

1. WAREHOUSE FACILITIES

DEFINITION

Warehouse facilities are buildings, various structures, open areas and various other facilities intended for receiving, placing and storing incoming products, for preparing them for further dispatch or consumption, or for handing them over to the consumer.

Warehouses are the most important element of a logistics system, because every process of moving cargo begins and ends at a warehouse. It is rare that goods are delivered directly from the manufacturer to the consumer. Goods mostly spend some time in storage before delivery, occasionally even multiple times. Throughout the supply chain, there is always someone who is the owner of the goods, and someone in charge of moving the goods for their owner. In relatively few cases, both these roles are played

by the same party.

Goods stored in a warehouse represent locked-up funds and daily storage costs for their owner, because the physical characteristics and form of goods do not usually change at a warehouse, while their value is locked-up for the storage duration. Rising competition pushes manufacturers to continuously seek new ways to reduce costs, and the practical solution to these problems is largely associated with choosing the method of storage.

A modern **warehouse** intended for storing cargo, raw and other materials is a complex technical and economic system that consists of many subsystems: the buildings, the fleet of transport and lifting vehicles, the cargo processing system, the information system etc. Figure 1 shows a simplified example of a warehouse facility broken down into zones:

- 1 — Cargo reception zone
- 2 — Dispatch zone
- 3 — Long-term storage zone
- 4 — Cargo movement zone
- 5 — Outgoing cargo control, packaging, labelling
- 6 — Ramp

7 — Conveyor belt

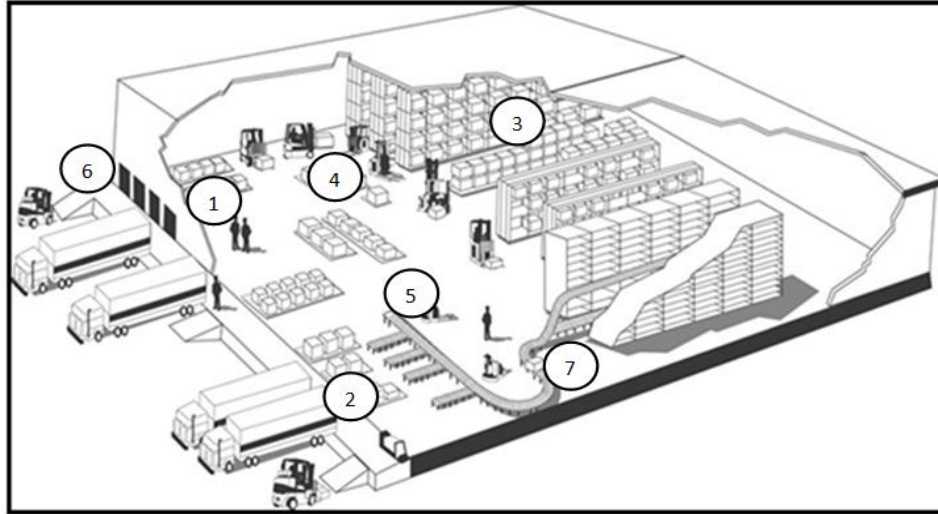


Figure 1. Simplified example of a warehouse facility split into zones



ASSESS

The importance of warehouse facilities is not unambiguous. The main arguments FOR and AGAINST setting up and maintaining a warehouse are provided in Table 1.

Table 1.

Main arguments FOR and AGAINST setting up and maintaining a warehouse

	FOR	AGAINST
1.	More reliability in situations when deliveries of cargo or materials are not complete (less is delivered), when deliveries are not always on time because of errors and delays in their fulfilment, due to weather conditions (storms, floods), or if the cargo loses weight or is damaged in storage	Lock-up of capital. Because stock is a certain amount of product that does not generate the company any income, and certain funds have already been invested in that amount (products/raw materials etc. procured), one must conclude that the locked-up funds could have been spent on other things, like advertising.

2.	Benefit from wholesale discounts for the quantities purchased and transported	Covering up quality problems. Having a large stock can lead to an unfortunate trend in that the company becomes too used to its own routine, and instead of improving its internal logistics, the company uses its stock as a protective buffer enabling the necessary level of service.
3.	Fewer losses pertaining to the exhaustion of stock, which can lead to: less profit, fewer sales, reduction in company reputation as a supplier, more costs due to downtime	Warehouse risks. Business risks: loss of demand, falling prices, technological progress, currency fluctuations, changes in tastes and fashions. Other risks: fire, losses, destruction of products, floods, storms, theft etc.
4.	Lower cost of preparing orders (orders take place less often)	
5.	Higher capacity to quickly react to fluctuation in market demand and increase sales	
6.	Possibility of buying products or materials at times when their purchasing price is lower. This is particularly relevant in the case of seasonal products (e.g. in agriculture). Nevertheless, similarly to virtually all elements of a logistics system, the necessity for warehouses must be determined based on the costs and benefits arising from maintaining them	

Task 1

The most important tasks of warehouse facilities are:

- material stock planning;
- material stock replenishment;
- product reception, control and placement at the warehouse;
- preservation of the value and quality of the stock at the warehouse;
- effective use of the warehouse.

Situation

To produce its bread and other baked goods, the Yummy Loaf bakery needs both rye and wheat flour. Both these types of flour are consumed at a constant rate, even though the actual harvest for these grains takes place only in July and August. Nevertheless, the bakery makes and sells its popular bread throughout the year. So in order to maintain constant production, it purchases the grain, stores it in elevators, then processes it into flour, which is then used to bake bread.

Buy in large quantities has its advantages, in the form of discounts. The price of grain can also rise in winter and spring, which will not be a problem for the company. Its procurement department will only buy grain if additional quantities are necessary.

Questions:

1. What other advantages for having its warehouses are there for Yummy Loaf? Assess the possible drawbacks!
2. Name the functions of warehouse facilities discussed in the example.
3. Explain the effects of long-term grain storage on the operations of Yummy Loaf!

Task 2

The students are randomly divided into two groups, and each group randomly selects a task:

- 1) advantages and drawbacks of a large warehouse;
- 2) advantages and drawbacks of a small warehouse.

The two groups write down at least five advantages and drawbacks in their worksheets, and submit their results.

Compare, discuss and explain the answers prepared by each group!

Advantages of a <u>small/large</u> warehouse	Drawbacks of a <u>small/large</u> warehouse

Knight Frank modern warehouse classification, with Class A, B, C, and D

A+ class warehouse facilities.

- A modern single-floor warehouse building constructed out of light metal structures or sandwich panels, preferably rectangular, without pillars, or an interval of at least 12 m between pillars, and bay spaces of at least 24 m.
- Developed area: 40–50%.
- Flat concrete floor with an anti-dust surface and a max. load of no less than 5 t/m².
- High ceilings, at least 13 m, suitable for installing multilevel racks (6–7 levels).
- Adjustable temperature settings.
- Presence of a fire alarm and automatic fire suppression system.
- Presence of a ventilation system.
- Security alarm and video surveillance system.
- Autonomous electric power supply and heating supply.
- Sufficient number of automatic dock shelters (at least one per 500 m²) with adjustable dock levellers in the loading/unloading areas.
- Presence of parking spaces for lorries and cars.
- Presence of reversing areas for large-capacity lorries.
- Presence of offices at the warehouse.
- Presence of utility rooms at the warehouse (staff toilets, showers, changing rooms, other utility rooms).
- Presence of a staff records and supervision system.
- High-tech communications.
- Fenced-off, well-lit, developed grounds with 24-h security.
- Location near key main roads.
- Professional management system.

Class A warehouse facilities.

- A modern single-floor warehouse building constructed out of light metal structures or sandwich panels, preferably rectangular, without pillars, or an interval of at least 9 m between pillars, and bay spaces of at least 24 m.
- Developed area: 45–55%.
- Flat concrete floor with an anti-dust surface and a max. load of no less than 5 t/m².
- High ceiling, at least 10 m, making it possible to install multilevel racks.
- Adjustable temperature settings.
- Presence of a fire alarm and automatic fire suppression system.
- Presence of a ventilation system.
- Security alarm and video surveillance system.
- Sufficient number of automatic dock shelters (at least one per 700 m²) with adjustable dock levellers in the loading/unloading areas.
- Presence of a parking space for lorries and cars.
- Presence of reversing areas for large-capacity lorries.
- Presence of offices at the warehouse.
- Presence of utility rooms at the warehouse (staff toilets, showers, changing rooms, other utility rooms).
- Presence of a staff records and supervision system.
- High-tech communications.
- Fenced-off, well-lit, developed grounds with 24-h security.
- Location near key main roads.
- Autonomous electric power supply and heating supply.

<ul style="list-style-type: none"> • Branch railway line. 	<ul style="list-style-type: none"> • Professional management system. • Branch railway line.
<p><u>Class B+ warehouse facilities.</u></p> <ul style="list-style-type: none"> • A single-floor warehouse building, preferably rectangular, new or renovated. • Developed area: 45–55%. • Flat concrete floor with an anti-dust surface and a max. load of no less than 5 t/m². • Ceiling height: 8 metres. • Adjustable temperature settings. • Presence of a fire alarm and automatic fire suppression system. • Presence of a ventilation system. • Sufficient number of automatic dock shelters (at least one per 1000 m²) with adjustable dock levellers in the loading/unloading areas. • Security alarm and video surveillance system. • Road vehicle loading ramp. • Presence of a car park and reversing areas for large-capacity lorries. • Presence of offices at the warehouse. • Presence of utility rooms at the warehouse (staff toilets, showers, changing rooms, other utility rooms). • High-tech communications. • Fenced-off, well-lit, developed grounds with 24-h security. • Location near key main roads. • Professional management system. • Presence of a staff records and supervision system. • Autonomous electric power supply and heating supply. • Branch railway line. 	<p><u>Class B warehouse facilities.</u></p> <ul style="list-style-type: none"> • A warehouse building with one or two floors, preferably rectangular, new or renovated. • In the case of a two-floor building: a sufficient number of lifts/hoists with a capacity of at least 3 t (no less than 1 unit per 2000 m²). • Ceiling height: 6 metres. • Floor: asphalt or concrete without coating. • Heating system. • Presence of a fire alarm and automatic fire suppression system. • Road vehicle loading ramp. • Presence of a car park and reversing areas for large-capacity lorries. • Grounds security. • Telecommunications. • Security alarm and video surveillance system. • Presence of utility rooms at the warehouse. • Presence of a ventilation system. • Presence of offices at the warehouse. • Presence of a staff records and supervision system. • Autonomous electric power supply and heating supply. • Branch railway line.

Class C warehouse facilities.

- Production premises or heated hangar.
- Ceiling height: 4 metres.
- Floor: asphalt or concrete tiles without coating.
- In the case of a multi-floor building: presence of cargo lifts/hoists.
- Presence of a gate at zero elevation.
- Presence of a car park and reversing area for large-capacity lorries.
- Ventilation system.
- Heating system.
- Presence of a fire alarm and automatic fire suppression system.
- Presence of offices at the warehouse.
- Road vehicle loading ramp.
- Grounds security.
- Telecommunications.
- Presence of utility rooms at the warehouse.

Class D warehouse facilities.

- Basement premises, non-heated production premises or hangars.
- Presence of a car park and reversing area for large-capacity lorries.
- Presence of a fire alarm and automatic fire suppression system.
- Heating system.
- Ventilation system.
- Presence of offices at the warehouse.
- Grounds security.
- Telecommunications.

Task 3

1. Practical assignment

Based on a visit of the warehouse facilities of a real company (training tour), try to classify them from the viewpoint of logistics management and describe them using the modern ABCD classification, given the specific conditions.

2. Practical assignment

Based on a visit of the warehouse facilities of a real company (training tour), name the risks of the warehouses. Write them down in a simple table, describe the measures for eliminating or minimising these risks.