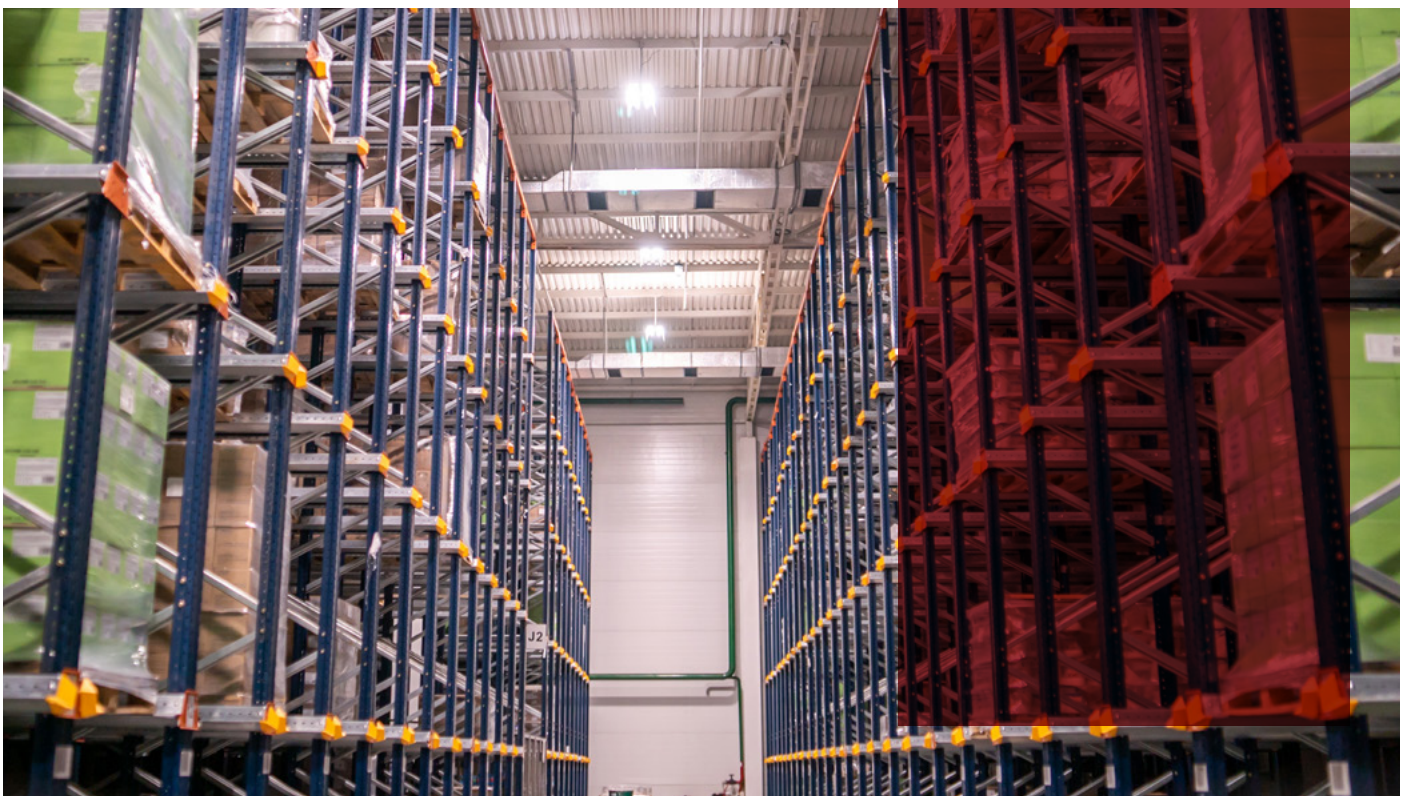
Successful Warehouse Operations

Start With Good Warehouse Layout

The effects of good warehouse layout



Creating a successful, efficient warehouse operation that maximises storage is all about optimising planning from the outset. A good warehouse layout should, at all times, increase overall inventory accessibility.

A well-designed warehouse layout should improve the flow of your facility. The primary intent of the design is to keep costs down and productivity up.

But three other objectives must be considered when designing a warehouse layout. Those objectives are:

1. Optimise warehouse space

A priority objective of a good warehouse layout is to optimise how warehouse space is utilised. The effective utilisation of warehouse space assists companies in establishing the processes that allow for the reduced time it takes to produce a product and get it out the door. The layout considers the best ways to organise inventory and streamline the process at every stage. Every inch of a warehouse should be utilised to its fullest potential.

2. Increase productivity

Every company's operations want to improve productivity and speed up order fulfilment without errors or damaging the inventory. The correct warehouse layout design intention is to optimise your operations while reducing the chances of bottlenecks or errors.

3. Warehouse management improvement

Effective warehouse layout design provides an environment where everything can run efficiently, and your operations can operate successfully. In addition, the warehouse layout directly contributes to the overall requirements of warehouse management in creating an environment where inventory is organised, the stock is replenished quickly, and orders are fulfilled in a timely manner.

Components of a warehouse

When designing a warehouse, a few major areas need to be included. These areas are used to receive items, hold inventory, organise stock, and prepare items for shipping. These are all included in three warehouse flows.

Within each of the warehouse flows, there are five main components:

1. Dynamic storage

this storage area holds inventory that does not have a fixed warehouse location on pallet racking. These items usually have a high demand that needs to be accessible close to the packing area. Their supply and demand are ever-changing for the business, like the contents of dynamic storage inventory.

2. Static storage

is pallet racking that holds all inventory products that have set locations within the warehouse. The items within the pallet racking area are stacked and rarely move around except when ready to fulfil orders.

3. The staging area

is defined as used to manage incoming or outgoing packages. Prior shipping items are packed and prepared to be picked up from the warehouse. When a package is incoming or received, the staging area is used to unbox the items and then relocated within the warehouse inventory or pallet racking system.

4. The shipping area

is for completed order packages ready to be loaded onto trucks for delivery to retailers or customers.

5. The receiving area

is for warehouse staff to unload incoming trucks and process the items received into the warehouse management system as they arrive.

Each warehouse flow item is structured with three critical types of warehouse flows.

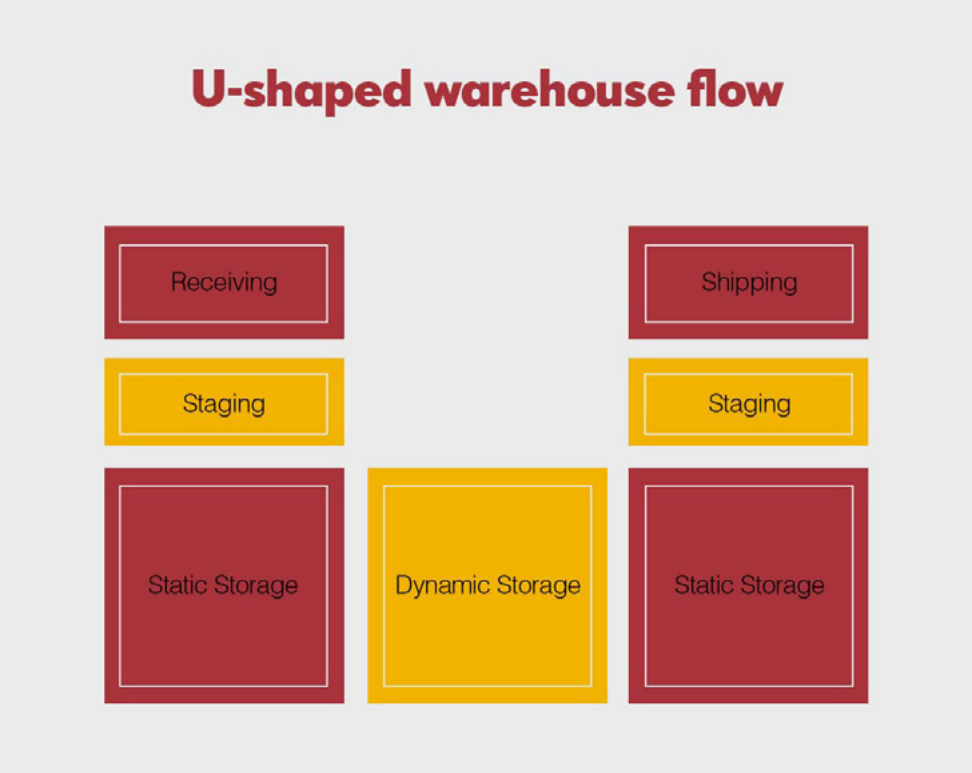
Types of warehouse flows

Companies can use three primary types of warehouse layout flows in their warehouse operations. Each has its purpose and often is defined by the available warehouse space and size.

Let's look at each of the three types of warehouse flows.

1. U-shaped warehouse flow

The most commonly used is the U-shaped warehouse flow. It is a reliable layout for warehouses. The components are arranged in a semicircle shape, with shipping and receiving opposite each other and storage in the middle.

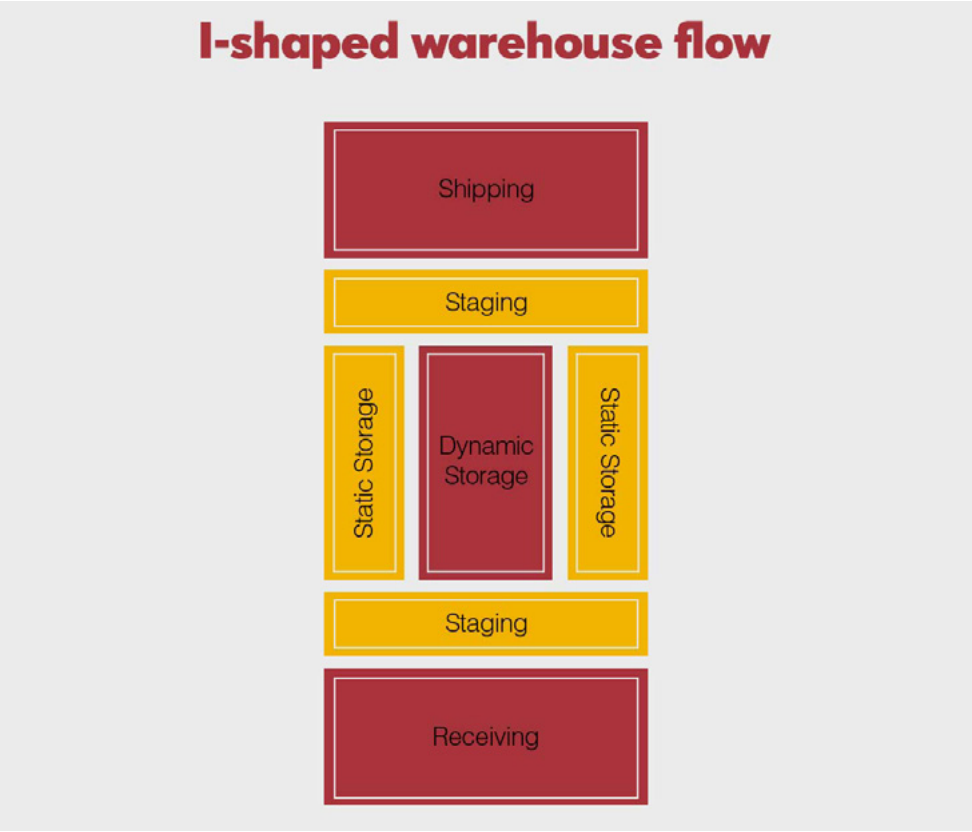


The intention of the U shape is to keep major warehouse traffic flow separate to avoid bottlenecks. This flow of goods assists in minimising the available space required and fits into many warehouse buildings as both the entrance and the exit share the same side of the building. The other benefit is that less space is needed for packages, and warehouse staff can quickly move products between receiving and shipping areas.

One of the disadvantages of a U shape flow is production congestion can occur when the shipping and receiving areas are located close together and share a similar floor area.

2. I-shaped warehouse flow

The I-shaped warehouse flow is popular with large corporations that operate larger warehouse spaces. This is because they typically experience higher volumes of goods inwards/outwards and overall racking requirements. In addition, the I shape operates efficiently and is ideal for its clear in-and-out workflow layout.

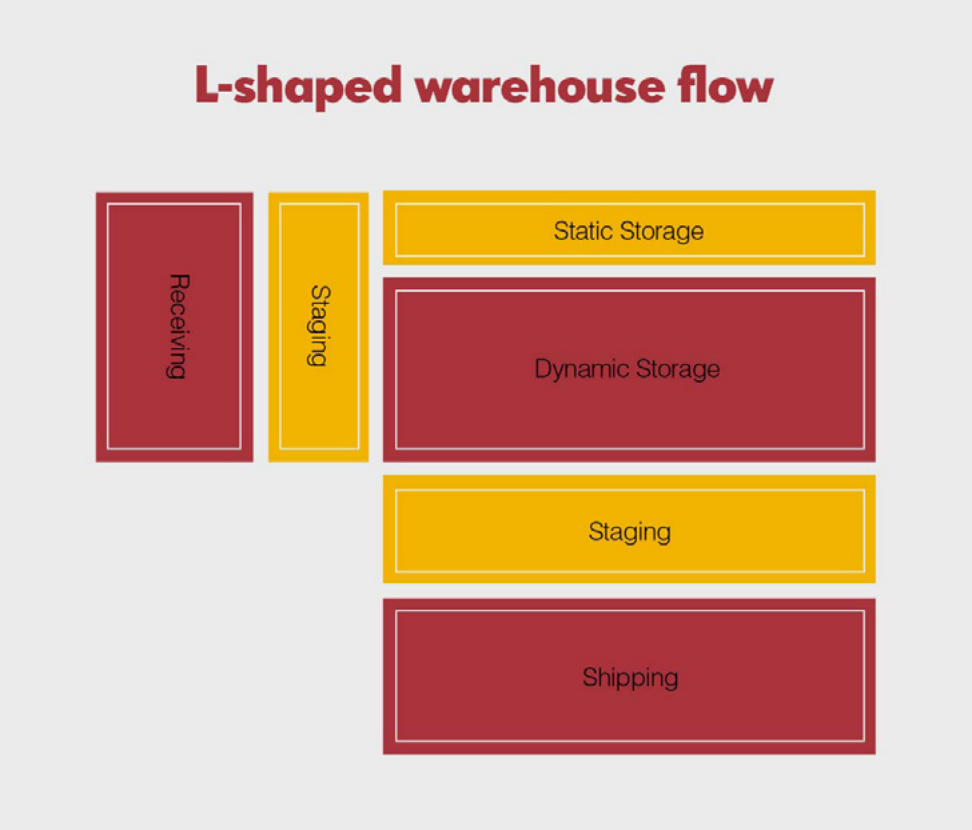


The I-shape warehouse design operates with a straight flow from the receiving area to the shipping area and vice versa. This setup is said to maximise optimisation as it utilises the entire length of the warehouse. The layout can be easily expanded in static storage design areas. The layout also separates similar products in an assembly-line format and reduces potential bottlenecks through back-and-forth inventory movements.

The I-shape requires buildings with access on two sides of the warehouse facility. Operational costs can also increase when purchasing docking equipment for two areas, inbound and outbound. Another increase in cost through time and labour can occur as the goods need to travel the length of the facility to reach their destination.

3. L-shaped warehouse flow

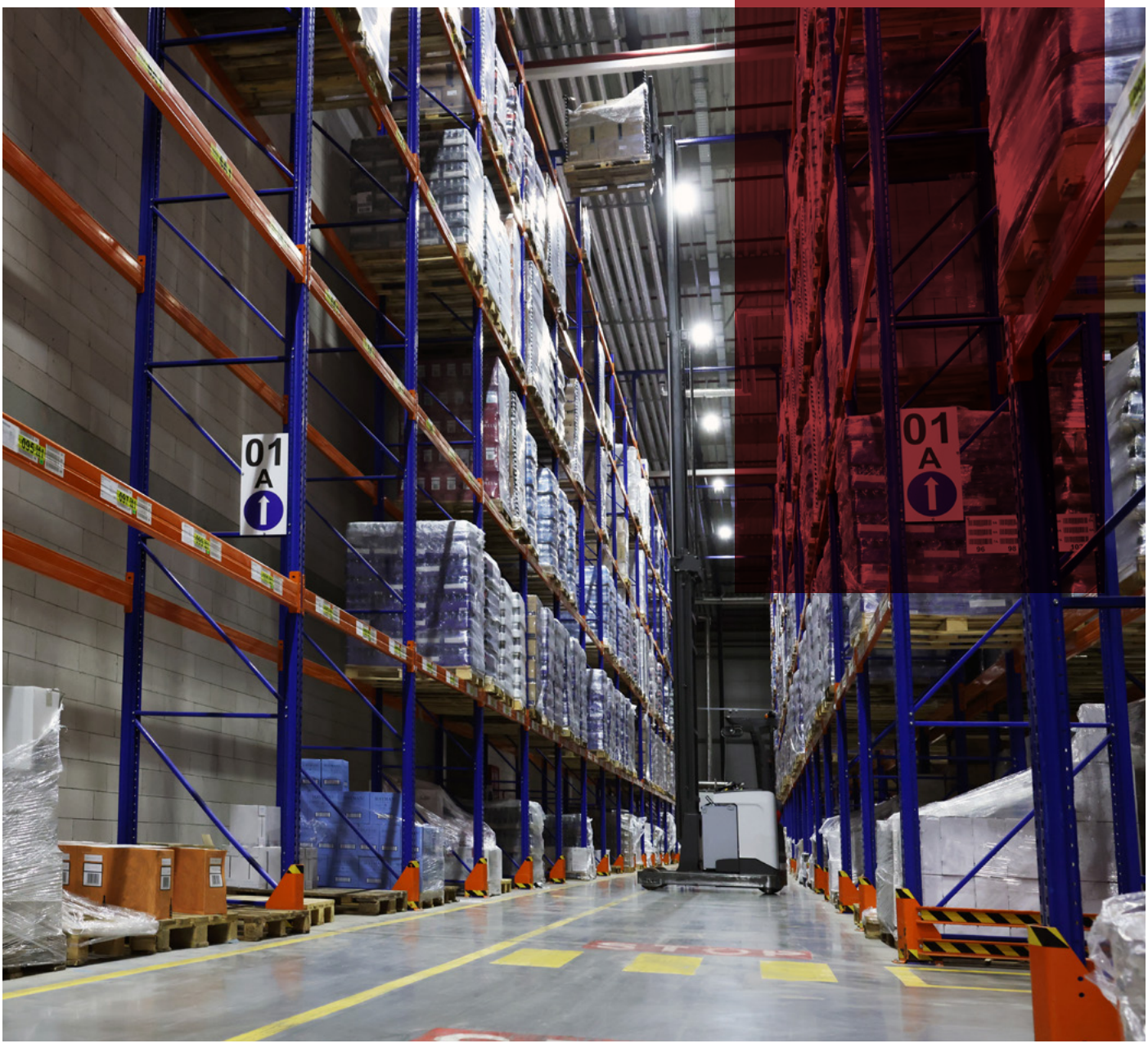
The least common flow type is the L-shaped warehouse flow. The configuration is chosen to accommodate an L-shaped building and is not often seen in larger facilities.



The L shape layout has the shipping area at a 90-degree angle to the receiving area. The warehouse building requires a larger space for this layout to operate, as it is uncommon to have doorways located to match this floor plan.

An advantage of the L shape is it minimises congestion points by avoiding back-and-forth movement. In addition, the layout effectively separates products with docks areas.

Warehouse layout challenges



When designing a good warehouse layout, there can still be challenges, and experienced design consultants can assist you in overcoming these challenges.

Four significant challenges that require consideration in the layout are:

1. Safety Precautions

A major concern is ensuring safety precautions are taken in the warehouse design. The layout should leave ample space for equipment to operate and for warehouse staff to walk around safely. This includes designated areas for automation with safeguards and robotics to operate safely within human areas.

2. Future Planning

Business growth is part of the planning process. When creating a layout, it must adapt to changes and growth in the business. This can mean setting aside specific racking or shelving areas to accommodate predicted order fluctuations using demand planning or business expansion requiring increased inventory levels.

3. Underutilised Space

An often forgotten requirement when taking a traditional approach to installing racking is the underutilisation of space. Experienced design consultants understand how to maximise space utilisation and the different racking and automation that assist you in achieving it.

4. Overutilised Space

Experienced consultants are trained to ensure there is no overutilisation of space in an attempt for businesses to fit into a specific warehouse building. Overutilisation is very dangerous as it creates overcrowded areas and a hectic environment where injuries are imminent. It can also cause items to be damaged through mishandling or being misplaced.

How to design a good warehouse layout

An experienced warehouse design consultant with expert knowledge in warehouse storage is pivotal to your success. They can ensure your warehouse layout design includes all the necessary areas that your operation requires while utilising every inch of usable space.

When using the design consultant, they can assist you with the following:

1. Understanding your warehouse requirements

Getting to know your business, both now and planned future growth, your inventory, customer demands and operational requirements sets the guidelines for how your warehouse needs to operate.

2. Establishing the right flow

Based on the warehouse requirements, the layout of your warehouse building, and operations in your business, a flow can be established as a baseline for your warehouse design.

3. Understanding your warehouse functionality

Your warehouse functionality includes the number of personnel that will be working in each area, planned automation and the robotics that will assist in inventory management.

4. Design of warehouse layout

Our design specialists develop a warehouse design and layout that maximises space usage, the right racking and shelving and safe working areas for all warehouse personnel within the facility.

5. Creating a warehouse 3D model

Through 3D modelling, we can create a visual view of the warehouse setup. This includes where shipping and receiving docks are located, racking and storage. In addition, we keep in mind the traffic flow of trucks and equipment within the facility. This visual model will assist you in seeing your warehouse and considering any potential changes.

6. Warehouse Fit Out

With the warehouse design plans approved, it is time to fit out your warehouse facility.

If these steps are followed, you can be assured of a good warehouse layout. **Connect with us to discuss your next warehouse design and fit-out.**

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