**General Warehousing Safety**

When we think of the safety issues associated with warehouses, many of us tend to think about the hazards involved in using equipment like forklifts or the dangers of lifting heavy materials. While these issues do pose significant threats, the way materials are actually stored in the warehouse can also impact everyone’s safety.

If stacked incorrectly, products, raw materials and other supplies can fall and cause injuries like cuts and bruises or even more serious injuries related to crushing and pinning. Employers need to make sure warehouse workers follow a set of standards for the storage of materials to avoid these accidents. In this post we will examine various types of hazards related to stacking and storing and how to prevent accidents, as well as tips for labeling storage areas in warehouses.

Table of Contents

* [Prevent Stacking and Storage Accidents](https://www.safetyblognews.com/safe-stacking-and-storage-in-the-warehouse/#Prevent_Stacking_and_Storage_Accidents)
  + [Collapsing Loads](https://www.safetyblognews.com/safe-stacking-and-storage-in-the-warehouse/#Collapsing_Loads)
  + [Fires and Explosions](https://www.safetyblognews.com/safe-stacking-and-storage-in-the-warehouse/#Fires_and_Explosions)
  + [Pest Havens](https://www.safetyblognews.com/safe-stacking-and-storage-in-the-warehouse/#Pest_Havens)
  + [Tripping](https://www.safetyblognews.com/safe-stacking-and-storage-in-the-warehouse/#Tripping)
  + [Obstruction of Aisles and Exits](https://www.safetyblognews.com/safe-stacking-and-storage-in-the-warehouse/#Obstruction_of_Aisles_and_Exits)
  + [Poor Ergonomics](https://www.safetyblognews.com/safe-stacking-and-storage-in-the-warehouse/#Poor_Ergonomics)
* [Make Stacking and Storage Visual](https://www.safetyblognews.com/safe-stacking-and-storage-in-the-warehouse/#Make_Stacking_and_Storage_Visual)

**Prevent Stacking and Storage Accidents**

[OSHA requires](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10685) that stored materials not create hazards, so let’s take a look at possible hazards and how they can be prevented. In most cases, following simple instructions can be enough to avoid a problem.

**Collapsing Loads**

One of the most common accidents related to storage is a stack collapsing. When materials are stacked too high or in an unstable arrangement, removing an item from the stack or bumping the stack can cause the rest of the materials to fall down. If heavy objects are involved, this can pose a real threat to employees.

Using an appropriate stacking method is one of the best ways to keep a stack from collapsing. Try one of these options:

• **Block Stacking** – Stack square items in a cube, making sure to secure them with some kind of strapping like wire or plastic shrink wrap.  
• **Brick Stacking** – To ensure even more security, turn each level of a stack 90 degrees. This helps hold the items in place should the stack be bumped.  
• **Pinwheel Stacking** – For even more protection than the brick pattern, turn each quadrant—not just each level—of items 90 degrees. Patterns like this help “lock” everything in place.  
• **Irregular Stacking** – When dealing with irregularly shaped items, try adding sheets of plywood between each layer for added stability. We’ll discuss irregular items more in a minute.

In addition to using secure stacking methods, you’ll need to consider the height and weight of the material being stacked to prevent a collapse. Heavy materials should generally be stacked close to the ground (if stacked on shelves) and not too high. Bricks, for example, should only be stacked [seven feet high](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10685), and if the pile is higher than four feet, the top of the pile should be tapered (two inches back for every foot of height above four feet).

You should also take into consideration the type of material you’re stacking because some materials have specific requirements. Lumber, for example, needs to [have all nails removed](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10685) from it before stacking and it can’t be stacked more than 16 feet high (if workers will be handling it manually). Cylindrical materials like poles or pipes need to be blocked on the sides so they don’t roll off the pile. Bagged materials, which are very common in some warehouses, must use tapered stacking (a bit like a pyramid, with the layers getting narrower the higher up they are) and be placed in interlocking rows. Barrels and drums need to be [stacked symmetrically](https://www.osha.gov/Publications/osha2236.pdf) and if they are stored on their sides, they must be properly blocked to prevent rolling.

Lastly—and this may seem obvious—when removing materials from a stack, always take them from the top of the stack first.

**Fires and Explosions**

A fire or explosion may seem like an odd problem to have when you’re dealing with stationary materials in a warehouse, but these risks are real. Luckily, using common sense and following instructions should make these problems pretty simple to avoid. First, if a material is flammable, check its labeling. Does it come with storage instructions? According to OSHA, combustible materials cannot be stored near open flames, devices that might spark or areas where smoking is allowed. [Flammable liquids must be sufficiently separated](https://blog.creativesafetysupply.com/flammable-liquids/) from other materials by a firewall.

Also keep in mind that some materials may interact with others in dangerous ways. When this is the case, make sure to store these materials at a safe distance from each other.

**Pest Havens**

Ideally, a warehouse will have no pests such as rodents or insects in it. How you store materials, though, can have a significant impact on whether these creatures decide to make your space their home. Disorganized piles and stacks that are rarely touched may provide cover for pests. If materials are stored near any possible openings to the outdoors like vents, pests may get inside and take shelter among your pallets, boxes, wood or other materials. To avoid this, try to keep storage areas clean and organized so rodents and insects won’t have anywhere to hide in your warehouse, and don’t place piles directly next to walls. ([OSHA indicates](https://www.osha.gov/dte/outreach/), for example, that baled paper and rags should never be closer than 18 inches to walls.)

**Tripping**

This hazard is pretty self-explanatory, but since trips, slips and falls are some of the most common accidents in the workplace, it’s worth thinking about whether your storage practices could contribute to employees tripping. This is probably most applicable to items stacked in tapered piles (rather than cubes) where lower rows could get in the way of workers moving around the pile. To resolve this, make sure the bottom layer of a stack doesn’t stick out too far.

**Obstruction of Aisles and Exits**

You don’t want messy storage areas to trip workers, and you also don’t want them to interfere with people navigating aisles and finding exits in the event of an emergency. Keep stored goods in clearly marked areas well out of the way of pedestrian walkways. Also consider whether vehicles like forklifts will need to get through an area, and leave extra space around stacks in those situations.

**Poor Ergonomics**

While safe ergonomics is a much larger discussion than what we will say here, we’d still like to point out that it’s important to consider ergonomics when developing practices for stacking and storing materials. Will employees need to frequently remove or add items to a pile? Will they be doing so by hand? Will they need to carry these materials far? In these cases, employers need to provide proper space for lifting and moving heavy materials. It’s also best to store heavy items above knee-height and below shoulder-height to prevent lifting injuries.

**Make Stacking and Storage Visual**



Using visual cues to remind employees where to put stacks and how high stacks should be piled are simple ways to prevent mishaps. [Floor tape](http://www.safetytac.com/products/), for example, can be placed around the corners or edges of stacks to remind employees where a stack should be placed. This is especially helpful if entire stacks are added and removed from your warehouse frequently. You can also use floor marking tape to mark aisles, which can prevent warehouse workers from placing pallets, boxes and other materials in the way of people or vehicles.

Marking the maximum height of a pile on a wall or shelving unit can keep piles from growing too high. This can be done with tape, a label or paint, depending on your needs. Making a permanent visual reminder of height limits will help warehouse workers a lot, since they won’t need to guess if a pile is too high or get out a tool to measure the height.



Using [additional signs](https://www.creativesafetysupply.com/Floor-Sign/) throughout the workplace marking pedestrian traffic, vehicle traffic, loading areas and other activities related to moving supplies and products can also help keep your warehouse working smoothly, so select signs and labels most appropriate for your facility.