OBJECTIVES OF PLANT LAYOUT AND MATERIAL HANDLING

Following are the objectives of Food Plant Layout :

1. To achieve economies in handling of raw materials, work in- progress and finished goods.
2. To reduce the quantum of work-in-progress.
3. To have most effective and optimum utilisation of available floor space.
4. To minimise bottlenecks and obstacles in various production processes thereby avoiding the accumulation of work at important points.
5. To introduce system of production control.
6. To ensure means of safety and provision of amenities to the workers.
7. To provide better quality products at lesser costs to the consumers.
8. To ensure loyalty of workers and improving their morale.
9. To minimise the possibility of accidents.
10. To provide for adequate storage and packing facilities.
11. To workout possibilities of future expansion of the plant.
12. To provide such a layout which permits meeting of competitive costs
13. Should provide overall satisfaction to all concerned.
14. Material handling and internal transportation from one operation to the next is minimized and efficiently controlled.
15. The production bottle necks and points of congestions are to be eliminated so that input raw materials and semi-finished parts move fast from one work station to another.
16. Should provide high work in process turnover.
17. Should utilize the space most effectively; may be cubical utilization.
18. Should provide worker's convenience, promote job satisfaction and safety for them.
19. Should avoid unnecessary investment of capital.
20. Should help in effective utilization of labour.
21. Should lead to increased productivity and better quality of the product with reduced capital cost.
22. Should provide easy supervision.
23. Should provide space for future expansion of the plant.
24. Should provide proper lighting and ventilation of the areas of work stations.

MATERIAL HANDLING- definition

• Material handling is defined as movement of material of any form (raw material, finished, packaged, solid, liquid, gas,, light and heavy) from one location to another location, either in a restricted path by manual or mechanical aids. The movement may be either horizontal, vertical or may be combination of both.

• Material handling involves all those activities that are responsible for efficient movement of goods either with in a plant or a warehouse or between a plant and a transportation agency.

IMPORTANCE OF MATERIAL HANDLING:

Importance of material handling can be studied under following aspects.

• **Movement:** It is associated with the transfer of goods into and out of storage facilities or within these facilities. Efficiency of material handling can be achieved by efficient transfer of goods to, from and within the storage facility.

• **Time**: Aspect of time can be studied from production and customer's perspectives. In case of production, it refers to the time required for bringing the raw materials to the production site. Efficiency is said to have been achieved, if it has to encounter problems of work stoppage, higher inventories and increased space of storage.

• **Quantity:** Quantity refers to the amount of raw materials/finished goods transferred from/to an organization. It accurate estimation results in delivering right product to the right customer at the right time in right quantity.

• **Space:** Space refers to the warehouse/plant capacity used by the material handling equipment. Such space will be fixed. However, efficiency of operations can be achieved by efficiently utilizing this space.

OBJECTIVES OF MATERIAL HANDLING:

1**. Increased usage capacity**: It is mainly focused to increase the effective usage capacity of a warehouse. Both horizontal and vertical capacities of a warehouse needs to be utilized in an efficient manner, such that the firm must achieve both economies of scale and scope.

2. **To minimize Aisle Space**: 'Aisle space' refers to a passage present between the rows of shelves. If materials are handled with care, this can be reduced to a great extent so as to accommodate more quantity of materials than they have been used to do it before.

3. **Reduces Handling Frequency**: In case of logistics management, materials initially move from the source to the warehouse, then they can be transferred to an order selection areas where they can be picked up and made into orders and then finally, to their shipment areas where they are ready for final consumption by the customers. During all these stages, several unnecessary movements of goods can be practiced by a firm which has to be avoided in order to enhance the operational efficiency of warehouse. Thus, firms should design material handling system

4. **Develops Effective Working Conditions:**

It focuses mainly on the development of secure and safe working environment where employees develop s sense of safety while working in an organization.

5)**Automated Movement:** Automated material handling system reduces the Burdon of manual labor by combining them with automated systems, because there are certain areas where operations cannot be performed with out making use manual labors. The best example might be the activities associated with the order picking area. Hence, an organization needs to develop an environment in such a way that it would stimulate people to perform the job efficiently.

6)**Improved Logistics Service**: It helps in improving the efficiency of logistics system by effectively fulfilling the customer requirements. It is responsible for the conveyance of goods to customers on time and in proper quantities. Due to efficient movement of goods into warehouse or properly locating the stock or by accurately filling the orders and also by properly preparing orders for shipment to customers, material handling forms a crucial component of an outbound logistics. This objective is greatly emphasized by the logistics manager which makes him to strive hard to ensure that the customer's orders and the production requirements are responded and met quickly and efficiently.

7) **Eliminating short-distance warehouse movements**

8**) Minimizes Cost:** By incorporating flexible material handling within the customer service programs.

FUNCTIONS OF MATERIAL HANDLING

1. It selects the type of machine, equipment and plant layout, so that the material handling requirements can be minimized.
2. It includes the choice of convenient, effective and protected material handling equipment.
3. It helps in reducing the material handling cost by considering the following..
4. minimum movement of semi finished products during the manufacturing.
5. Planning of movement of number of parts under one unit
6. Minimizing the travelling distance between the departments.
7. By increasing operational speed of handling through mechanization.
8. Removing backtracking and duplicate handling.

9. use of gravity for material handling.