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STORE AND SHOP FLOOR LAYOUT

TALERICO-MARTIN BAKERY POUND CAKE

CASE STUDY - INCREASED EFFICIENCY AND REDUCED WORKLOAD FOR THE TALERICO-MARTIN BAKERY

- https://www.talerico-martin.com/
- Talerico-Martin Bakery welcomes you… We have provided the Chicago land area with fresh bakery goods for over 36 years. First a friendship, then a partnership, now a Chicago land institution.
- Proprietors - Bob Talerico and Mickey Martin

CASE STUDY - INCREASED EFFICIENCY AND REDUCED WORKLOAD FOR THE TALERICO-MARTIN BAKERY

https://www.shuttleworth.com/solutions/pound-cake-filling-automation/

EXECUTIVE SUMMARY

The filling process for pound cakes at the Talerico-Martin Bakery was daunting, time consuming, and had many imperfections. Consumer demand for the product was also continuing to rise. This caused a problem for the bakery that needed to be solved.

The options were to increase the operations up to 24 hour shifts for the pound cake lines instead of the 8 or 16 hour shifts the bakery currently used, or find a way to help automate the process so that it could be done more efficiently with fewer imperfections.

The Talerico-Martin Bakery opted to find a way to help automate the process, reducing the human workforce required to do the job, and reducing the imperfections that cost the company some of their goods. This allowed the company to save money or increase their supply by putting the same amount of pay towards workers over different shifts, thus increasing the supply they had to meet the increase in demand.

CASE STUDY - INCREASED EFFICIENCY AND REDUCED WORKLOAD FOR THE TALERICO-MARTIN BAKERY

- Results:
- Automating the pound cake filling process reduced how much manual labor each person on the pound cake filling line had to do, and saved the Talerico-Martin Bakery money.
- It allowed them to keep up with the demand by increasing the supply as necessary without going beyond their previously established budget for employee wages.
- Automation can help improve numerous aspects of the manufacturing business, so long as it is used properly.

LAYOUT OF STORES

- It depends on the following factors:
- 1. Flow of Materials:
- According to this factor, materials should move minimum possible distances.
- 2. Character of Materials:
- The materials that are not damaged by weather can be stored outside in shed.
- Materials like cement, plaster etc., must be placed in dry place. Tools and machines etc., should also be placed in dry places and coated to prevent rusting.

LAYOUT OF STORES

- **3. Quantity, Weight etc. of Materials:**
- It is necessary to find the space required for different purposes.
- **4. Frequency of Handling:**
- **Handling consists of the following four stages:**
- (a) Receipts,
- (b) Inspection,
- (c) Storage and
- (d) Issue of materials.

LAYOUT OF STORES

- 1. Stores Layout should be such that material may be quickly received in stores.
- 2. Unloading platforms are built of suitable height.
- 3. All around the stores there is thorough siding. If trucks are used for transporting the materials, sufficient parking space is provided.

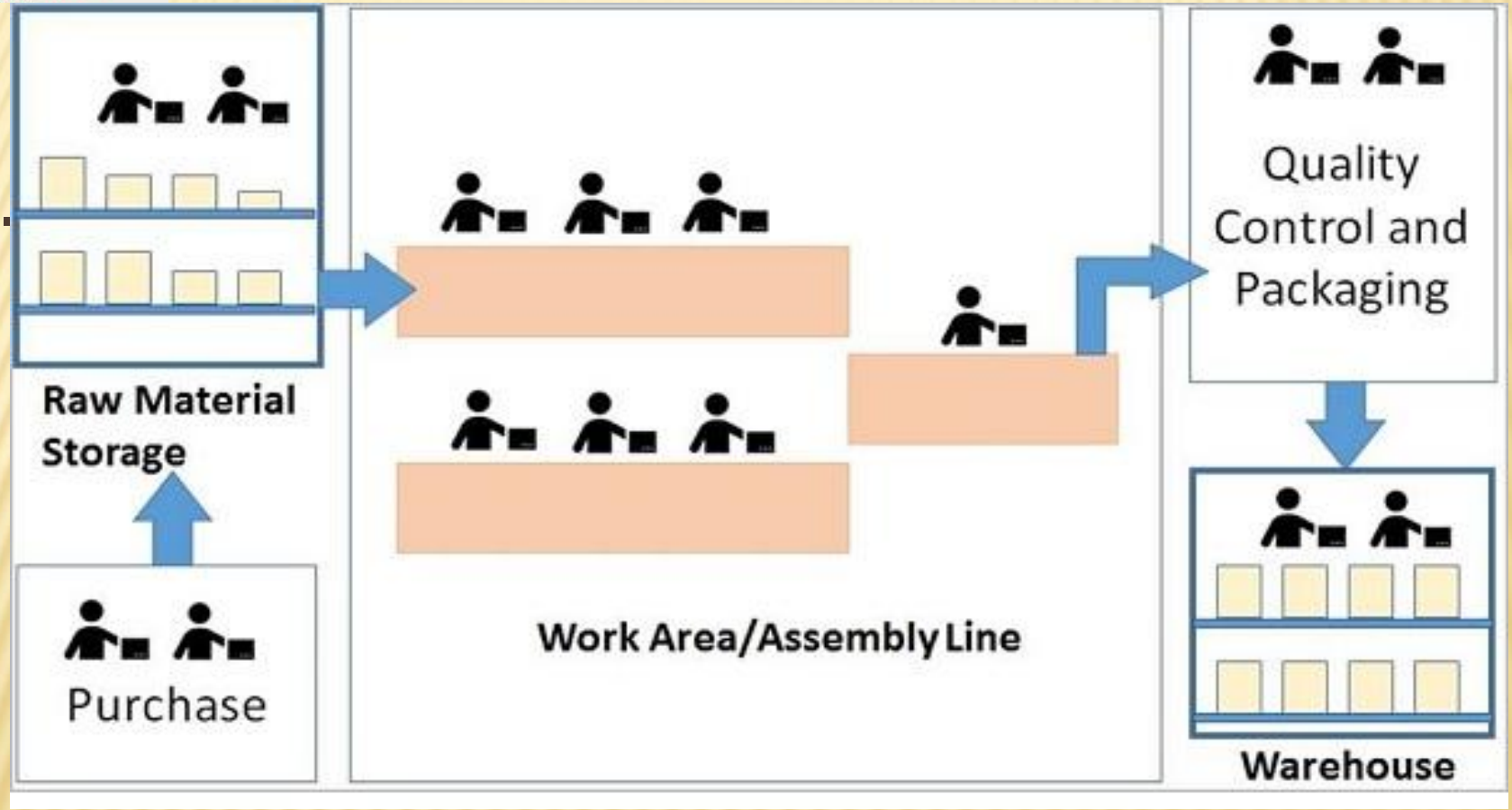
LAYOUT OF STORES

- 4. For heavy material, suitable equipment for internal transport is provided.
- 5. It is to be seen that each section of the store has sufficient allotting space. The mate-rial is to be arranged in such a way that inward and outward movement of supplies can be carried out smoothly.

LAYOUT OF SHOP FLOOR

- What is a Shop Floor Layout?
- The primary objective of a layout is to demark the entire shop floor area as per the tasks which are done there.
- Along with demarking, the layout should help in making it simpler for the workers to locate machines, tools, equipment and other staff on the shop floor.

LAYOUT OF STORE SHOP FLOOR / PLANT



PLANT / SHOP FLOOR

- Shop floor is the production area of any manufacturing facility, which is typically located separately from the main management office of that business.
- There are no standard or generic shop floor layouts. These layouts are different for every manufacturing, assembling or processing facilities. Various types of products or the processes decide the layout of the shop floor.

PLANT / SHOP FLOOR

- Guidelines for Shop Floor Building Layout
- The Shop Floor building is designed by considering the following guidelines –
- Location of the Shop Floor
- The shop floor should be located separately within the proximity of the design, engineering and production departments of the manufacturing business. This enables the staff to access the shop floor conveniently.

PLANT / SHOP FLOOR

- Shop Floor Infrastructure
- It mainly includes the following things –
- The shop floor building.
- The built-up or open space for ancillary devices that cannot be installed inside the work area of the shop floor for safety purpose.
- Cabling, hosing, fans and ACs with their respective electrical connections.

PLANT / SHOP FLOOR

- Drainage system.
- Waste management system.
- Safety devices such as fire extinguishers, etc.
- This facility can also have eating establishments, restrooms, smoking area, etc.
- Health and Safety on the Shop Floor

PLANT / SHOP FLOOR

- The shop floor should be designed with the following –
- Air ventilation in the work area.
- System to dispose solid and liquid waste.
- System for readiness to any fire hazard.
- System to provide first aid and tackle medical emergencies.
- Housekeeping for clean and neat shop floor.

STORE AND PLANT LAYOUT

- Keeping in view the type of industry and volume of production, the type of layout to be selected is to be decided from the following:
- 1. Product or Line Layout
- 2. Process or Functional Layout.
- 3. Fixed Position Layout
- 4. Combination type of Layout.
- Layout of Stores:
- .

PRODUCT OR LINE LAYOUT

- 1. Product or Line Layout:
- If all the processing equipment and machines are arranged according to the sequence of operations of the product, the layout is called product type of layout. In this type of layout, only one product of one type of products is produced in an operating area. This product must be standardized and produced in large quantities in order to justify the product layout.
- The raw material is supplied at one end of the line and goes from one operation to the next quite rapidly with a minimum work in process, storage and material handling.

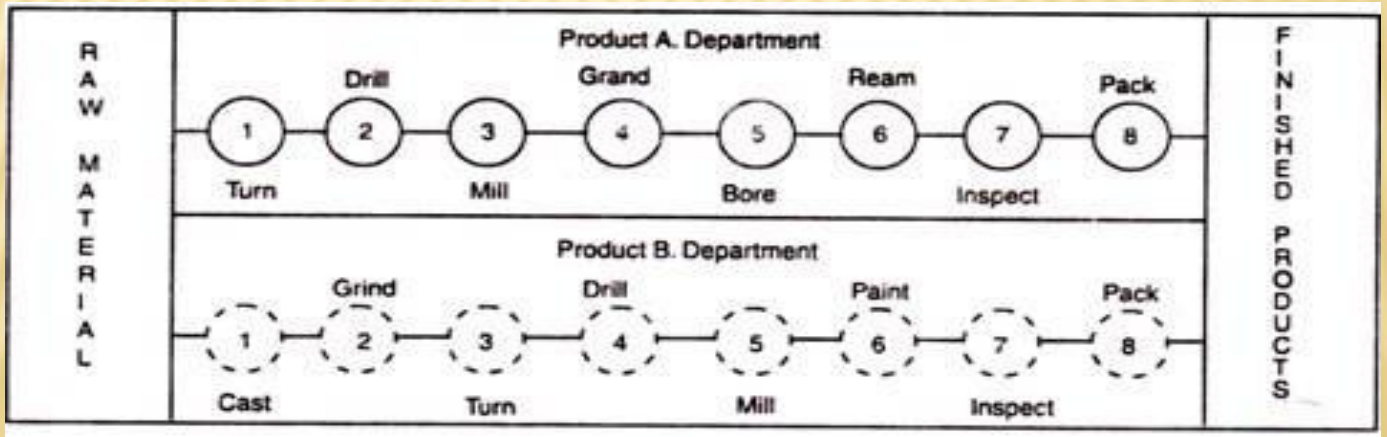


Fig. 8.3.

PRODUCT OR LINE LAYOUT

ADVANTAGES OFFERED BY PRODUCT LAYOUT

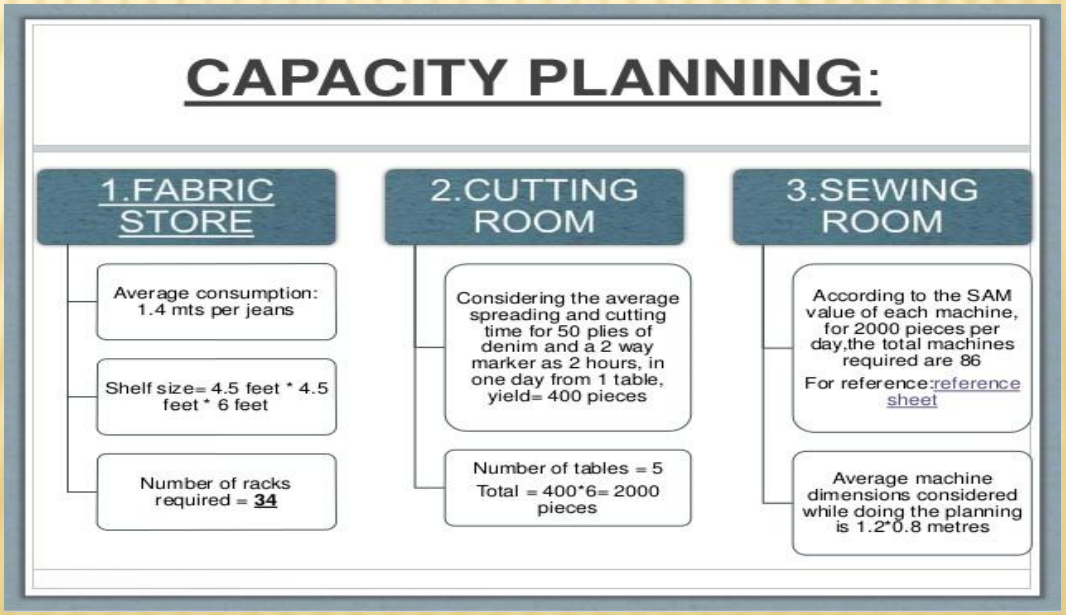
- (i) Lowers total material handling cost.
- (ii) There is less work in processes.
- (iii) Better utilization of men and machines,
- (iv) Less floor area is occupied by material in transit and for temporary storages.
- (v) Greater simplicity of production control.
- (vi) Total production time is also minimized.

LIMITATIONS OF PRODUCT LAYOUT

- (i) No flexibility which is generally required is obtained in this layout.
- (ii) The manufacturing cost increases with a fall in volume of production.
- (iii) If one or two lines are running light, there is a considerable machine idleness.
- (iv) A single machine break down may shut down the whole production line.
- (v) Specialized and strict supervision is essential

PROCESS OR FUNCTIONAL LAYOUT

- The process layout is particularly useful where low volume of production is needed. In this type of layout, the machines are not arranged according to the sequence of operations but are arranged according to the nature or type of the operations. This layout is commonly suitable for non repetitive jobs.
- Same type of operation facilities are grouped together such as lathes will be placed at one place, all the drill machines are at another place and so on. Therefore, the process carried out in that area is according to the machine available in that area. *SAM – Standard Allowed Minute (time for completing one garment)



PROCESS OR FUNCTIONAL LAYOUT

ADVANTAGES OF PROCESS LAYOUT

- (i) There will be less duplication of machines. Thus, total investment in equipment purchase will be reduced.
- (ii) It offers better and more efficient supervision through specialization at various levels.
- (iii) There is a greater flexibility in equipment and man power thus load distribution is easily controlled.
- (iv) Better utilization of equipment available is possible.
- (v) Break down of equipment can be easily handled by transferring work to another machine/work station.
- (vi) There will be better control of complicated or precision processes, especially where much inspection is required.

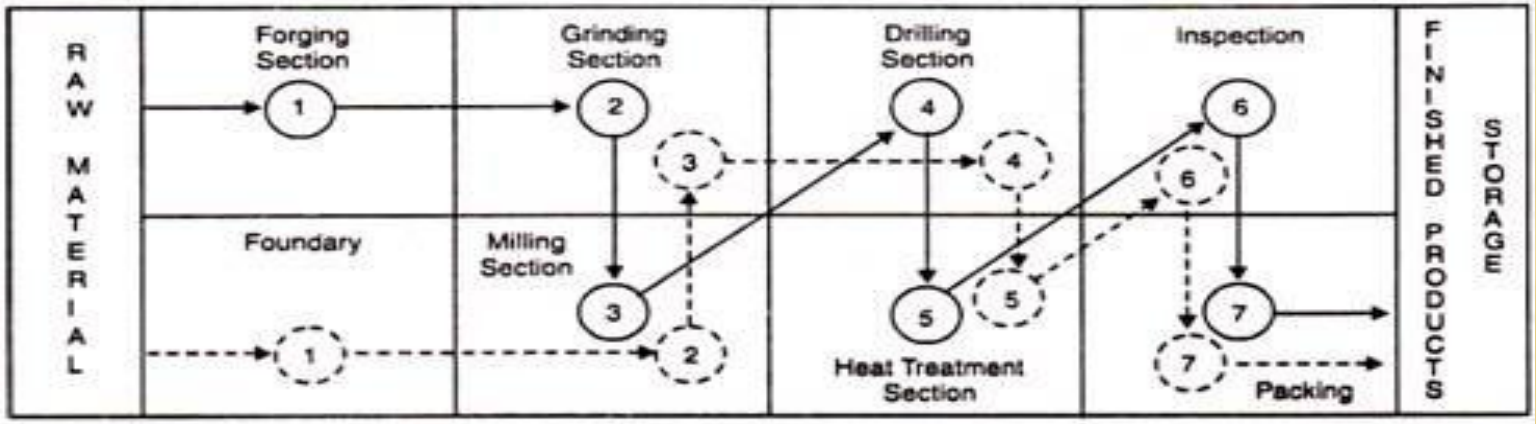


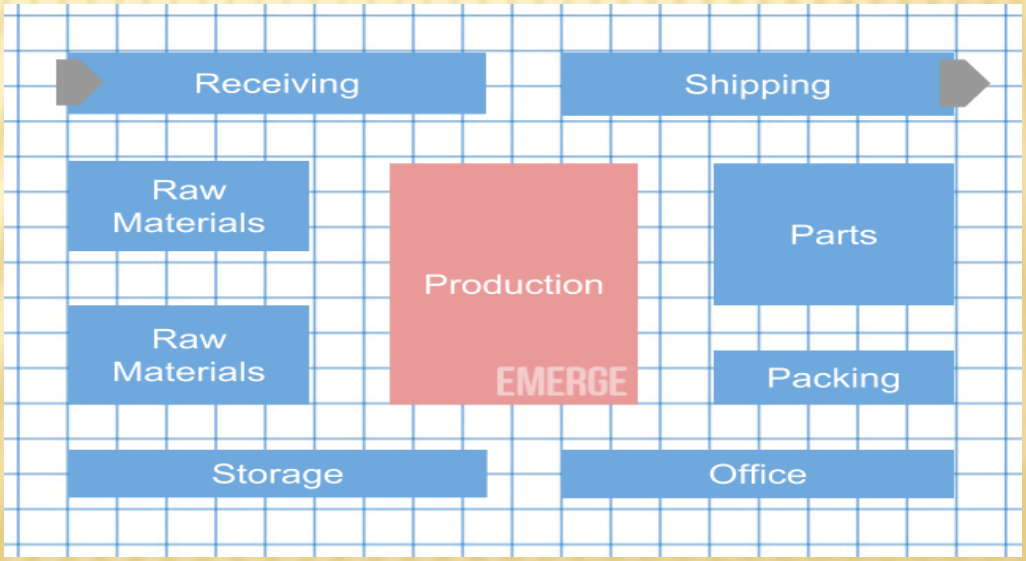
Fig. 8.4.

LIMITATIONS OF PROCESS LAYOUT

- (i) There are long material flow lines resulting in expensive handling.
- (ii) Total production cycle time is more owing to long distances and waiting at various points.
- (iii) Since more work is in queue and waiting for further operation hence bottle necks occur.
- (iv) Generally, more floor area is required.
- (v) Since work does not flow through definite lines, counting and scheduling is more tedious.
- (vi) Specialization creates monotony and there will be difficult for the laid workers to find job in other industries.

FIXED POSITION LAYOUT

- This type of layout is the least important for today's manufacturing industries. In this type of layout the major component remain in a fixed location, other materials, parts, tools, machinery, man power and other supporting equipment's are brought to this location.
- The major component or body of the product remain in a fixed position because it is too heavy or too big and as such it is economical and convenient to bring the necessary tools and equipment's to work place along with the man power. This type of layout is used in the manufacture of boilers, hydraulic and steam turbines and ships etc.



ADVANTAGES OFFERED BY FIXED POSITION LAYOUT

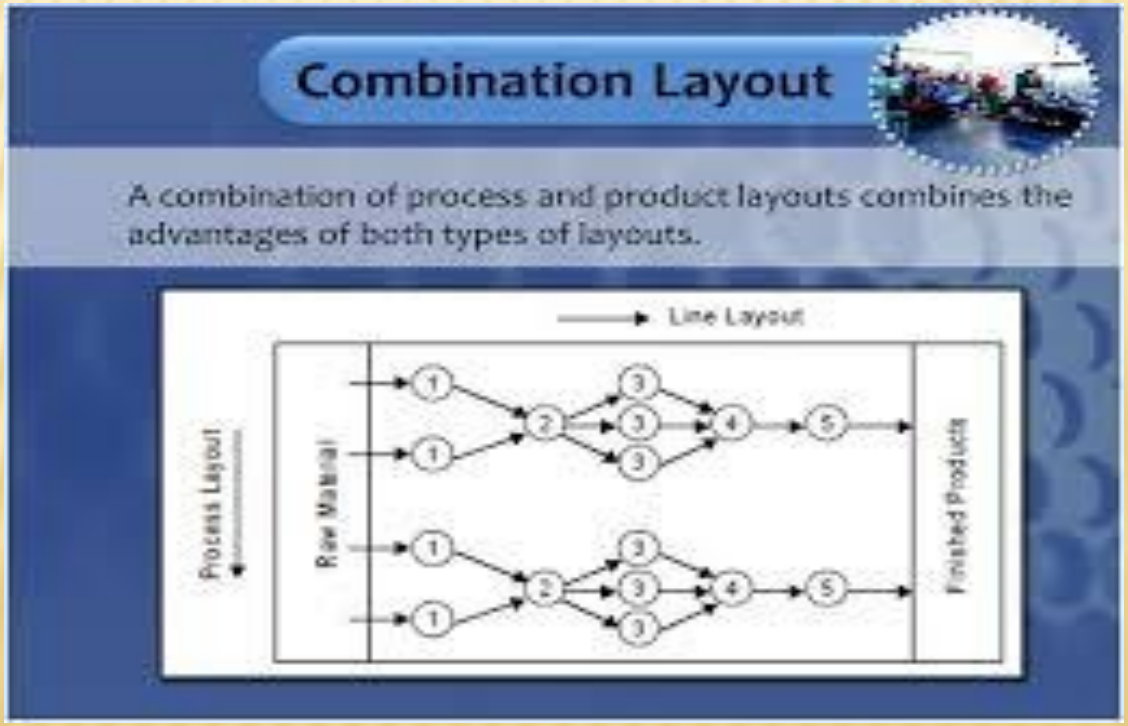
- (i) Material movement is reduced
- (ii) Capital investment is minimized
- (iii) The task is usually done by gang of operators, hence continuity of operations is ensured
- (iv) Production centers are independent of each other. Hence, effective planning and loading can be made. Thus total production cost will be reduced.
- (v) It offers greater flexibility and allows change in product design, product mix and production volume.

LIMITATIONS OF FIXED POSITION LAYOUT

- (i) Highly skilled man power is required.
- (ii) Movement of machines equipment to production center may be time consuming.
- (iii) Complicated fixtures may be required for positioning of jobs and tools. This may increase the cost of production

COMBINATION TYPE OF LAYOUT:

- Now a days in pure state any one form of layouts discussed above is rarely found. Therefore, **generally the layouts used in industries are the combination of the above mentioned layouts**. Every layout has got certain advantages and limitations. Flexibility is a very important to a factory, so layout should be such which can be molded according to the requirements of industry, without much investment. If the good features of all types of layouts are connected, a combination solution can be obtained which will be more **economical and flexible.**



OBJECTIVES OF STORE AND PLANT LAYOUT

- **The objectives of a good layout are as follows:**
- (i) Should provide overall satisfaction to all concerned.
- (ii) Material handling and internal transportation from one operation to the next is minimized and efficiently controlled.
- (iii) 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.
- (iv) Should provide high work in process turnover.
- (v) Should utilize the space most effectively; may be cubical utilization.

OBJECTIVES OF STORE AND PLANT LAYOUT

- (vi) Should provide worker's convenience, promote job satisfaction and safety for them.
- (vii) Should avoid unnecessary investment of capital.
- (viii) Should help in effective utilization of labour.
- (ix) Should lead to increased productivity and better quality of the product with reduced capital cost.
- (x) Should provide easy supervision.
- (xi) Should provide space for future expansion of the plant.
- (xii) Should provide proper lighting and ventilation of the areas of work stations.

PRINCIPLES OF STORE & PLANT LAYOUT

- According to Muther there are six basic principles of “best layout”.
- **These are:**
- **1. Principle of Overall Integration:**
- According to this principle the best layout is one which provides integration of production facilities like men, machinery, raw materials, supporting activities and any other such factors which result in the best compromise.

- **2. Principle of Minimum Distance:**
- According to this principle, the movements of men and materials should be minimized.

PRINCIPLES OF STORE & PLANT LAYOUT

- **3. Principle of Flow:**
- According to Muther, the best layout is one which arranges the work station for each operation process in the same order or sequence.

- **4. Principle of Cubic Space Utilization:**
- According to this, the best layout utilizes cubic space i.e. space available both in vertical and horizontal directions is most economically and effectively utilized.

PRINCIPLES OF STORE & PLANT LAYOUT

- **5. Principle of Satisfaction and Safety:**
- According to this principle, best layout is one which provides satisfaction and safety to all workers.

- **6. Principle of Flexibility:**
- In automotive and other allied industries where models of products change after sometime, the principle of flexibility provides adoption and rearrangements at a minimum cost and least inconvenience

THANK YOU

- Source:http://www.yourarticlelibrary.com/industries/plant-layout/objectives-and-principles-of-industrial-plant-layout/34607
- https://www.tutorialspoint.com/shop_floor_management/shop_floor_management_layout.htm

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