WORKSAFE
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HEALTH & SAFETY AT WORK ACT · HSWA

QUICK GUIDE

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Working safely with pallet racking systems

This guidance is for persons conducting a business or undertaking (PCBUs). It explains what good practice looks like when selecting, using and maintaining an adjustable or selective pallet racking system.

Cantilever, drive-in, double-deep, pallet-live, pushback or other specialised types of racking are out of scope of this guidance. In this guidance, 'you' means the PCBU.

Installing pallet racking systems

Pallet racking systems are used in warehouses or warehouse-type retail environments for loading, unloading and storing goods in pallets. Instead of shelves, pallets sit on internal steel beams attached to the external frame of the racking system.

A racking system should only be installed by a competent supplier or manufacturer. The system should be of good mechanical construction, sound material, adequate strength, and maintained according to the manufacturer's instructions. Before having a racking system installed, check with your local council about building permit requirements.

The racking system should clearly display the maximum safe working load and any specified load configurations. The forklift driver should be able to see this notice so they know how much loading allowance they have left.

The racking system should be installed clear of light fittings, heating pipes and appliances, doors, and firefighting and alarm equipment, and in a position where there is no risk of directly or indirectly touching electrical wiring.

Floors or surfaces should be level and able to sustain the weight of the racking system when fully loaded.

The racking system should be fixed to the floor.

Once installed, do not alter the racking system (for example, by welding), change the beam levels, or remove any parts without consulting the manufacturer or supplier first.

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You must make sure your workers are trained and competent in their work including:

- operating forklifts (or other mobile plant used to load and unload pallets)
- loading and unloading pallets, and
- the correct positioning of pallets

and that they understand the risks of their work.[1]

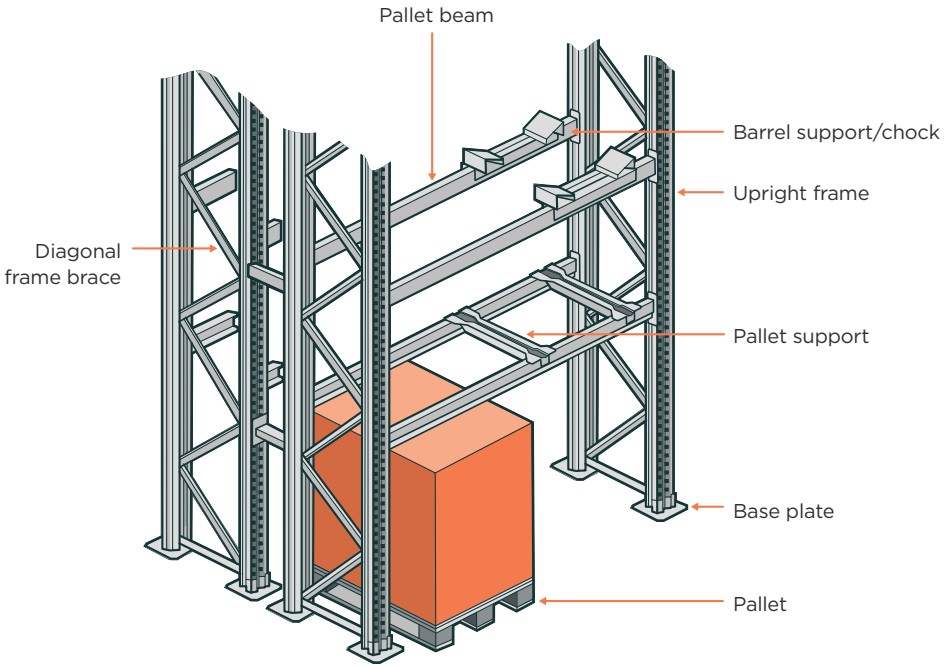

FIGURE 1: Pallet and pallet racking system

Keeping workers and other people safe

Under the Health and Safety at Work Act 2015, you must ensure that the health and safety of workers and other people is not put at risk from your work. You must eliminate risks so far as is reasonably practicable. Where elimination is not possible, you must minimise risks so far as is reasonably practicable.[2] You also must manage risks to health and safety associated with falling objects.[3]

Incidents with racking systems and pallets usually happen because:

- the racking system and/or pallets are badly designed
- the racking system has been incorrectly installed
- the racking system is damaged
- pallets are badly constructed or are damaged
- the wrong type of pallet is used
- pallets are incorrectly loaded and/or unloaded
- supervision is inadequate
- the store or warehouse has a structural fault.

[1] Health and Safety at Work Act 2015, s36(3).

[2] Health and Safety at Work Act 2015 (HSWA), ss 36(2), 30(1).

[3] Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, reg 25.

Some ways that workers or other people could be harmed when they are near a pallet racking system include:

- being struck/hit/run over by a forklift
- being crushed or hit by falling goods. For example:
  - carelessly positioned stock causing goods to be pushed over the edge of an overloaded rack
  - incorrect loading or unloading of pallets
  - unrestrained or inadequately restrained goods being able to move or fall off the rack (during an earthquake, for example)
- damaged or overloaded racking collapsing and crushing them
- a forklift or other mobile plant bumping into racking, causing pallets or goods to fall
- harmful emissions from the forklift or other mobile lifting equipment
- hearing loss due to excessive noise in the store or warehouse
- muscle strain due to incorrectly loading and unloading pallets
- no information available about how much weight the rack is able to hold, leading to the rack being overloaded
- missing safety locking pins, making the racking supports vulnerable to being knocked out of place.

Managing your racking system

To manage your racking system safely:

- you should make sure the total weight of unit loads stored on a bay is not more than the rated capacity of the bay
- you should have a system in place that allows any person at work to report any damage to a racking system
- make sure damaged parts are not used until they have been repaired and deemed to be safe by a competent person or until they have been replaced within a reasonable timeframe
- make sure the racking system is fixed to the floor
- make sure aisles are wide enough for forklifts to safely load and unload pallets
- refer to the user manual from your racking supplier.

What to expect from your racking supplier

All suppliers must, so far as is reasonably practicable:[4]

Make sure the products they supply for use:	
do not create health and safety risks to the people that use them and those nearby	– Suppliers should consider how their customers will use the product and the risks of their work. – Suppliers may need specialist advice from a person familiar with the customer's work such as an occupational hygienist, mechanical or structural engineer, occupational physician or other safety professional.
have been tested so they are safe for use at work	– Ensuring the product complies with an Australian and New Zealand standard or a comparable recognised international standard is usually sufficient to demonstrate it has been evaluated and is not a risk to people's health and safety.
And:	
give their customers information about	– the product's purpose or intended use – the results of calculations and tests, and – general and relevant information about how to safely use, handle, store, construct, inspect, clean, maintain, repair, or otherwise work near the product.

TABLE 1:
Duties of suppliers

[4] Health and Safety at Work Act 2015, s42.

The supplier should also provide:

- a user manual and logbook
- maintenance and replacement schedules
- a list of consumable parts, if applicable (including part numbers for ordering)
- training for workers on how to use, check and maintain the racking system.

Racking protection

The bottom portions of upright frames exposed to possible collisions with forklifts or other mobile plant should be fitted with upright protectors and end-of-rack protectors.

Inspections, maintenance and assessing damage

To make sure the racking system continues to be safe, you should inspect it or arrange for someone at your work to inspect it regularly. How often an inspection is carried out will depend on the specifics of your site and the operating conditions of your business. Refer to the user manual of the racking system for a checklist of things to inspect, but examples include checking for overloading, damage from forklifts or trolleys, missing bolts or safety pins, and bent steel supports.

You should arrange for the supplier, manufacturer or other competent person[5] to inspect the racking system at least once every 12 months. Inspections should include checking that:

- the system is being used correctly
- working limits are being adhered to
- the system has not been modified in any way.

It is a good idea to keep a record of inspections, damage and repairs (in a logbook, for example).

Workers should report any damage to a supervisor immediately so it can be inspected and assessed. When assessing the damage, it may be useful to apply the damage classification system outlined in AS4084-2012, section 8.5.

Safe pallet use

- Inspect pallets before use to make sure they are undamaged and safe to use. Do not use damaged pallets (for example, pallets with broken or loose boards).
- Make sure the pallet is able to support the load and is suitable for your racking system.
- Empty pallets should be handled with care, not dragged or thrown.

Loading and unloading pallets

To avoid damage to pallets and to lift loads safely, forks should extend into the pallet to at least three-quarters of the pallet depth.

Forks should not extend beyond the pallet, as protruding forks could:

- make contact with or lift a nearby load, causing it to overturn or collapse, or
- find their way underneath the racking system during lifting, causing overloading of the forklift and/or serious damage to the racking.

High-visibility colours for key components of the racking such as horizontal beams will help forklift operators to correctly position the forks and avoid damaging the racking.

Make sure there is adequate lighting in the store or warehouse to enable safe loading and unloading of pallets.

[5] A competent person might be a trained specialist within an organisation, a specialist from the rack supplier, or an independent qualified rack inspector.

Stack the load on the centre of the pallet. If your racking system design permits overhang, this should be even on both sides of the pallet.

As a general guide, the load height should not exceed the longest base dimension of the pallet.

Stack pallets evenly to help prevent uneven distribution of weight and the pallet leaning to one side or toppling.

Pick up the pallet so that it sits squarely aligned to the forks, not crooked.

Forklifts should approach the racking system squarely, not on an angle.

Do not drag or slide pallets across the support beams of the racking system.

Do not exceed maximum load limits.

More information

WorkSafe guidance

Manual handling

Forklift safety

Earthquakes and shelving

Standards

AS4084-2012 *Steel storage racking*

Acknowledgement

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