



The Ultimate Guide to Warehouse Layout Optimization



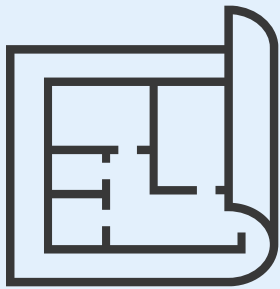


If you've been running a warehouse for a while, or this is your first go at a new warehouse, the age-old question stands, "How can I make this warehouse efficient or more efficient?"

Warehouse efficiency can play a big part in the success of your operations. How fast you can stock the shelves, pick SKUs, package inventory, and fulfill orders is based on how efficient your processes are.

Strip efficiency down to where it starts. If your shelving is inaccurate, your pickers slow down. If your pickers are slow, items don't get packaged. And if items don't get packaged quickly, it takes longer to fulfill the order. When you look at how many orders you're able to fulfill daily, **the core of efficiency is simply your warehouse layout.**

Nailing down the details of your warehouse layout can be the heart of the challenge. Over the course of this guide, learn about the five core pieces of a successful warehouse layout. Before you dig into your warehouse's individual aspects, let's start with a floor plan.



Create a Floor Plan

At the core of your warehouse layout, there's a floor plan blueprint. Before you start mapping this out, it's important to consider things like how many receiving, packaging, and shipping areas you need, where to place your dead stock, and how much space you need between racks for picking.

There are five major areas to consider when creating a floor plan for your warehouse.

1. RECEIVING
2. STORAGE
3. PICKING
4. PACKING AND SHIPPING
5. "FREE AREA"

Begin with where your inventory enters your warehouse and the journey to order fulfillment starts: the receiving dock and area.

1

Receiving

Receiving is where your warehouse layout starts. Without receiving inventory, there's no business to conduct. Think about how many receiving areas you need for the volume of inventory you have and where you should locate them so your workers can take the least amount of steps possible. For example, if you're running a warehouse under 50,000 sq. ft. you probably only need one receiving dock.

A receiving area is important for warehouses of all sizes, where all received items can be offloaded immediately to avoid clutter and sorted for shelving.

Even dead stock should be shelved. There are reasons inventory will arrive when you don't have use for it yet, like when you receive Christmas decorations in March. Create a place where dead stock lives so it doesn't get mixed in with all your other inventory.

How that receiving area is managed is important as well. Ask questions like:

Do items stay in receiving until the appropriate locations are determined?

Are items being counted and data collected before they are being racked?

Are the items going to a forward location for quick access?

All these questions need to be answered as you receive inventory and place it appropriately throughout your warehouse.



Combination Docks

In a smaller warehouse, your shipping and receiving area probably share a dock. This can cause apprehension among warehouse managers because you don't want outbound products getting in the mix with the inbound inventory. You also want to avoid bottlenecks when workers are trying to load and unload trucks.

However, for the sake of efficiency, there's no real reason to separate the two areas. With a small warehouse, combining the docks will save time and steps for your employees to drop off and pick up orders, returns, and inventory. One way to stop mixups from happening is by **adding a receiving area next to your dock.**

Separate Docks

In medium and large warehouses, your receiving areas will look similar, with the only difference being inventory volume. In both sizes, your inventory flow will be fairly constant. Make sure your warehouse has separate docks, one for receiving and one for shipping.

Creating a receiving area next to your dock still allows inbound inventory to be efficiently stored without workers on the dock disrupting truck unloading.

Once items hit the receiving area, it's time to take them to storage.

2

Storage

The average inventory shrinkage is 0.2%, according to the Warehouse Education and Research Council. Inventory shrinkage is the loss of products from the time they're purchased from a supplier to the time it's ready to be sold to your customer. This can happen in a lot of ways — loss, damage, equipment malfunctions — but it also occurs when items are misplaced in your warehouse.

That being said, the placement of storage is an important part of your warehouse layout. Your layout should reflect your inventory. Consider each item's velocity, or how fast it sells, to create seamless and efficient on-floor operations.

High-velocity SKUs should have a separate storage area with a daily amount of goods set aside near the packaging area. This is called forward picking. Using this logic, your pickers only sift through inventory aisles with relevant SKUs and don't have to pick the entire warehouse on a regular basis.



If you have a warehouse management system (WMS), you can streamline this process by using predictive analytics. This process takes data from past picks to determine what item velocity will look like from day to day. This helps you see what items need to be stored closer to packaging and which low-velocity items you can tuck away.

The racking method you take for high- and low-velocity inventory is also important to overall layout efficiency. As your items leave the receiving area, think about these things **as you determine where they should be placed on a shelf.**

WEIGHT

**METHOD OF
STORAGE**

**VELOCITY OF
PICKING**

**SEASONAL
VALUE**

With your inventory and storage layout optimized, your pickers should experience more efficiency on their route.



3

Picking

Pick paths are the routes your workers take to gather inventory off the shelves of your warehouse to fulfill an order. Depending on the size of your warehouse, pickers may have a hard time staying out of each other's way, but on the flip side, picking a whole warehouse can waste precious time.

Forward picking is an essential part of an efficient warehouse. Without pulling daily amounts of high-velocity inventory off the shelves and putting them in a central location near packaging, pickers would need to scour your warehouse consistently.

Every step a worker takes in your warehouse costs money. The fewer steps taken, the more orders fulfilled daily and the more you earn. As you optimize your pick paths, think about the shortest route between your storage and packaging area.

In a small warehouse, bottlenecks are sure to form without proper pick paths. Prevent delays by making a linear path from the receiving dock to storage, or from the forward picking areas to packaging and shipping.

With this in mind, your workers won't run into each other while doing their job, **streamlining overall traffic in your warehouse.**





Aisle Width

When you think about pick paths and different picking methods, how you'll be picking your SKUs. In a small warehouse, picking will likely happen on foot or a small machine, so create wide enough aisles to accommodate two-lane traffic.

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Keep aisle width in mind for medium and large warehouse floor plans as well. It's possible you may use larger machinery in a big warehouse to reach higher shelves, so widen your aisles if necessary to prevent bottlenecks.

The more you know about your inventory, the more efficiently you can stage it in your warehouse for optimal picking. Once you have a station for forward picking, place a packaging area right next door.



4

Packaging and Shipping

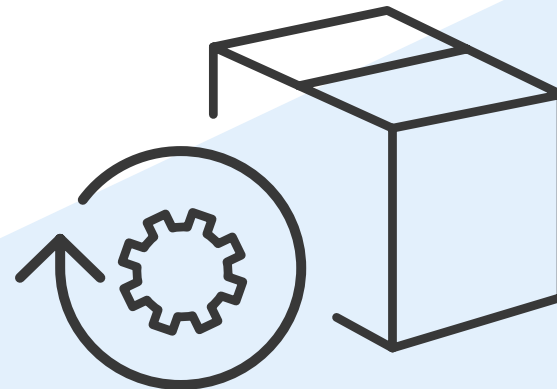
After your items are picked, the logical next step in your warehouse flow should be packaging. Don't let packaging be an afterthought or a table you set up off to the side. Create a seamless path for inventory to be picked, packaged, and shipped, without veering too far off the beaten path.

In a small warehouse, this route may look like a circle, since your receiving and shipping areas may share a dock. Make sure to **set up a large enough packaging area** that it doesn't get overcrowded. Once you have a packaging area set up close to your shipping dock, you'll need room for a shipping area adjacent to the dock. This will prevent orders from piling up before being sent out.

In a medium or large warehouse, **you may need multiple packaging and shipping areas** to keep up with the volume of orders being fulfilled. Since shipping is ultimately what contributes to your bottom line, it's important to create efficient processes around it.

Like with your small warehouse, place your packing and shipping areas next to your final outbound shipping dock location. The ship staging area next to your dock will act as a parking lot for fulfilled orders before they are sent away on the appropriate truck.

Now that your floor plan is optimized for the entire order fulfillment journey, it's important to keep in mind the potential for future growth in your warehouse.



5

Free Area

Hopefully, optimizing your warehouse layout creates more efficient processes and brings in more business. If your warehouse is at capacity, but your operations and number of orders fulfilled continue to grow, it can feel overwhelming.

In a small or medium-sized warehouse, implement a “buffer” zone or free space between your receiving and shipping area. For the time being, this area can act as storage or extra space to move more freely through the warehouse. But as the business grows and changes, you can convert this space to extra packing and shipping areas or extra forward picking room.

In a large warehouse, you may offer **“value-add services.”** This may be item personalization, gift-wrapping, or selling a kit of grouped items. In order to accomplish this in your warehouse, you need a separate area to complete this service before packaging.

Place this area off to the side if most of your orders don’t include this service. However, if the majority of your orders do need this, the best place to add it is between picking and packaging.



How to Optimize your Layout Efficiently

Creating a layout manually requires you to measure each aisle and make educated guesses on fulfillment needs. With a robust warehouse management system, you can look at your virtual warehouse layout, identify which items ship most frequently, and your WMS will use those metrics to identify an optimal picking methodology to get your warehouse operating efficiently.

To understand what your warehouse layout should look like, it's helpful to first have visibility into your warehouse data.



Data visibility includes metrics on:

- **HIGH AND LOW-VELOCITY INVENTORY**
- **DEADSTOCK**
- **DAILY ORDER FULFILLMENT**
- **EFFICIENT PICK PATHS**
- **BACKORDERS**

When you implement a WMS, the metrics you need to optimize your warehouse layout — and ultimately your order fulfillment — are at your fingertips.

A WMS gives you the power to understand the best places to put your inventory based on velocity, optimize your pick paths, gain inventory data, and implement the right number of shipping and receiving areas, and more, without having to calculate it yourself.

Beyond initial optimization, tracking the results of your new processes and the related areas for growth is imperative to keeping your **warehouse healthy** and eventually scaling to match the growth of the business.

Your WMS will provide continuous optimization data and suggestions to the five core areas of your warehouse layout to keep your warehouse running with maximum efficiency.



There's More to Warehouse Layout Optimization

Interested in taking a more in-depth look into how to optimize your warehouse layout? Visit our blog and learn more about:

How to Set Up and Efficient Receiving Area Layout

[READ MORE](#)

Benefits of Efficient Warehouse Slotting and How to Do It Right

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The Best 3 Order Picking Methods for Efficient Warehouse Setup

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