



CERTIFIED WAREHOUSING AND STOREKEEPING COURSE

1.0.WAREHOUSING

Warehousing refers to the activities involving storage of goods on a large-scale in a systematic and orderly manner and making them available conveniently when needed. In other words, warehousing means holding or preserving goods in huge quantities from the time of their purchase or production till their actual use or sale.

Warehousing is one of the important auxiliaries to trade. It creates time utility by bridging the time gap between production and consumption of goods. The effective and efficient management of any organization requires that all its constituent elements operate effectively and efficiently as individual facilities and together as an integrated whole corporate.

Across the supply chains, warehousing is an important element of activity in the distribution of goods, from raw materials and work in progress through to finished products .It is integral part to the supply chain network within which it operates and as such its roles and objectives should synchronize with the objectives of the supply chain. It is not a ‘Stand-alone’ element of activity and it must not be a weak link in the whole supply chain network.

Warehousing is costly in terms of human resources and of the facilities and equipment required, and its performance will affect directly on overall supply chain performance. Inadequate design or managing of warehouse systems will jeopardize the achievement of required customer service levels and the maintenance of stock integrity, and result in unnecessarily high costs.



2.0. WAREHOUSE

A warehouse is a large building where goods are stored, and where they may be catalogued, shipped, or received, depending upon the type. Warehouses are commonly used by exporters, importers, wholesalers, manufacturers etc. Warehouses are usually equipped with loading docks to load and unload trucks and they have cranes and forklifts for moving goods, and are placed on ISO standard pallets loaded into pallet racks.



Warehouses have existed for several centuries, and the word itself is not hard to understand. “Wares” were the things possessed by a seller and to house these in a central location meant you were storing your wares. Normally, though, modern warehouses may store not just the possessions of a single seller or manufacturer, but a host of different products. The principal operation of the place is receiving, getting in new products, and shipping out products already stored. Another important part of maintaining a good warehouse is keeping inventory of what products are presently in the warehouse, what has been shipped and what has been received. This process is again largely automated.

Some warehouses are fully automated where products are moved from one place to other with a system of automated conveyors and automated storage and retrieval machines which run by programmable logic controllers and also with logistics automation software. In an automated warehouse the tracking of materials is coordinated by Warehouse Management System (WMS), a database driven computer program. Logistics personnel make use of WMS to improve the efficiency of the warehouse by maintaining accurate inventory levels taking into consideration warehouse transactions and directing put ways.

3.0. STOREKEEPING

Storekeeping involves the receiving, storing and distributing stock items, stores or supplies, maintaining stock inventory records and assisting in the routine purchasing.

It is serving facility, inside an organization, responsible for proper storage of the materials and then issuing them to respective departments on proper requisition.

Conversely, a store becomes a warehouse when it is for commercial purpose and when enormous stock is involved leading to big structures/facilities. Hence, storekeeping is considered an integral aspect of warehousing and that accounts for the interchangeable use of the two terms.



3.1.Objectives of Store--Keeping

- Easy location of the items instore.
- Proper identification of items.
- Speedy issue of material.
- Efficient utilization of space.
- Reduction in need of material handling equipment.

4.0 THE PURPOSES OF THE STORES / WAREHOUSE

The store is self-evidently a major company service department. Service is provided on behalf of the following functions:

4.1. Service to Purchasing & Quality

The store receives raw materials and bought-out parts on behalf of Purchasing. The receipts must therefore be counted accurately and the material checked or sampled as to quality. Information about receipts must be promptly notified to the central database.

4.2. Service to Production

The stores must marshal and issue all works orders on behalf of production, and perhaps any tools and fittings needed. The stores also accepts material from production, whether completed work or scrap. The nature of production is such that emergency issues of material are always likely to be required. It would follow from this for a factory stores

that the facility should provide a service during all times that production takes place ... including second and third shifts.

4.3. Service to Production Planning

The planning of production and the correct maintenance of stocks are essential services as the company progresses manufacture, but these tasks simply cannot sensibly proceed unless the stores/warehouse correctly maintain stock records at a very high level of accuracy.

4.4. Service to Distribution (Logistics)

The stores or warehouse must prepare goods for dispatch to external customers within a turnaround time that has been agreed between its manager, the distribution manager and transport supervision. The function of dispatch includes packaging and, perhaps, making ready all documentation.

4.5. Service to Field Service or Engineering

There may be a requirement to hold and dispense spares for machines both within the factory or installed at customers' premises on a 24-hour basis. The stores' role in providing this service entails call-outs, not merely leaving a key with security.

4.6. Service to Finance (and Senior Management)

Stock is regarded for financial purposes as a current asset of the company i.e. an asset of the same nature as cash and debtors - so that consequently Stores' maintenance of accurate records is a vital contribution to company management. The accuracy of the records is not merely an issue at year end when the balance sheet is being struck. Ongoing accuracy is needed continually for integrated financial accounting purposes.

5.0. FUNCTIONS OF WAREHOUSE

1. **Receiving**-This includes the physical unloading of incoming transport, checking, recording of receipts, and deciding where the received goods are to be put away in the warehouse. It can also include such activities as unpacking and repackaging, quality control checks and temporary quarantine storage for goods awaiting clearance by quality control. Few world class receiving practices are

- i) Direct shipping
- ii) Cross-docking
- iii) Receiving scheduling
- iv) Pre-receiving
- v) Receipt preparation

2. **Inspection**- Quality and quantity check of the incoming goods for their required characteristics.

3. **Repackaging**- Incoming lot may be having non-standard packaging which may not be stored as it is in the respective location. In those cases these materials have to be repacked in unit loads/pallet loads suitable for storage.

4. **Put away** – Binning and storing the goods in their respective locations including the temporary locations from the receiving docking area. Principles for put away are

- i) Direct put away
- ii) Directed put away
- iii) Batched and sequenced put away
- iv) Interleaving

5. **Storage** – Binning the approved material in their respective locations.

6. **Order-Order picking/selection** –Goods are selected from order picking stock in the required quantities and at the required time to meet customer orders. Picking often involves break bulk operations, when goods are received from suppliers in, say, whole pallet quantities, but ordered by customers in less than pallet quantity. Order picking is important for achieving high levels of customer service; it traditionally also takes a high proportion of the total warehouse staff complement and is expensive. The good design and management of picking systems and operations are consequently vital to effective warehouse performance

7. **Sortation** – This enable goods coming into a warehouse to be sorted into specific customer orders immediately on arrival. The goods then go directly to order collation.

8. **Packing and shipping** – Picked goods as per the customer order are consolidated and packed according to customer order requirement. It is shipped according to customer orders and respective destinations.

9. **Cross-docking** –Move products directly from receiving to the shipping dock – these products are not at all stored in the specific locations.

10. **Replenishing** – This is the movement of goods in larger order quantities, for example a whole pallet at a time , from reserve storage to order picking, to ensure that order picking locations do not become empty. Maintaining stock availability for order picking is important for achieving high levels of order fill.



Other important functions include:

- Safe and economical handling of material.
- Security from fire and theft.
- Maintenance of stock in good condition.
- Meeting all round supply of seasonal products.
- Meeting seasonal demand.
- Handling of Large-scale Production
- Quick Supply.
- Continuous Production.
- Price Stabilization.

6.0. TYPES OF WAREHOUSES

6.1. Raw material and component warehouses: It hold raw materials and always in a position to induct raw materials onto a manufacturing or assembly process.

6.2. Work-in-process warehouses: This warehouses hold partially completed products and assemblies at various points along production line or an assembly line.

6.3. Finished goods warehouses: It holds inventory usually to balance the variation between production schedules and demand. Normally these warehouses are situated near manufacturing plant, and it is characterized by the flow of full pallets in and full pallets out, assuming the product size and volume authorizes pallet-sized loads.

6.4. Distribution warehouse and distribution centres: Distribution warehouses accumulate products from various manufacturing points for combined shipment to the common customer. Normally, the warehouses are located central to either the production locations or the customer base. Product movement represented by full pallets or cases in and full case or broken case quantities out.

6.5. Fulfillment warehouses and fulfillment centres: It receives, pick, and ship small orders for individual consumers.

6.6 Local Warehouses: These warehouses mainly for the purpose of responding to the customer demand. Frequently, single items are picked, and the same item is shipped to the customer every day.

6.7. Value-added service warehouses: Key product customization activities takes place like packaging, labeling, marking, pricing, and returns processing.

Classification of warehouses **according to which geographical area** they cater for:

6.8. Centralized warehouse

Centralization generally refers to the allocation of the warehousing services to one particular business unit which provides services to the whole firm. The decisions are made at the central location for the entire network. The main characteristics of a centralized approach are control, efficiency and good economy.

6.8.1. Benefits:

- Improvement in productivity through balancing
- Increase in available knowledge
- Bundling of product flows
- Combined use of production flows
- Control on the system
- Uniformity in the processes
- Improved efficiency

6.8.2. Limitations:

- Customer desire of self- pickup cannot be provided
- Problem of concentration of customers in only certain markets and inhomogeneous customer structure
- Long internal transport paths in large central warehouses and higher costs for the infrastructure
- Slow process of decision making, less flexibility
- High initial costs
- Bureaucracy in the system
- Inflexibility

- Dependent systems

6.9. De-centralized warehouse

Decentralization approach gives the individual business units autonomy and independency over their own resources without any major considerations over the remaining units unless there is a necessity for the overall organization policy. In this approach each facility identifies its most effective strategy without considering the impact on the remaining facilities in the network and this leads to the local optimization. The main characteristics of the decentralized approach are empowerment of individual business units, flexibility, and service orientation. They provide as good service as the centralized warehouses in terms of customer service level.

6.9.1. Benefits

- Rapid adjustment to the changes
- Flexibility
- Quality
- Innovation
- Low startup costs
- Customization and catering to individual needs is possible
- Increase in responsiveness
- Improvement in reliability

6.9.2. Limitations

- Lack of centralized control
- Duplication of resources
- Extensive use of effort and expertise
- Increase in costs

6.10. Types of warehouses based on ownership and management

- **Private Warehouses** – privately owned and utilized.
- **Public Warehouses** – privately owned but for public use.
- **Government Warehouses** – Government owned for public use
- **Bonded Warehouses** – owned by both government and private bodies e.g. dock or port warehouses owned by dock authorities but run by private companies.
- **Co-operative Warehouses** – owned and managed by cooperative societies.



7.0. CHARACTERISTICS OF IDEAL WAREHOUSES

1. Warehouse should be located at a convenient place near highways, railway stations, airports and seaports where goods can be loaded and unloaded easily.
2. Mechanical appliances should be there to loading and unloading the goods. This reduces the wastages in handling and also minimizes handling costs.
3. Adequate space should be available inside the building to keep the goods in proper order.
4. Ware houses meant for preservation of perishable items like fruits, vegetables, eggs and butter etc. should have cold storage facilities.
5. Proper arrangement should be there to protect the goods from sunlight, rain, wind, dust, moisture and pests.
6. Sufficient parking space should be there inside the premises to facilitate easy and quick loading and unloading of goods.
7. Round the clock security arrangement should be there to avoid theft of goods.
8. The building should be fitted with latest fire-fighting equipment's to avoid loss of goods due to fire.

8.0 PROBLEMS OF WAREHOUSE

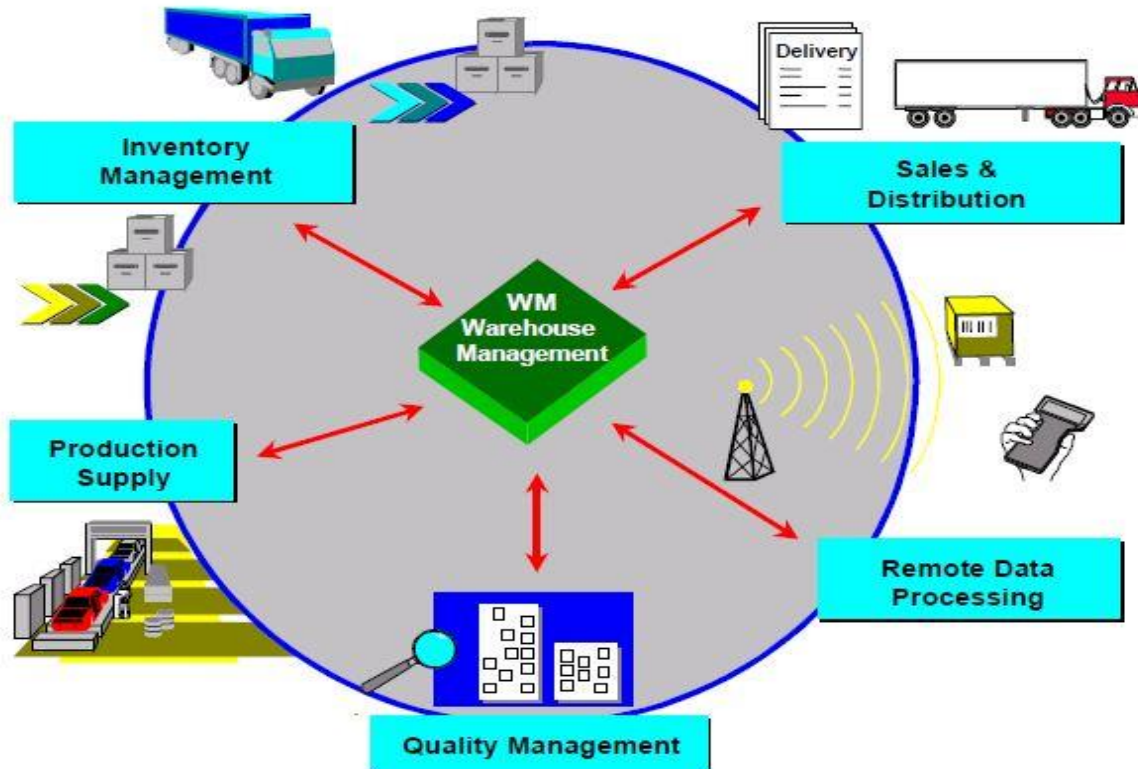
The following are some of the problems being faced by today's warehouses:

- i) Automate all the mechanized or manual operations.
- ii) Satisfy the requirements of the customer without much customization.
- iii) Integration of the warehouse data with supply chain applications.
- iv) Compatible to the cost- effective global supply chain.

9.0. WAREHOUSE MANAGEMENT SYSTEM (WMS)

Warehouse management system is a pivotal part of the supply chain which mainly controls the storage and movement of materials within a warehouse and processes the transactions, including receiving, shipping, picking and put away. WMS also enables in directing and optimizing stock put away according to the real-time information of bin utilization status. A WMS monitors the

progress of products through the warehouse. It involves the physical warehouse infrastructure, tracking systems, and communication between product stations



The main objective of WMS is to provide an automated (computerized) procedure to handle the records of incoming and outgoing goods. WMS provides a helpful link to logistics management and also for order processing in order to pick-up, packing and shipping the product out of the facility.



9.1. WMS BENEFITS

1. Faster Payback and Inventory Returns

WMS reduces the lead time by confining the movement of inventory and improve the inventory records accuracy, this leads to a system which supports the JIT environment.

2. Efficient-Warehouse Floor Space Utilization

Warehouse management system can efficiently locate the items in relation to receiving, assembling, packing, and shipping point thus contributing to efficient use of warehouse space.

3. Reduction in Paperwork For Inventory Transactions

WMS minimize the paper work which is associated with warehouse operations such as receiving, picking and packing by maintaining the data electronically, and also ensures the timely and accurate flow of information.

4. Improvement in Cycle Counting

WMS captures relevant data in order to schedule the personnel for cycle counts. These cycle counts can enhance the accuracy of inventory records for planning purposes, and also minimizes the need costly physical inventories.

5. Reduced Dependency on Warehouse Personnel

The operations such as picking methods, inventory movements and inventory locations can be standardized by implementing WMS. The above standardization results in lower training costs, lower error rate and minimizes reliance on informal practices.

6. Enhanced Customer Service

The process can be streamlined from order to delivery with the WMS implementation, and thus companies can accurately find product availability and the realistic dates for delivery. WMS identifies and releases back-order inventory and thus minimizes returns due to the fact that shipment accuracy is improved.

7. Improved Labour Productivity

Cross docking is another important aspect of warehouse management system where incoming shipments are routed to the location near to the outbound shipping dock, thereby reducing the warehouse handling. Thus material flow is optimized by WMS using cross docking function.

9.2. SCOPE OF WMS

Even though WMS continues to gain added functionality, the initial core functionality of a WMS has not really changed. The primary purpose of a WMS is to control the movement and storage of materials within an operation and process the associated transactions. Directed picking, directed replenishment, and directed put away are the key to WMS. The detailed setup and processing within a WMS can vary significantly from one software vendor to another, however the basic logic will use a combination of item, location, quantity, unit of measure, and order information to determine where to stock, where to pick, and in what sequence to perform these operations.

At a bare minimum, a WMS should:

- Have a flexible location system.
- Utilize user-defined parameters to direct warehouse tasks and use live documents to execute these tasks.
- Have some built-in level of integration with data collection devices.

