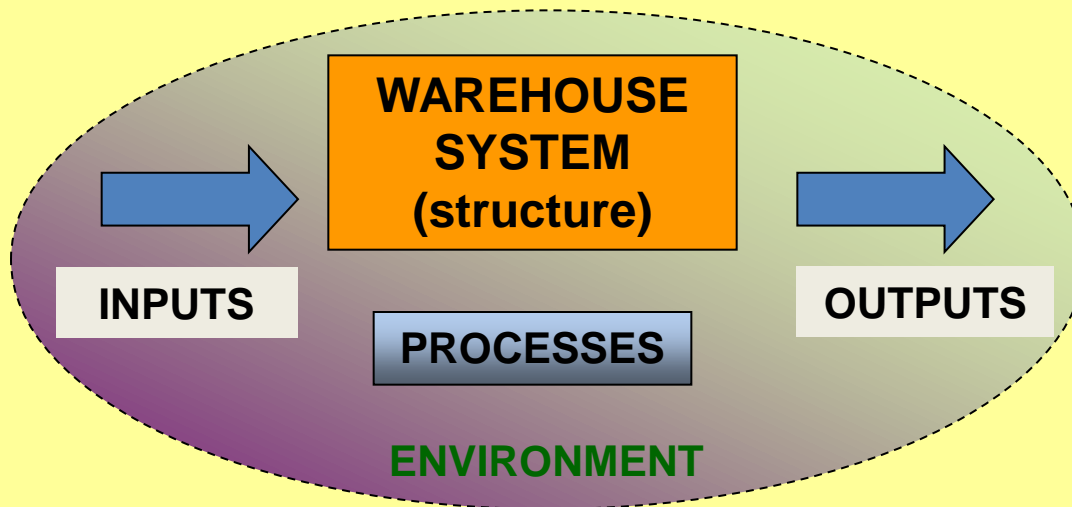
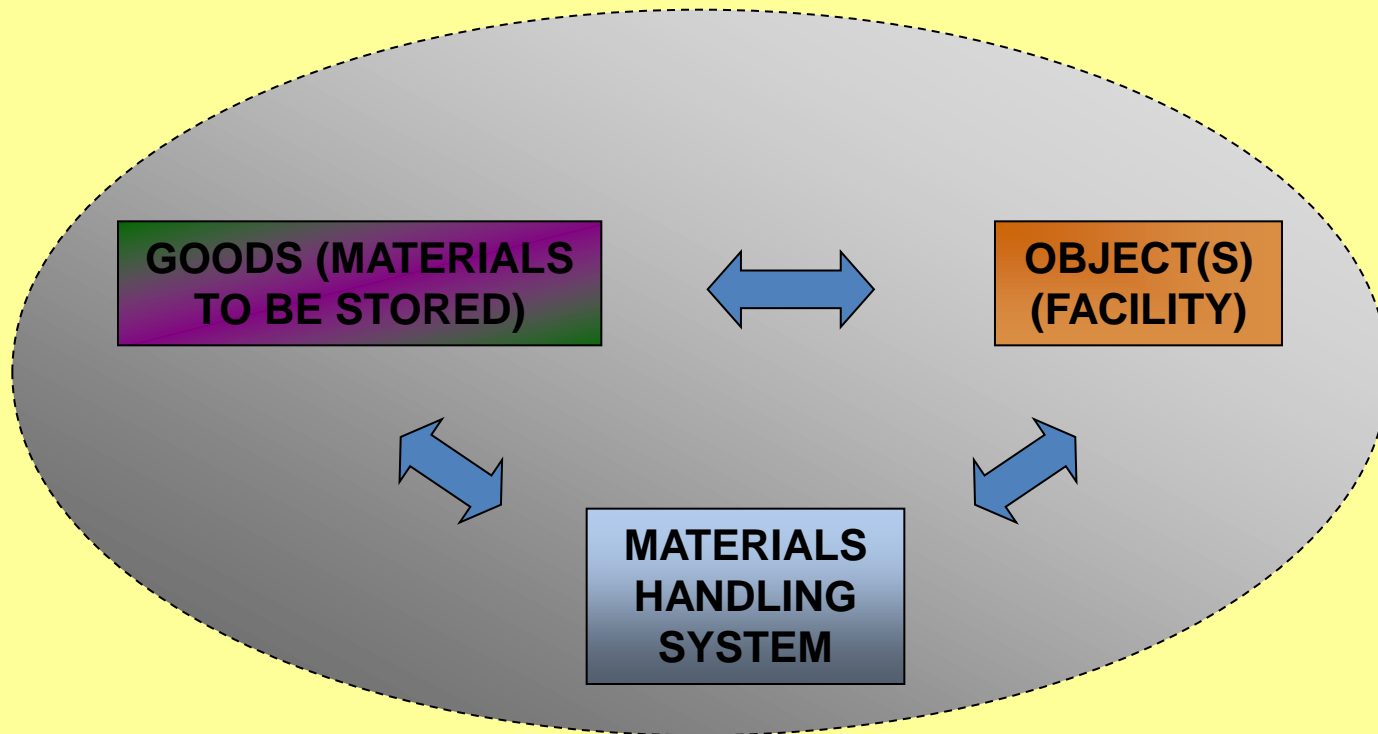


BİR SİSTEM OLARAK DEPOLAMA

As a link in SC, warehouse could be treated as a subsystem. But, at all, **every warehouse separately is a system**, with structure is formed from elements, subsystems, connections between them, which are going to **realize some processes**. This system has an input as well as output, of course lot of processes which are concerned on outside demands, and connections with environment where warehouse exist.



**JUST SEE SOME OF SUBSYSTEMS AND ELEMENTS OF
WAREHOUSE SYSTEM
(BASIC STRUCTURE OF THE SYSTEM)**



GOODS (MATERIALS TO BE STORED)

THERE ARE A LOT OF DIFFERENT MATERIALS THAT CAN BE KEPT IN WAREHOUSE. DIFFERENCES ARE POINTED ON:

- **TYPE** (BULK, FLUID, CARGO, GASSES, UNITIZED ...)

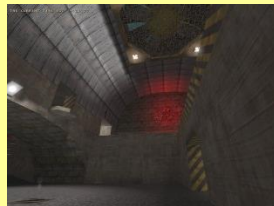


- **QUANTITIES (INVENTORIES) THAT ARE STORED**
- **THROUGHPUT (INVENTORY TURNOVER)**
- **REQUIRED TREATMENT (TEMPERATURE, HUMIDITY, ...)**
- **TYPE PACKAGING**
- **SPECIAL REQUIREMENTS (FOR EXAMPLE, IN CASE OF DANGEROUS MATERIALS)**

OBJECT(S) (FACILITY)

**TYPES OF FACILITIES
CONSTRUCTION ARE VERY
DIFFERENT:**

- OPENED WAREHOUSES
- SEMI OPENED
- CLOSED CONSTRUCTIONS
- UNDERGROUND OBJECTS
- SPECIAL



**MATERIALS USED FOR
CONSTRUCTION:**

- BRICKS
- CONCRETE
- METAL
- WOOD
- PLASTIC
- COMBINATION OF DIFFERENT MATERIALS

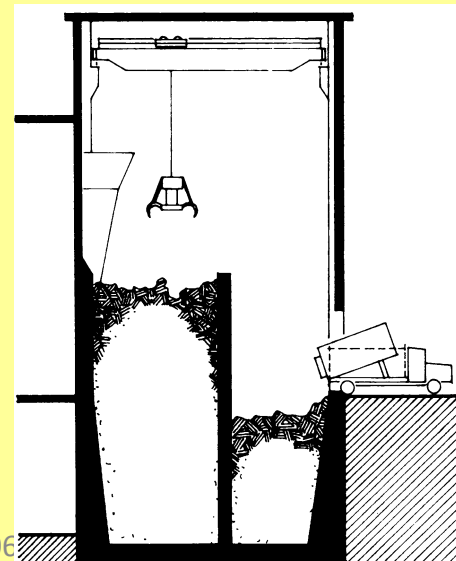
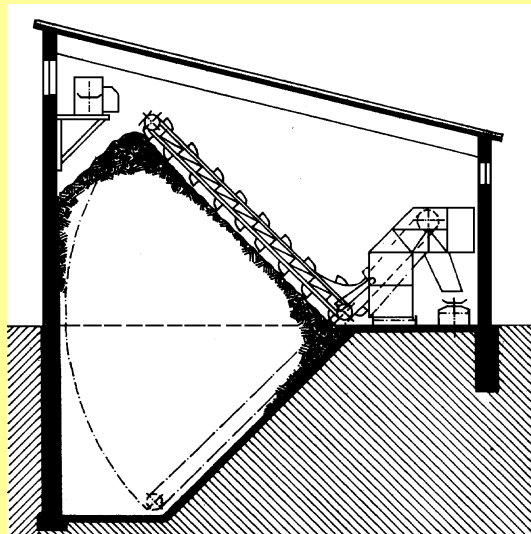
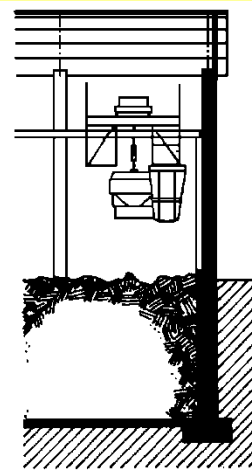
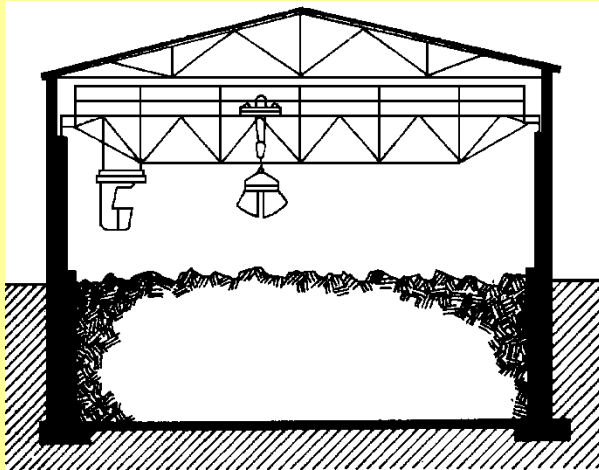
LOCATION AND CAPACITY

Some types of bulk material warehouses

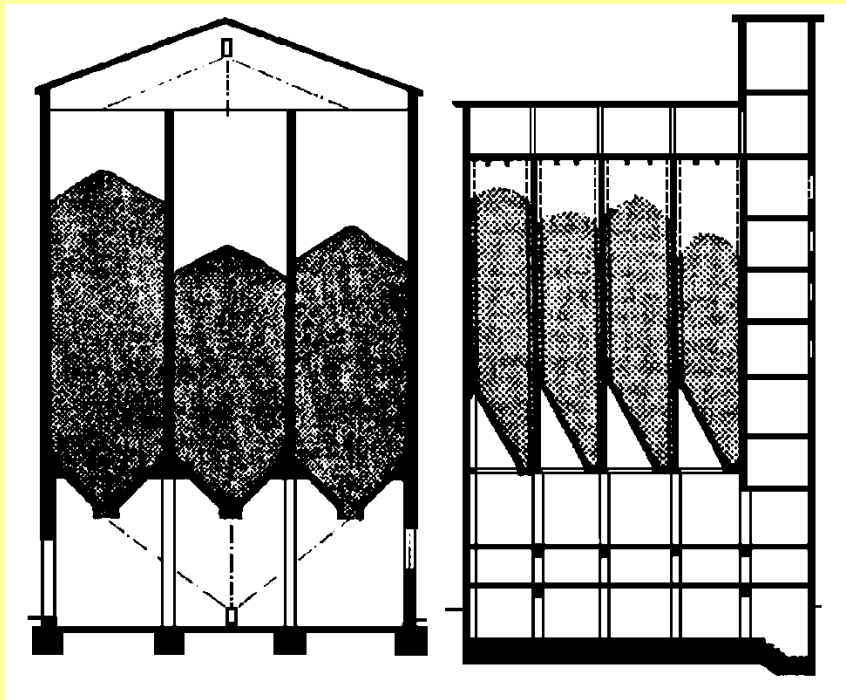
Linearna deponija



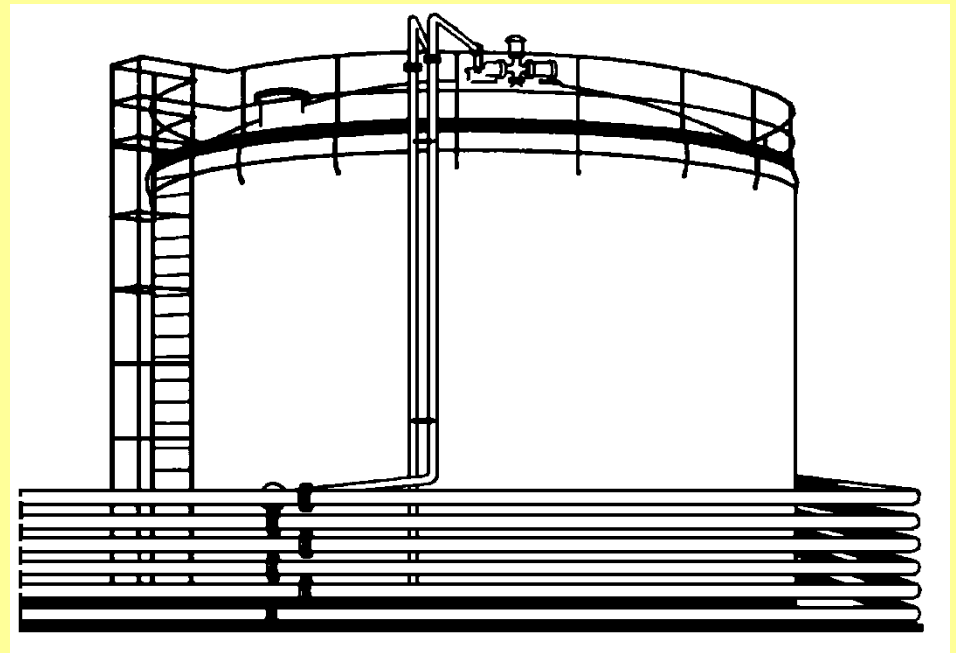
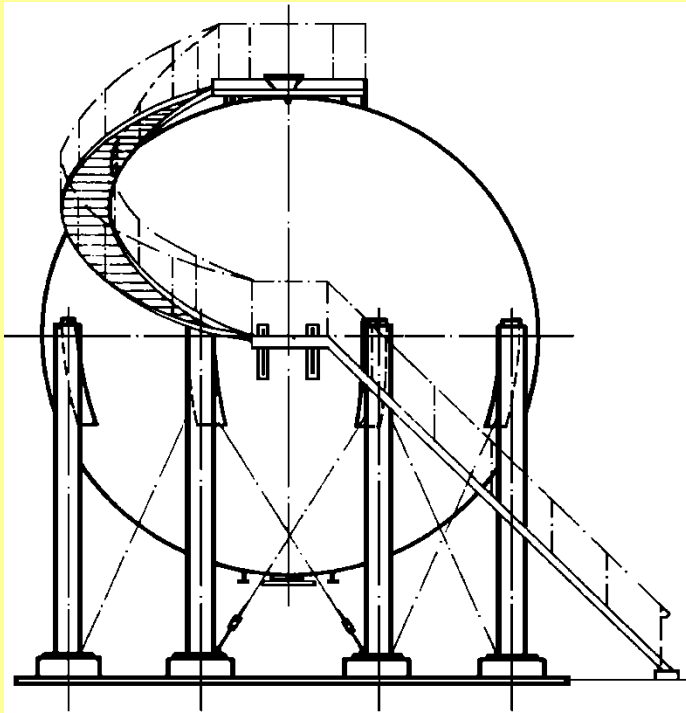
Some types of bulk material warehouses



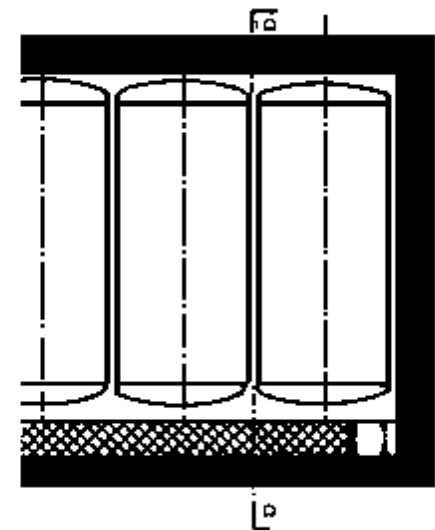
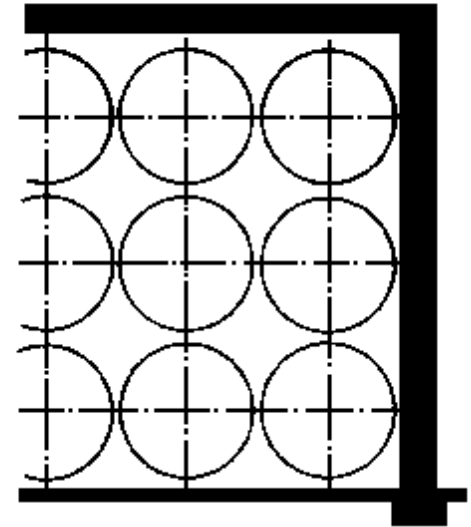
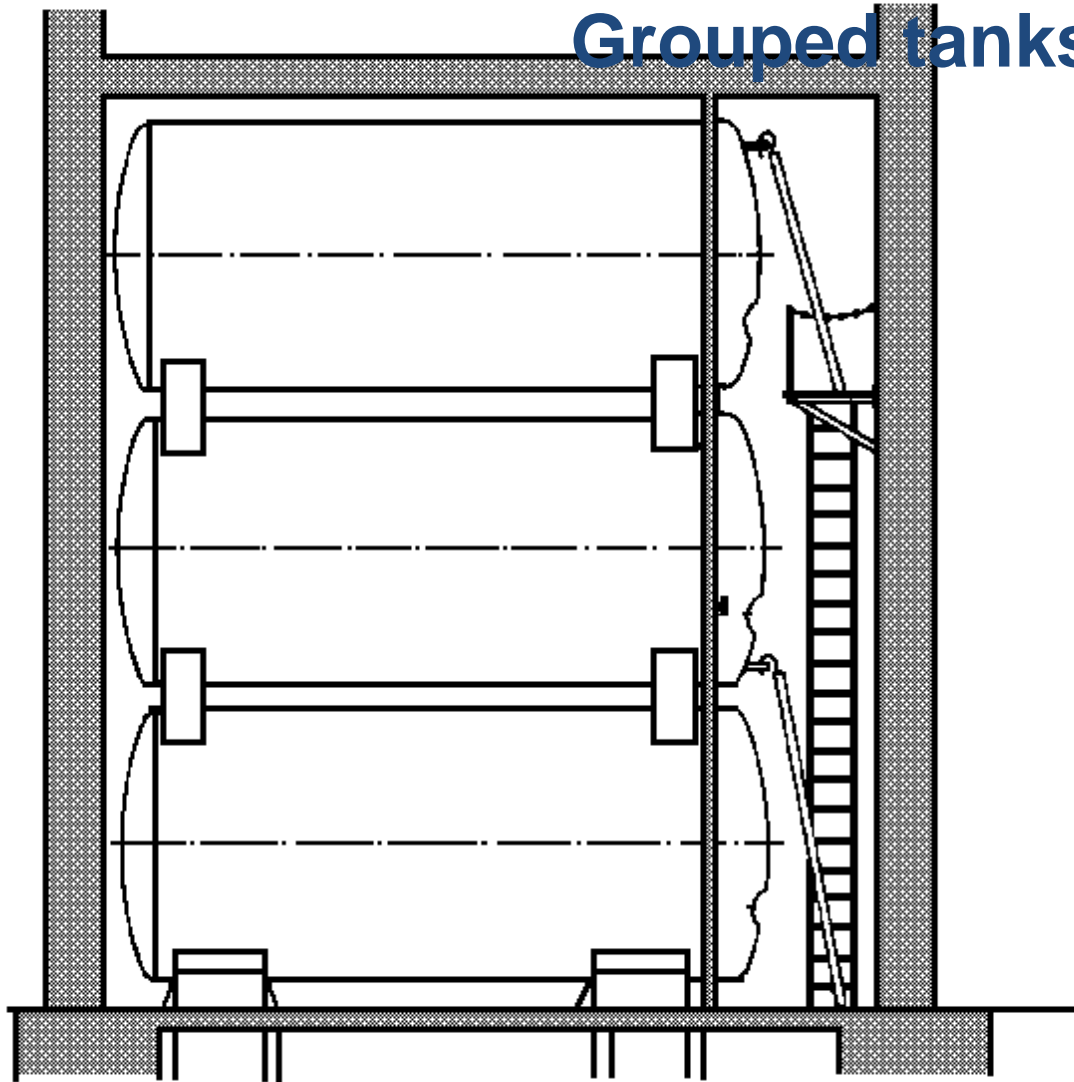
Some types of bulk material warehouses



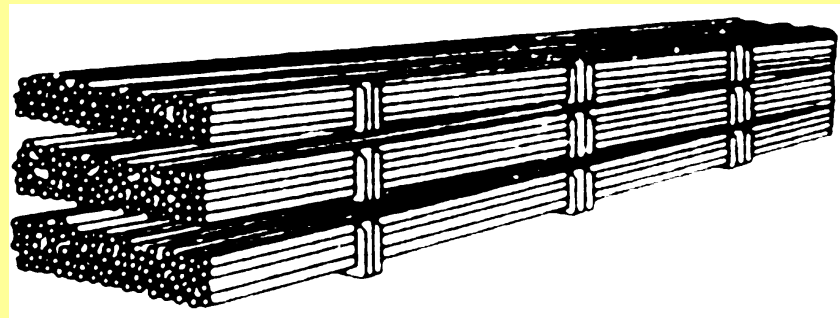
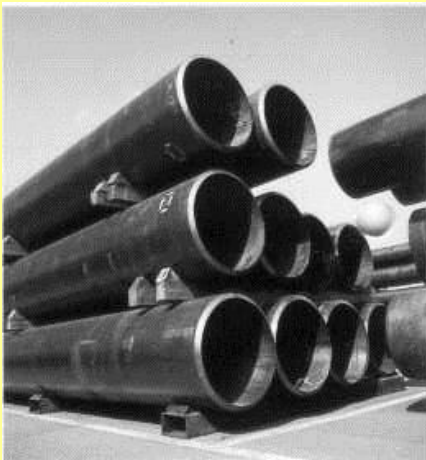
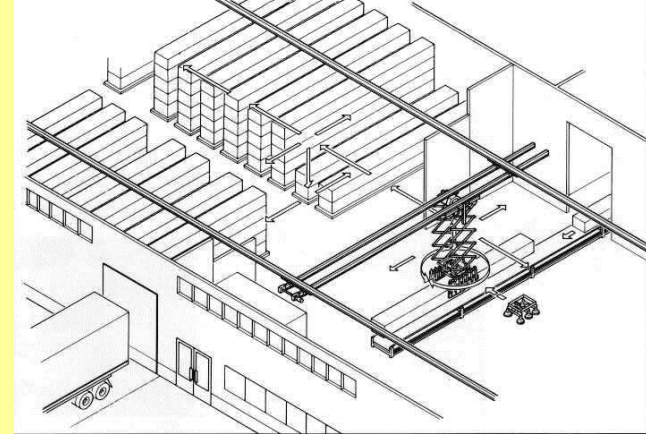
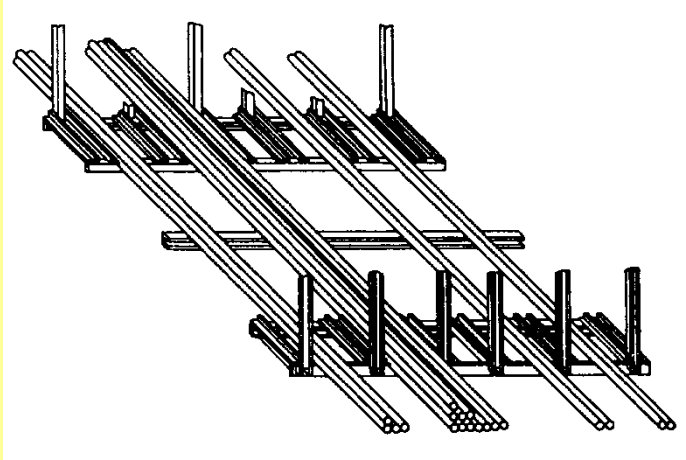
Some types of warehouses for gases and liquid material



Grouped tanks

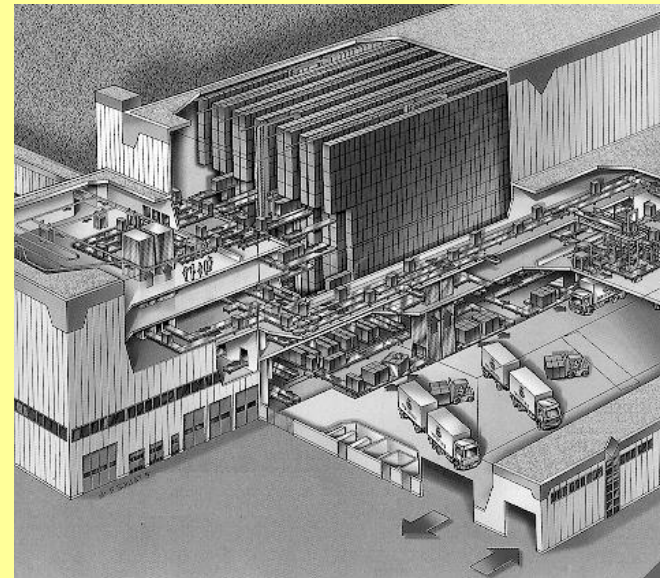
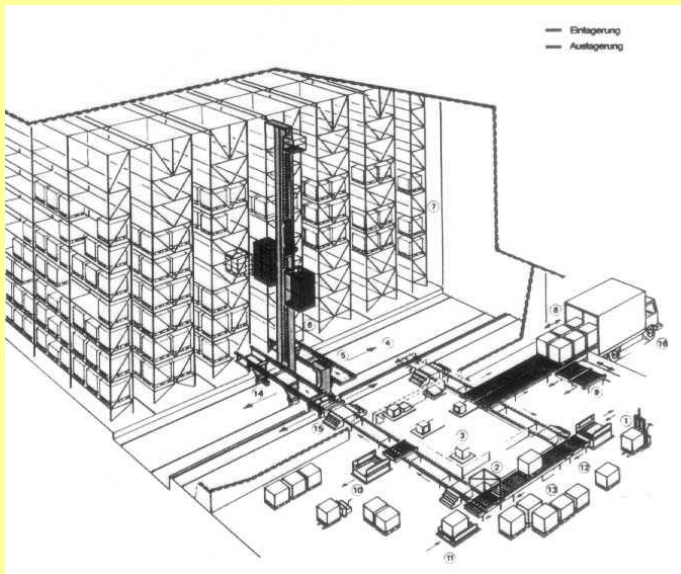


Some types of equipment and warehouses for long materials

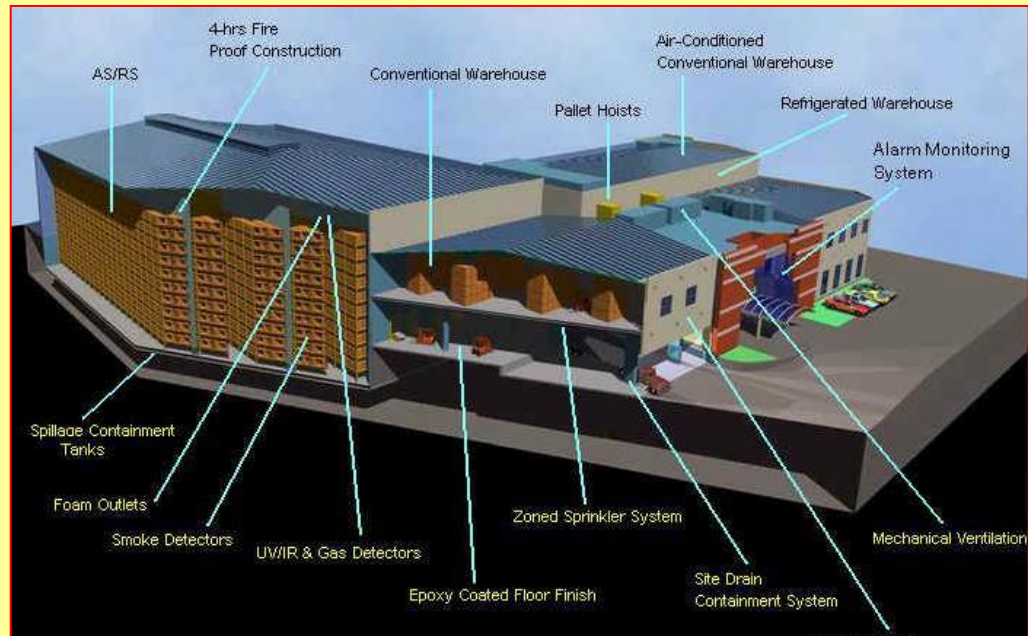




Some types of pallet warehouses



One presentation of warehouse and its components



MATERIALS HANDLING SYSTEM

ALSO, TYPES OF MATERIALS HANDLING EQUIPMENT IS DIFFERENT

DYNAMIC OR STATIC OR COMBINED

VEHICLES

RACKS

CONTAINERS

CRANES

SHELVES

PALLETS

CONVEYORS

DRAWERS

CASES

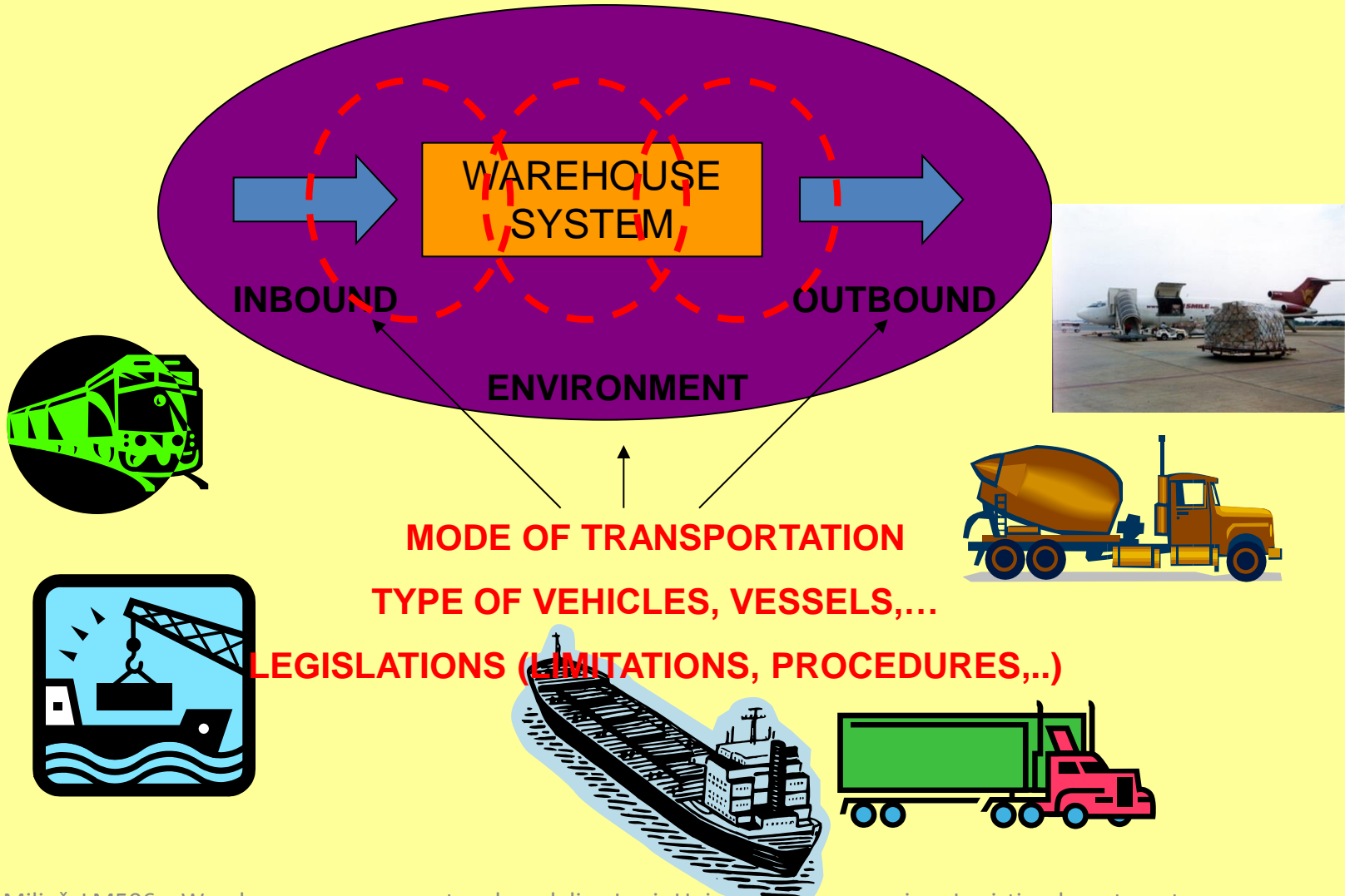
AS/RS ...

BINS ...

BOXES....

**THERE ARE A HUNDREDS OF TYPES AND
WILL BE DISCUSSED LATER**

CONNECTION WITH ENVIRONMENT

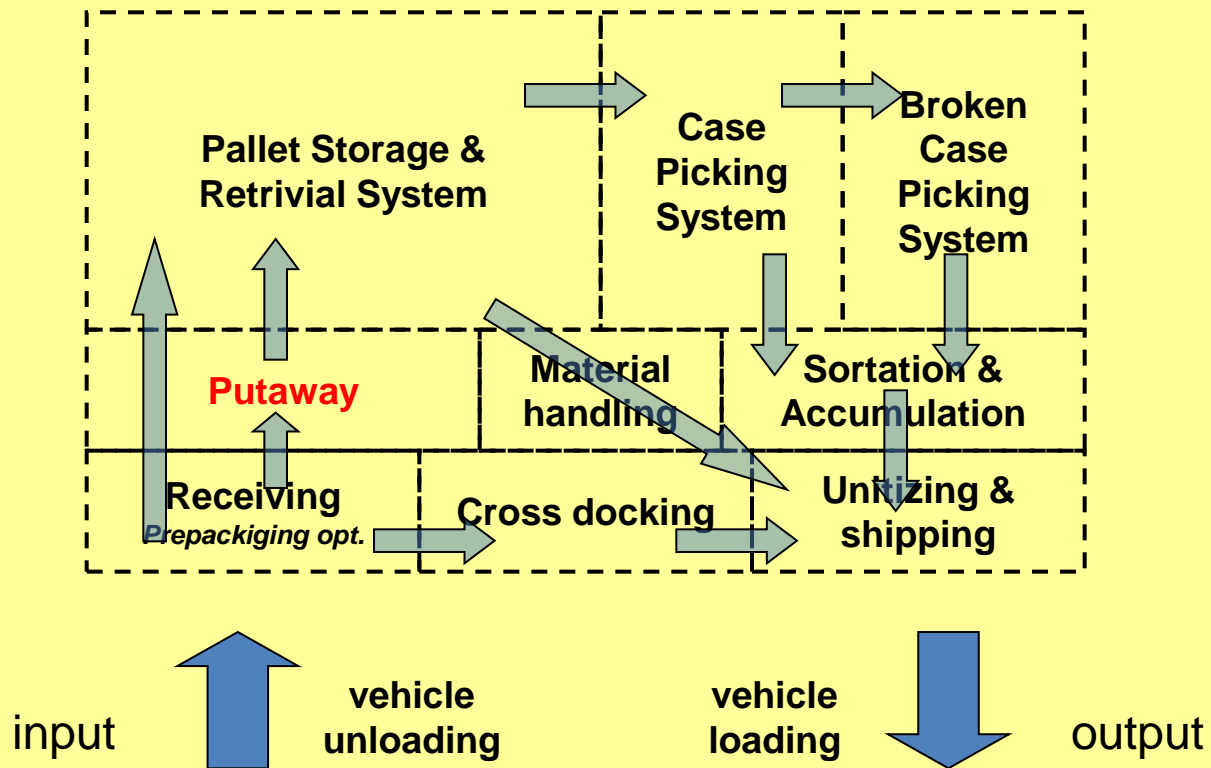


FUNDAMENTAL SET OF ACTIVITIES IN WAREHOUSES

Despite the name or role, warehouse operations have a fundamental set of activities in common. The following list includes the activities found in most warehouses (depending of type of goods):

- 1. Receiving**
- 2. Prepackaging (optional)**
- 3. Putaway**
- 4. Storage**
- 5. Order picking (optional)**
- 6. Packaging and/or pricing (optional)**
- 7. Sortation and/or accumulation**
- 8. Unitizing and shipping**

FUNDAMENTAL SET OF ACTIVITIES IN WAREHOUSES



Different classifications could be found, but the functions may be defined briefly as follows:

1. **Receiving** is the collection of activities involved in (a) the orderly *receipt* of all materials coming into the warehouse, (b) providing the assurance that the *quantity and quality* of such materials are as ordered, and (c) *disbursing materials* to storage or to other organizational functions requiring them.
2. **Prepackaging** is performed in a warehouse when products are received in bulk from a supplier and subsequently packaged singly, in merchandisable quantities, or in combinations with other parts to form kits or assortments. An entire receipt of merchandise may be processed at once, or a portion may be held in bulk form to be processed later. This may be done when packaging greatly increases the storage-cube requirements or when a part is common to several kits or assortments.
3. **Putaway** is the act of placing merchandise in storage. It includes material handling, location verification, and product placement.

4. **Storage** is the physical containment of merchandise while it is awaiting a demand. The storage method depends on the size and quantity of the items in inventory and the handling characteristics of the product or its container.
5. **Order picking** is the process of removing items from storage to meet a specific demand. It is the basic service a warehouse provides for customers and is the function around which most warehouse designs are based.
6. **Packaging and/or pricing** may be done as an optional step after the picking process. As in the prepackaging function, individual items or assortments are containerized for more convenient use. Waiting until after picking to perform these functions has the advantage of providing more flexibility in the use of on-hand inventory. Individual items are available for use in any of the packaging configurations right up to the time of need. Pricing is current at the time of sale. Prepricing at manufacture or receipt into the warehouse inevitably leads to some repricing activity as price lists are changed while merchandise sits in inventory. Picking tickets and price stickers are sometimes combined into a single document.

7. *Sortation* of batch picks into individual orders and accumulation of distributed picks into orders must be done *when an order has more than one item* and the accumulation is not done as the picks are made.

8. *Unitizing and shipping* may include the following tasks:

- Checking orders for completeness
- Packaging merchandise in appropriate shipping containers
- Preparing shipping documents, including packing lists, address labels and bills of lading
- Weighing shipments to determine shipping charges
- Accumulating orders by outbound carrier
- Loading trucks (in many instances, this is a carrier's responsibility)

*As it has been discussed, there are **typical activities**. But sometimes, there could be found less, some additional one (or more), depending of type of warehouse, customer demands and so on.*