SAFETY SERIES

STEEL KING®
BUILT TO DELIVER

10 THINGS TO CONSIDER

WHEN OUTFITTING YOUR WAREHOUSE

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10 THINGS TO CONSIDER WHEN OUTFITTING YOUR WAREHOUSE

When it comes time to outfit your warehouse with a racking system, it can be hard to know where to start. Not every warehouse or project is the same, and in order to determine your ideal storage solution, there are multiple safety and design factors to consider. Here are ten things to keep in mind as you evaluate your options to find the most efficient storage solution for your warehouse.

1. Product and Turnover

Your product and stock rotation requirements play a large role in determining the type of rack you choose. Before you start laying out your warehouse, make sure you know the answers to the following questions:

- How many different product SKUs will be stored?
- What type, size, and number of pallets will be used?
- How often will pallets be accessed?
- Do you require FIFO (first in, first out) or LIFO (last in, first out)?
- Will processing / picking operations require the integration of automation into your system?

2. Load Capacity

Prior to evaluating a rack storage solution, you need to know how much weight you will be storing on each rack. If you will primarily be storing palletized goods, this means knowing your maximum pallet load and average pallet load. Your load capacity needs will be a key factor in the design of your rack.

This would also be a good time to start thinking about your ideal storage utilization factor, a term for the percentage of available storage space that you will actively use. Keep in mind that you will not want to achieve 100% utilization, as that would not leave any space to move or rearrange product.

Storage utilization factors vary from one type of rack to another, so it is helpful to determine your optimal storage utilization factor at the beginning of the rack design process.

3. Existing Facility Features

In addition to the floor space of your facility, make sure you consider all the other features of your existing structure when planning your layout.

- Know the location and dimensions of your sprinkler systems, columns, and floor drains, as well as your ceiling height.
- Be sure to account for sloping floors within your facility, as you will be required to ensure that your rack uprights are plumb.
- Check your slab-on-grade capacity. Can your existing concrete floors accommodate the weight of the system you plan to install? Do they require any special rack anchoring considerations?

4. Rack Frame and Beam Material

Rack frames and beams can be made of roll-formed steel or structural steel, or occasionally a combination of the two, such as structural upright frames and roll-formed beams.Two things to keep in mind when choosing whether to go with a roll-formed rack or structural rack are the capacity they need to support and their exposure to potential impact during loading and unloading.

Drive-in/Drive-through

Structural Pallet Rack

- **Roll-formed Pallet Racks:**
  - Made from high strength cold-rolled steel
  - Often assembled with boltless beam pin connectors (but can be bolted for certain applications)
  - Are a good choice for facilities storing many different product SKUs with varying sizes
- **Structural Pallet Racks:**
  - Made from hot rolled steel, typically using steel channel
  - Bolted together
  - Are a good choice in warehouses that have a fast-paced environment, as they may be able to endure greater impact from forklift equipment

5. Production Zones, Workflow Areas, and Egress Routes

Consider the space needed for your production work to safely occur. This is especially important in manufacturing, where you have frequent materials movement around equipment. For a stock and ship operation, ensure you have the adequate space required for packing, shipping, and receiving areas. Map out your intended means-of-egress for both personnel and forklift access to ensure that maximum distances to egress are within code, especially for raised work areas.

6. Material Handling Equipment

The material handling equipment you use to move goods around your facility will impact your rack design. Some of the items to be considered are the type, size, and number of pallets to be used, as well as the type of fork truck vehicle being used, required aisle width, and the maximum lift height of the truck.

7. Temperature

Build your racking system with temperature considerations in mind and consider the environment where racking will be used. Depending on whether your storage needs will be dry, in a cooler, or in a freezer environment, there may be an advantage of using one type of rack over another.

8. Code Compliance and Permitting

For a new building, rack systems may be installed only after all applicable building codes have been satisfied and a building permit has been issued for your specific system design, geographic location, and application. In most jurisdictions, the applicable building code is the legislatively-adopted edition of the International Building Code (IBC). However, some localities enforce a variant of the IBC. In addition to local building codes, some industries also have specific code compliance requirements, including rack capacity plaques.

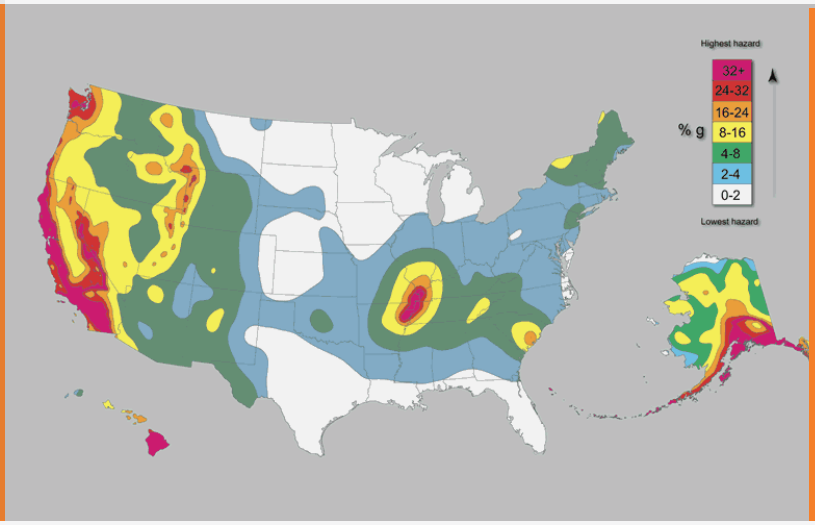
Make sure you work with your rack provider to determine which code applies and to ensure that the system will be designed, manufactured, and installed to satisfy all applicable requirements.

9. Environmental Forces

According to OSHA, all goods, materials, and equipment at work sites must be stacked, stored, and secured in such a way that they do not flow, move, roll, or collapse. Per the International Building Code, and as reflected in the Rack Manufacturer's Institute (RMI) Standards, racks are considered non-building structures that are similar to buildings. This means that they need to be designed to the local seismic requirements.

According to the U.S. Geological Survey, while earthquakes are possible in all U.S. states, 42 of the 50 states have a reasonable chance of experiencing damaging ground shaking from an earthquake in 50 years," which is generally considered the typical lifetime of a building.

Whether your facility has a free-standing rack structure or is a rack-supported structure, it is essential to ensure adequate seismic separation is engineered into your rack system. For rack-supported structures, wind and snow loads should also be taken into consideration when you are designing your rack system.



10. Plan for Long-Term Success

Even before you have the rack in your warehouse, identify the resources you need for ongoing rack inspection and maintenance. The Rack Manufacturers Institute (RMI) has some excellent information on these topics, which can be found by visiting www.rmiracksafety.org.

Finally, it can be helpful to plan today's system with future expansion in mind. Think about how you might expand your facility, or how your storage needs might change, and talk with your rack supplier about the best way to set yourself up for future success.

SUMMARY:

While there are many factors to take into consideration when outfitting your warehouse with rack, working with an experienced rack manufacturer is always beneficial to your project's success. Steel King Industries, Inc., has been manufacturing pallet racking and other storage solutions for over half a century, and we'd love to work with you on your storage solution and material handling needs.

Rack and Systems

The ultimate in design and execution, customized for your space and requirements. Built tough, forklift-friendly, and ready to store any inventory.

- Pallet Racks
- Cantilever Racks
- Drive-In / Drive-Through Racks
- Flow Rack / Pushback Racks
- Pick Module Racks
- Specialty Racks
- Portable Racks
- Custom Shipping Racks
- Support Structures / Work Platforms

DESIGNED TO PERFORM PRODUCTS BUILT TO LAST

For over 50 years, Steel King Industries, Inc. has produced high-caliber material handling racking, storage, and safety systems that improve, fortify, and protect company's supply chains nationwide. With unparalleled standards of safety and quality, we manufacture storage solutions ranging from the industry's top containers, work platforms, and rack systems, to highly engineered distribution facility systems that are foundational for an automated supply chain. Steel King's reliability, strength, and support have earned recognition and loyalty as one of the top rack manufacturers in North America, as we proudly contribute vitality, efficiency, and value to supply chains worldwide.

Support for Support

At Steel King, we stake our reputation on supporting people—not just inventory. We're here to help you specify the high-density solutions to meet the needs of your operation, space, and budget.

Scan to learn about our complete solutions and why our products are BUILT TO LAST.

SCAN ME

Safety Products

Steel King's safety products extend the life of your facility and have been setting industry standards in safety, protecting your people, product, and plant.

- Guard Rails
- Safety Gates
- Pallet Load Stops and Supports
- Lift-Out Rails
- Rub Rails

Containers

Steel King manufactures a full line of industrial storage containers for heavy-duty stackable storage, scrap handling, line assembly dispensary, parts distribution, and other uses. We offer essential, industry-standard designs as well as fully-custom containers suited to your storage requirements.

- Transportable Containers
- Bulk Containers
- Collapsible Containers
- Work in Progress (WIP) Containers
- Steel Pallets