

## DESIGNING AGRICULTURAL WAREHOUSES.

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**Abstract:** Proper design of agricultural warehouses is crucial for the effective storage of agricultural products. Optimal and efficient warehouse design ensures the quality and safety of products, minimizes losses, and optimizes storage costs. This article discusses the key aspects of designing agricultural warehouses. The period of use of warehouses is relative to its equipment will be much higher. Therefore, the design of warehouses is mechanical it is necessary to take into account the modernization and change of the equipment

**Keywords:** Agriculture, Warehouse design, Climate control, Hygiene, Safety, Logistics, Product quality

When placing warehouses, the relief of the area is wind direction, depth of underground water and soil mechanical condition is taken into account. Modern warehouses are the reception of fruits and vegetables, everything necessary for storage, product handling, packaging and shipping are coolers equipped with equipment. Loading and unloading equipment in warehouses. conveyors, boxes, baskets and other equipment must be In modern warehouses, all sections are placed in a consistent sequence. The following features should be taken into account when designing warehouses should be obtained: the time of storage of products outside the warehouse reduce, protect the finished product from damage. at low temperature difficulty of working of workers, etc. Key Aspects of Warehouse Design

1. Location: - The warehouse should be located close to agricultural production or harvesting areas. Proximity to transportation networks ensures convenient logistics.

2. Size and Capacity: - The size of the warehouse should match the quantity of products to be stored. The capacity of the warehouse depends on the type of product and storage conditions.

3. Structural Solutions: - The warehouse structure must be robust and durable to ensure the safe storage of products. - Using lightweight and durable materials can reduce construction costs.

4. Climate Control: - A climate control system is essential to maintain product quality and extend shelf life. - Modern technologies should be employed to control temperature, humidity, and ventilation.

5. Hygiene and Sanitation Requirements: - Strict adherence to hygiene and sanitation standards is necessary. - All surfaces and equipment that come into contact with products must be clean and sanitized.

6. Safety and Security:- Warehouses should be equipped with fire safety systems.- Security systems should be installed to protect products from theft.

7. Logistics and Transportation: - The warehouse should be designed to accommodate both internal and external transportation systems. - Efficient loading and unloading processes should be facilitated.

Functional Zones of Warehouses. Receiving Area initial reception and inspection of products are carried out when they are brought into the warehouse.Storage Area products are stored in this zone. Storage conditions may vary depending on the type of product (e.g., refrigeration zone, dry storage zone, etc.).Preparation and Shipping Area products are prepared and packaged for shipment in this zone. When planning warehouses, it is necessary to take into account the entry and exit of vehicles. All are currently under construction one-way entry of motor vehicles in modern warehouses, The goal is to design the exit from the other side is appropriate. One-story warehouses are brick buildings, their walls and the ceilings are made of bark, shavings, reeds and other materials can be covered with plates. To keep warehouses ventilated equipped with special pipes. Made of poly board and between them notches are left. The compartment with outside ambient air through the floor holes with lids are arranged for ventilation.

According to the law of air heat convection in natural ventilation moves. Heated air expands, thins and thins rises, and in turn, cold, dense air flows down. The difference between the air inside the warehouse and the air outside is the air depends on the speed of movement. Artificial ventilation is mainly different fans are used. In this case, the procedure for storing the product A certain level of management is possible in warehouses. Blowing air Blowing air connected to fans and air intake is done through pipes. Equipped with artificial ventilation warehouses are often bulky. Air underground to warehouses distributed through pipes. Here the products are in boxes, stored in containers and other containers. In this case, the product should be placed in such a way that the air of the fan. Let the suction power allow cooling of

all products. At the same time, it should be possible to mechanize product loading and unloading.

**Conclusion:** In designing agricultural warehouses, it is essential to consider the key aspects and functional zones mentioned above. This ensures the quality and safety of products, reduces losses, and optimizes storage costs. Proper warehouse design ensures the long-term storage of agricultural products and delivers high-quality products to consumers.

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