

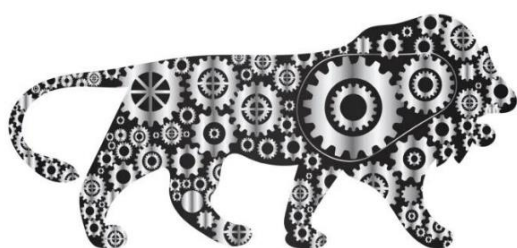


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MBA, Chhatrapati Shahu Institute of Business Education and Research, Kolhapur, Maharashtra, India

## “Study on Quality Management Practices adopted by Steel Furniture Manufacturing Industries.”

**Author: Mrs Priya A. Shah**

MBA, Chhatrapati Shahu Institute of Business  
Education and Research, Kolhapur, Maharashtra,  
India  
Email ID: [priyashahkop@gmail.com](mailto:priyashahkop@gmail.com)

**Co-Author: Pradnya Gajanan Kadam**

MBA, Chhatrapati Shahu Institute of Business  
Education and Research, Kolhapur, Maharashtra,  
India  
Email ID: [pradnyakadam453@gmail.com](mailto:pradnyakadam453@gmail.com)

### ABSTRACT:

India is famous largest developing economies in the world. Speedy urbanization, large number of young population and growing desires of middle-class society has contributed to a vivacious home furnishing market in India. The home furnishing industry manufactures and sells furniture, textile, and home furnishing accessories for homes, offices, hotels and others in the commercial space. In this study we are going to discuss how the quality management practices are done in the furniture manufacturing industries in India. In the study, we have taken a few Quality management practices which are adopted by every furniture manufacturing industry to maintain their product Quality. Quality control in the furniture manufacturing industry is crucial to ensure the production of durable, safe. Implementation of a comprehensive quality control system will help to maintain the reputation of the business and provide customers with high quality and reliable products. This study is based on previous studies carried out by scholars and published data by some furniture manufacturing industry in India.

**KEYWORDS-** Quality Management, Cause and defects, Flow chart.

### I. INTRODUCTION:

The market is moving more towards organized segments. This is indicated by a growing trend among consumers towards already assembled, branded furniture. High-end, quickly installable, low-maintenance devices with customization options are preferred. India ranks fourth in the world for furniture consumption and fifth in terms of production. In 2022, India's furniture market is valued at around US\$ 23.12 billion and it is further expected to grow at a CAGR of 10.9% (2023-28) to reach US\$ 32.7 billion by 2026.

In the steel furniture market, the situation is not better. Steel furniture, as a product, is getting the status of essential commodity inviting compliances and uncertainties. The steel furniture market is also experiencing a unique problem. A shift from rural sector to urban sector is continuously on. Residential areas in metros, mini metros, cities, towns and small towns are growing at a fast rate. Industrialisation, infrastructure development, and extension of areas are creating a huge scope for further market growth.

The attributes and variables of the product being created can be one or more of the quality standards. Performance, dependability, appearance, dedication to delivery time, and other qualities will be among the criteria. Some measurement variables may be included, such as diameter, length, width, height, and surface finish. The term "quality" refers to more than just the standard of manufactured goods. It could be referring to the level of management as well as the process's (i.e., people, materials, and machinery) quality.

Where the quality manufactured product is referred to or defined as "Quality of product as the degree in which it fulfils the requirement of the customer. It is not absolute but it is judged or realized by comparing it with some standards". In this research we have seen the overall Quality Management practices which are adopted by the furniture manufacturing industry.

#### Objective of the study:

1. To examine the variations in the Furniture manufacturing process.
2. To identify the Causes which affect the Product Quality.

### II. LITERATURE REVIEW:

Jane Bourke, Stephen Roper (2017) revealed that Quality-orientated management change and innovation are central strategies for firms. Implementing both quality improvement and innovation causes significant managerial, organizational and technical challenges, and may also involve notable lags before benefits are realized.

Gendao Li, Marc Reimann, Weihua Zhang (2018) revealed that the biggest factor of product quality enhancement and remanufacturing is contradicting results is the change in manufacturing costs caused by improving product quality. When introducing a new product, a significant increase in manufacturing costs as a result of improved product quality may lead the company to start re manufacturing.

Suresh Chandra et al. (2002) there have been a lot of research interest lately in the relationship between consumer satisfaction and service quality. However the nature of the precise association between service quality and customer

satisfaction is still doubted with uncertainty. The two constructs are independent just strongly connected, according to the data, suggesting that rise in one is likely to result in rise in other.

Das et al. (2000) Much of the research on quality practices and performance reflects a resource-based perspective of the firm, dealing primarily with internal issues of managerial and technological competence in developing and executing an effective TQM strategy. It was found that the relationship between customer satisfaction and high-quality practices is influenced by international competitiveness.

Prekratetal. (2009) established a comprehensive set of furniture quality requirements that may be applied throughout the design process to ensure high-quality finished items. Author has focused on the significance of considering all these yardsticks during the design phase to ensure that the final product meets the needs and expectations of customers. The authors proposed a proposed quality criteria evaluation method that allows designers and manufacturers to appraise their products and recognize areas for enhancement.

### III. RESEARCH METHODOLOGY:

The present study followed both exploratory and descriptive research approaches. Exploratory research is carried out via review of existing literature in the formation of Hypothesis. Further descriptive research approach is used to test the hypotheses and present conclusions from data analysis. The present study uses a quantitative approach to problemsolving. The Data used is secondary. Secondary data was collected from various sources, including the adapted quality management system in industry, ideal sizes and dimensions of the manufactured products.

### IV. DATA ANALYSIS AND INTERPRETATION:

**Quality Control Aspects which are used by the furniture industry.**

#### 1. Raw Material Inspection

The steel used for furniture production meets the specified quality standard in terms of composition, thickness, and strength.

#### 2. Welding Quality

Proper welding techniques and inspections are essential to avoid structural issues in the furniture. Welding should be free from defects like cracks or weak joints.

#### 3. Dimensional Accuracy

Check the dimension of the raw materials to ensure they match the design specification. Accurate measurements are crucial for precise assembly and fit.

#### 4. Surface finish

Inspecting the surface of the steel for imperfections such as scratches, dents or rust. A smooth and clean surface is important for the final appearance of the furniture.

#### 5. Safety Standards

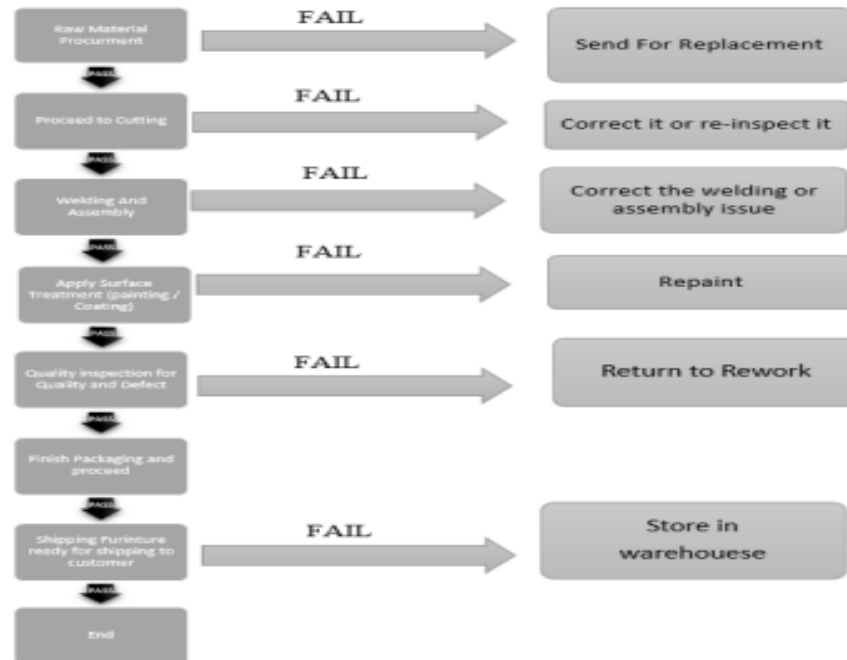
Verifying that the furniture meets safety standards. Ensure there are no sharp edges or potential hazards.

#### 6. Strength and Stability Testing -

Strength and Stability testing is very essential to ensure product quality and safety.



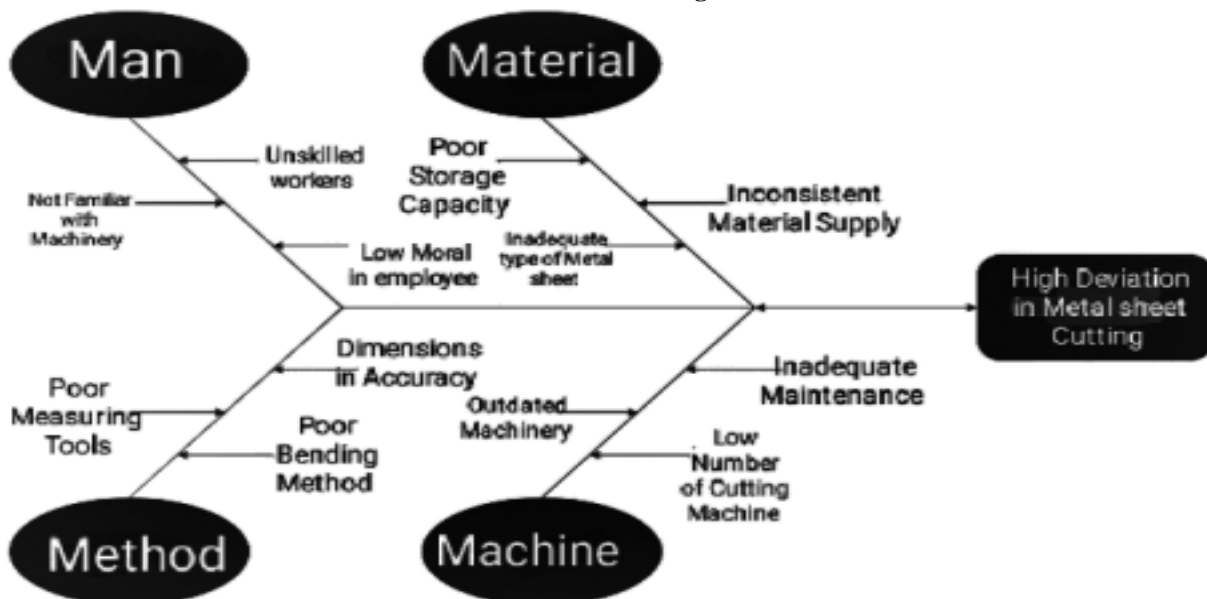
Flow Chart –



### Interpretation

AS given in the chart provide us a breakdown of the essential steps to solving the problems which faced by the industry. As, from outsourcing of raw material to dispatching the finished goods which types of problem faced by the industry and solution for each step is given. The overall production process is discussed in the flow chart. For e.g. in the quality inspection is done to assure that the product is produced with good quality raw material with perfect measurement and for finding if there is any defect the quality inspection is used. If there is any defect in the quality inspection the product is returned to rework.

Cause and Effect Diagram:-



### Interpretation

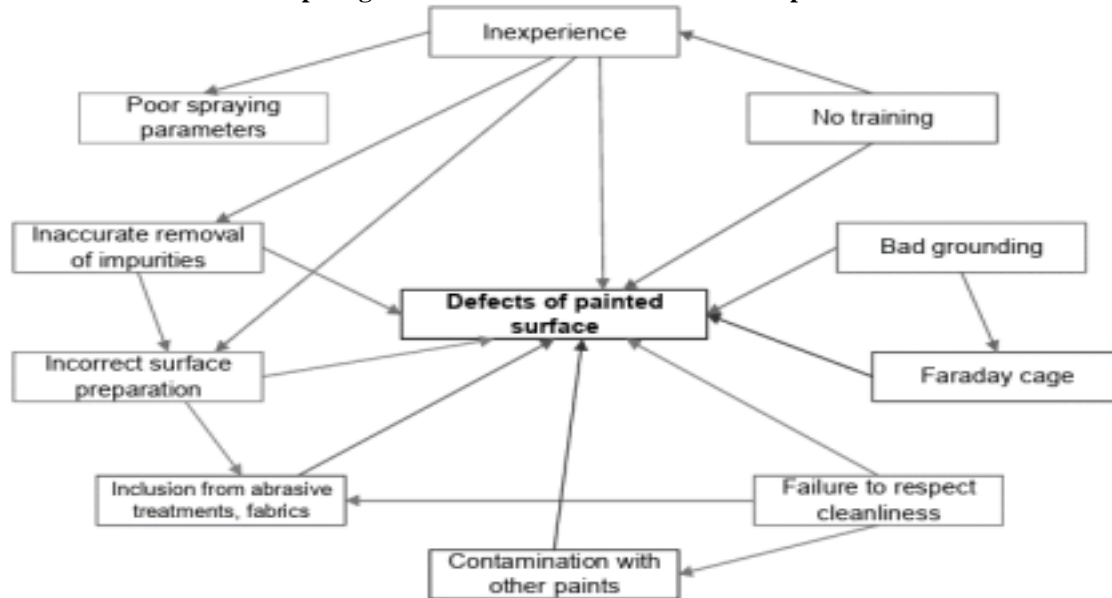
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In the Furniture manufacturing industry length, width, height and thickness are typical measures that need to meet specification. Cause and effect schematic diagram is a tool which assists in categorization, illustration and association of possible cause and problems (effect) in quality characteristics. It visually represents the relation of input factors that have an impact on the output. This figure shows the cause of variation in metal sheet in sheet cutting operations. In the diagram it shows how the 4 M's are the main cause for the high deviation in metal sheet cutting. As the Men, Method, Material, and Machine make their effect on the output.

**Interrelationship diagram between the causes of defects in painted surfaces-**



#### Interpretation-

To scrutinize the causal and cause-and-effect connection between all possible factors affecting the issue-paint defects- the interrelationship diagram was used. As from the given diagram, we can conclude that to minimize the defect in the painted surface implement the Plan which will get into execution and check all the processes which are done in plan and act as per the plan for overcoming the defect in the product. For minimize the defect we can use the PDCA diagram which help to minimize it.

#### V. CONCLUSION:

The study is aimed at gathering information about the Quality control system in the industry. The systematic management of many factors which affect the product's quality is referred to as quality control. Material, equipment, tools, labor type, conditions of work, devices for measuring, etc. are a few of the multiple variables. Quality control in the industry is crucial to ensure the production of durable, safe. By implementing Quality control audits in the industry and also a six sigma it is helpful for minimizing the wastage of the raw material. Proper Quality Control technique can be helpful for the industry to make customers satisfied and reduce the wastage.



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