

IMPLEMENTATION OF 5 S APPROACH IN THE MANUFACTURING ORGANIZATION

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Annotation

Nature, culture and position manufacturing organizations in the market can be considered based on many factors. Within the production organization is to each section assigned definite responsibility and competence. Only the performance of his duties and

symbiosis with other departments of organization can lead to a common goal. This is all conditional on work organization, personnel discipline, standardization, purity and orderliness at all levels of the organization. The approach involves all of these attributes is called the 5 S.

Introduction

The 5-S practice is a technique used to establish and maintain quality environment in an organization. The name stands for five Japanese words: Seiri, Seiton, Seiso, Seiketsu and Shitsuke (Osada, 1991). [5]

According to Gregor and Košturiak (Gregor and etl.,1998) 5 S is one of the approaches used in Japan for the elimination of continuous losses.[3]

The **5S Process**, or simply "5S", is a structured program to systematically achieve total organization, cleanliness, and standardization in the workplace. A well-organized workplace results in a safer, more efficient, and more productive operation. It boosts the morale of the workers, promoting a sense of pride in their work and ownership of their responsibilities.[1].

Table 1. 5S Definitions

Japanese Term	English Equivalent	Meaning in Japanese Context
Seiri	Tidiness	Throw away all rubbish and unrelated materials in the workplace
Seiton	Orderliness	Set everything in proper place for quick retrieval and storage
Seiso	Cleanliness	Clean the workplace; everyone should be a janitor
Seiketsu	Standardization	Standardize the way of maintaining cleanliness
Shitsuke	Discipline	Practice 'Five S' daily - make it a way of life; this also means 'commitment'

"5S" was invented in Japan, and stands for five (5) Japanese words that start with the letter 'S': Seiri, Seiton, Seiso, Seiketsu, and Shitsuke. Table 1 shows what these individual words mean. An equivalent set of five 'S' words in English have likewise been adopted by many, to preserve the "5S" acronym in English usage. These are: Sort, Set (in place), Shine, Standardize, and Sustain. Some purists do not agree with these English words - they argue that these words have lost the essence of the original 5 Japanese words.[1]

Definition

Seiri

The first step of the "5S" process, seiri, refers to the act of throwing away all unwanted,

unnecessary, and unrelated materials in the workplace. People involved in Seiri must not feel sorry about having to throw away things. The idea is to ensure that everything left in the workplace is related to work. Even the number of necessary items in the workplace must be kept to its absolute minimum. Because of seiri, simplification of tasks, effective use of space, and careful purchase of items follow. [1]

Seiton

Seiton, or orderliness, is all about efficiency. This step consists of putting everything in an assigned place so that it can be accessed or retrieved quickly, as well as returned in that same place quickly. If everyone has quick access to an item or materials, work flow

becomes efficient, and the worker becomes productive. The correct place, position, or holder for every tool, item, or material must be chosen carefully in relation to how the work will be performed and who will use them. Every single item must be allocated its own place for safekeeping, and each location must be labeled for easy identification of what it's for. [1]

Seiso

Seiso, the third step in "5S", says that 'everyone is a janitor.' Seiso consists of cleaning up the workplace and giving it a 'shine'. Cleaning must be done by everyone in the organization, from operators to managers. It would be a good idea to have every area of the workplace assigned to a person or group of persons for cleaning. No area should be left uncleaned. Everyone should see the 'workplace' through the eyes of a visitor - always thinking if it is clean enough to make a good impression. [1]

Seiketsu

The fourth step of "5S", or seiketsu, more or less translates to 'standardized clean-up'. It consists of defining the standards by which personnel must measure and maintain 'cleanliness'. Seiketsu encompasses both personal and environmental cleanliness. Personnel must therefore practice 'seiketsu' starting with their personal tidiness. Visual

management is an important ingredient of seiketsu. Color-coding and standardized coloration of surroundings are used

for easier visual identification of anomalies in the surroundings. Personnel are trained to detect abnormalities using their five senses and to correct such abnormalities immediately. [1]

Shitsuke

The last step of "5S", Shitsuke, means 'Discipline.' It denotes commitment to maintain orderliness and to practice the first 4 S as a way of life. The emphasis of shitsuke is elimination of bad habits and constant practice of good ones. Once true shitsuke is achieved, personnel voluntarily observe cleanliness and orderliness at all times, without having to be reminded by management. [1]

Industrial process increasingly demands higher safety, henceforth the safety requires systematic evaluation regarding the human factor. For an organization, to accept the principles of risk analysis means to establish a systematic solution concerning work safety and health protection for the employees. Frequent identification and analysis of hazard as a starting point for risk evaluation is of high importance. [7]

Practical implementation of 5 S

The practical implementation was realized in company form automotive industry area. The project was realized in march 2010.

Before



Figure 1. Tube on floor

After

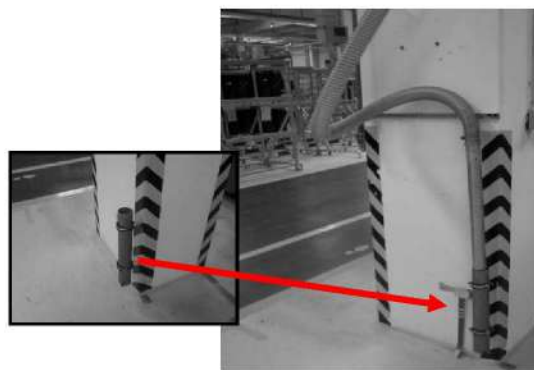


Figure 2. On wall was put holder for tube



Figure 3. Pushcart of equipment



Figure 4. Cabinet instead equipment pushcart

Before

After



Figure 5. Any information by machine



Figure 6. Professional board for information



Figure 7. Not professional assembly of el. cable

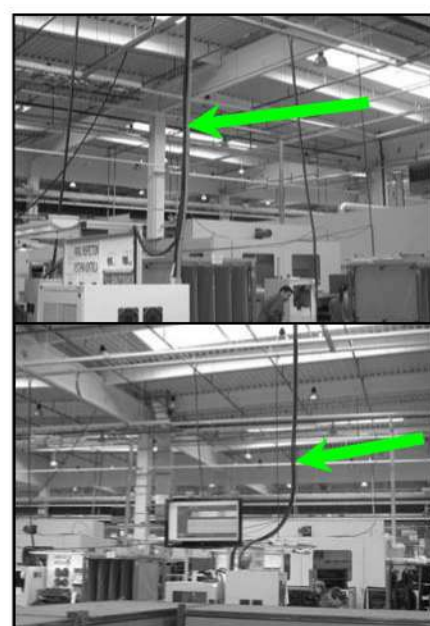


Figure 8. Professional assembly

Before

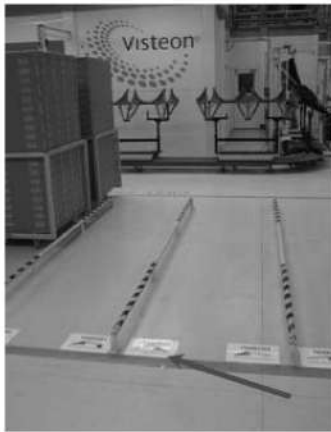


Figure 9. Labels at the floor

Conclusion

Not only in times of economic crisis but also in times of growth and prosperity of the economy, manufacturing organizations must strive in order to the outputs of their production processes are most effective and achieve the best results. That way you can company ensure prosperity, growth and position in the market. To achieve this objective by using various tools, methods and procedures. In the present article we address the method of 5S, which represents a group of good practice to build a culture and

Reference

1. ANONYM, The 5 'S' Process, <http://www.siliconfareast.com/5S.htm>, stiahnuté 30. 8. 2010
2. BUJNA, M. – KREDATUSOVÁ, M. – BURDA, M. Identifikácia a analýza ohrozenia pre výrobný proces ložiska. In: Kvalita a spoahlivos technických systémov, SPU v Nitre, 2010. -S. 152-156, ISBN 978-80-552-0390-4
3. GREGOR M., KOŠTURIK J., BUBENÍK P., – MICIETA, B.: Plánovanie a riadenie výroby. Podkladový materiál na odborný seminár pre VOJUS, a.s., IPI-KPI, Žilina 1998.

After



Figure 10. Labels not at the fool

environment in the organization. The purpose of this method is to highlight the importance of compliance with established rules and standards to enhance the needs of continuous improvement in environmental organizations, whatever their sphere of competence.

In chapter were used researches results within the frameworks of statutory researches VEGA 1/0576/09 (2009-2011) – „The quality improvement of agricultural machines and production systems“

4. J.HRUBEC, E. VIRČIKOVÁ a kol., Integrovaný manažérsky systém, I. vyd., Nitra, SPU v Nitre, 2009, 543 s., ISBN 978-80-552-0231-0.
5. OSADA, T. The 5-S: Five Keys to a Total Quality Environment, Asian Productivity Organization, Tokyo. 1991
6. PRÍSTAVKA M., HRUBEC J., KOTUS M., The integrated management system in manufacturing organization. In: Research Methods Improvement, Dnipropetrovsk, 2010. ISBN 978-966-1507-31-8
7. PRÍSTAVKA M., HRUBEC J. Capability of lathe-turning process of A body for gear box In: Production engineering, Novosibirsk State Technical University, 2009. ISBN 978-5-7782-1165-0