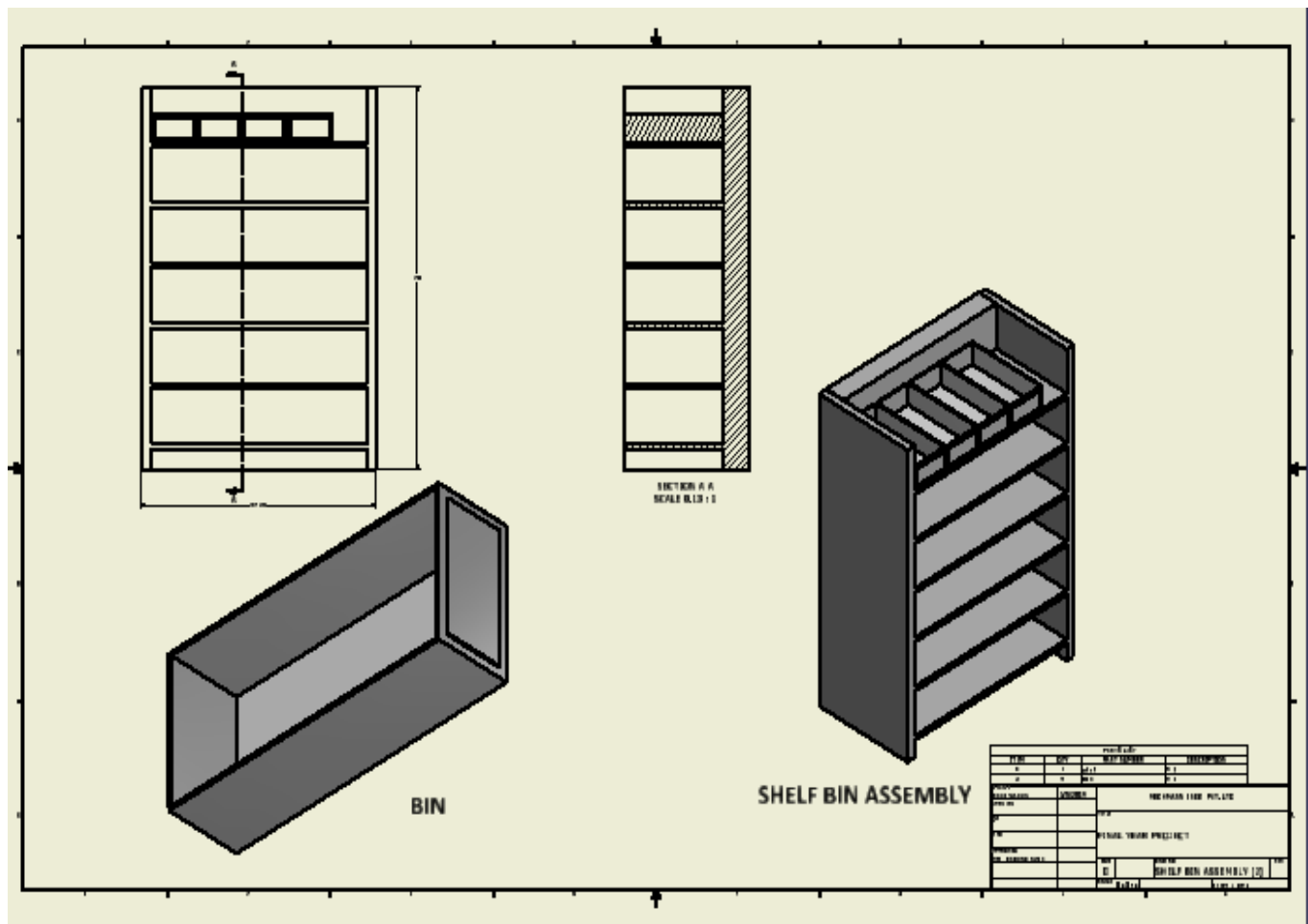


Fig.5 shelf and collector bin assembly

#### 4. seiketsu (standardize)

This is fourth step of 5s method. After implementation of sorting, set in order and shine, it is necessary to clean the workplace or working area. This required to maintain the all three stages of 5s method.

Procedure to testing standardize-

- In this method firstly, we make the guideline list and it includes in daily routine of worker.
- Assuring everyone known his accountability of experimenting sorting, set in order and glare.
- Checklist produced to test all points of previous steps.

#### 5. shitsuke (sustain)

It is final or last step 5s method and the main goals of this step is that assure the 5s access followed.

Procedure to testing sustain-

- Arrange the small prepare conference daily
- Fill the checklist and test all standard of guideline to be followed
- Implement betterment if its available

## VI. CONCLUSION

After implementation of 5s method at Mechmann Engineering Pvt. Ltd. Company, we have achieved following profit

- ✓ Space problem is reduced and more work to be carried out
- ✓ Due to use of token system time taken to find required tools is reduced around 25%
- ✓ Material travelling time is reduced by around 20%
- ✓ Productivity is increased by around 15%

**VII. REFERENCES**

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