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THE GUIDE TO PALLET RACK INSTALLATION

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While many types of equipment can help you use your warehouse space more efficiently, pallet racks are among the most important. A pallet rack is a system that assists with item organization and storage. An effective pallet-racking strategy can reduce clutter, and eliminate potential hazards. If your facility houses a large inventory, you can use pallet racking systems to increase bulk storage capacity.

Numerous racking solutions are at your disposal. The primary ones include selective, drive-in, push-back, and pallet flow systems. Once you choose a pallet racking system for your warehouse, you'll need to assemble it correctly.

Keep in mind that an improperly assembled pallet rack can lead to problems. If the racking falls, your products will be damaged. There's also a chance that nearby workers will be injured. You can avoid these issues with this guide to pallet rack installation.



PLANNING A PALLET RACK INSTALLATION

Pallet racking systems are designed to help companies obtain more efficient storage management. You can use these systems in all types of distribution centers and warehouses. When used correctly, pallet racks will make inventory more available and maximize storage space. However, the only way to obtain these advantages is by adequately installing the pallet racks.

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Correct installation allows you to maintain the system's structural integrity and avoid collapses. It also helps you optimize the space in your warehouse and make everything more organized. Proper installation is necessary to ensure your warehouse complies with all safety standards. If it doesn't, you may fail inspections and pay hefty fines.

PLANNING & DESIGNING YOUR RACK SYSTEM

Design the rack system before you build the building. Architects know buildings, not racking systems. After all, why are you building the structure if you don't know the storage system or sequence of operations. **Planning is everything.**

Things to consider:

- The company's picking equipment
- Growth rate
- Operational skills.

If the building is already built, consider the number of pallets to be stored and what type of pallet rack is best suited.

TYPES OF PALLET RACKS

You can buy five pallet racks for your facility: selective, drive-in, push-back, pallet flow systems, and double deep selective.

Selective pallet racks are used more often than any other system. They are effective when storing many different items. When properly installed, these racks allow for direct access to each pallet. Selective pallet racks are the way to go if your facility has a high item turnover rate.

If you install this type of system, ensure you get the aisle width right. Your floor must accommodate the uneven weight distribution often occurring with these racks.

Drive-in pallet racks are meant to be used for high-density storage purposes. You can access drive-in racks from one side, which makes them ideal for last-in-first-out (LIFO) systems. In comparison, drive in racking is commonly used in coolers or freezers.

When installing these pallet racks, focus on stability. **To limit forklift damage, it would be best to reinforce drive-in pallet racks.** The storage lanes need to be deep enough to support the weight of your products.

Push-back pallet racks allow you to store numerous pallets in just one depth. If you take this approach, you can implement high-density storage and benefit from selectivity at the same time. The pallets are placed on an inclined rail. Any additional pallets will push back the initial ones, which ensures that retrieving items from these racks is easy. Generally these systems are 2 to 6 products deep, with 2 to 3 products deep being the most common.

When you install this system, ensure you align the rails correctly. For this system to function, the push-back mechanism needs to work. Avoid exceeding the capacity limit when loading pallets.

Pallet flow racks are most valuable when paired with the FIFO inventory management style. If the items you acquire most recently need to be sold quickly, you should use the FIFO technique. For example, these racks are suitable for storing perishable items.

Pay close attention to the brakes and rollers when installing pallet flow racks in your warehouse. These components must be installed correctly for the system to work as intended. The racks must be kept level for the pallets to flow smoothly. Perform maintenance regularly to avoid jams with the tracks and rollers.

Things to remember about these systems: temp. and flowability are very important. Many times pallet flow systems are the least expensive when considering building size, equipment use and man power.



LAYOUT CONSIDERATIONS

Before you install pallet racks in your warehouse, there are some layout considerations you should take into account. To identify the best positions for these racks, it's highly recommended that you perform an in-depth evaluation of the free space in your facility. Measure the ceiling height and floor area. If there are any overhead beams or pillars that might be obstructions when receiving or loading items, take note of them. **The only way to properly optimize your space is by first understanding it.**

When you're assessing how much space is available to you, consider aisle width. When installing pallet racking systems, they must have proper spacing to ensure the aisles are large enough for workers and heavy equipment. **You can establish adequate aisle widths by creating chalk lines and taking measurements.** During installation, you'll also follow local building codes regarding height hazards and seismic demands.

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Safety and Compliance

You must adhere to local regulations and safety standards when installing pallet racks. Pallet racks have specific load limits that you shouldn't exceed. Every member of your staff needs to know what these limits are to avoid structural failure. Local building codes require warehouses to implement proper load signage, fire suppression systems, and aisle spacing.

PREPARING FOR INSTALLATION

It's time to prepare for installation, which involves gathering the necessary tools and creating a pre-installation checklist.

Materials and Tools Required

Ensure all the beams, uprights, shelves, and decking are nearby before work starts. The tools you likely need for this type of project include the following:

- Level
- Tape measure
- Chalk line
- Mallet
- Lifting device

At least two people should handle the installation process.

Pre-Installation Checklist

You can take several steps to prepare the installation area, the first of which involves testing the floor. Find out if the floor can withstand the weight. You may need to reinforce the floor to keep damage at bay. Review the rack materials to ensure you have everything you need and that the materials are undamaged.

It's also a good idea to verify that the racks are being installed in the right place. Heavy-duty racks should be installed on concrete floors. Inspect the layout for all possible obstructions, which include doorways, lights, piping, ducts, and electrical panels. **Place tape on the obstructions to be removed or avoided during installation.**



STEP-BY-STEP INSTALLATION GUIDE

To properly install pallet racks, follow this step-by-step guide.

Assembling Frames and Beams

The installation process starts with putting together the upright frames. Make sure every footplate and bracing is fitted correctly to the frame. Before you move to the next step, test the frame's stability. Once the frame is in place, you can start installing the beams.

Begin with the bottom rear beam. You should see the proper punch holes in the frame where this beam should be positioned. After you install the bottom rear beam, move to the top one. The beam should be fully secured to both frames. Once the two rear beams are installed, move to the front ones. The process is the same as it was with the rear beams. Start with the lower front beam. Make sure two people lift each beam.

Securing Racks to the Floor

To give the racks the stability they need to withstand any weight:

1. Secure them to the floor with anchors.
2. For traditional pallet racks, use a single anchor bolt for each column. **The anchor should be .5 inches in diameter and 2.5 inches under the floor.**
3. Using larger base plates with four holes, use two or more anchors for each column. While anchoring should be used with nearly every pallet rack, you can avoid them for ones less than eight feet tall.

Adding Accessories

Pallet racks can be equipped with various accessories, which include everything from wire decking to safety bars. Your pallet racks should be equipped with four wire decks. Place two wire decks on each level. When you're installing shelves, select the option that accommodates your items. For example, **wire mesh deck shelving is perfect for warehouse, manufacturing, food service, and retail environments because of its versatility and durability.**

Install back connectors only after the entire rack row has been tightened. If you intend to install column protectors, do so before the racks have been anchored to the floor. Some types of column protectors need to be anchored alongside the rack. As for safety bars, they should be installed after you complete the beam and frame installation. Wait until the rack is anchored.

Safety Checks and Maintenance

Even if you're confident you've installed your pallet rack system correctly, you must still perform regular maintenance and safety checks.

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POST-INSTALLATION INSPECTIONS

Once the racks have been installed, **check them routinely to ensure the weight is evenly distributed.** If one section is overloaded, the entire structure could fail. When you check the weight distribution, looking at the alignment is essential. The racks should remain level and aligned. If misalignment occurs, the system's weight distribution could get worse.

Ongoing Maintenance Tips

Your pallet rack system should be maintained whenever you inspect it. Look for signs of damaged components or loose bolts. These issues must be addressed immediately after detection. Employees who use your pallet racks should know their load limits. By checking for damage and keeping bolts tightened, you can improve the lifespan of your pallet rack system.



COMMON INSTALLATION MISTAKES TO AVOID

If you attempt to install pallet racking without professional assistance, there's always a possibility that you could make a mistake. If you have experience with these types of installations, you could remember to comply with safety standards and building codes. **Every racking system needs to have the proper stability and load protection to avoid a structural collapse.** Some companies need to maintain and inspect their racking systems regularly. Even if the racks were installed correctly, a lack of maintenance can cause problems. Before installing your racks, ensure they are clear from exits or fire safety equipment. It's also essential that the racks have been adequately anchored.

Conclusion

Pallet racking systems can help you optimize your warehouse space, reduce costs, and improve accessibility. However, these systems will only function correctly if they are adequately installed with safety and efficiency in mind. By following this guide, you should avoid some of the more common installation mistakes with pallet racks. For more complex installations, consult with professionals who have experience in this regard.

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