

Guide to Safe Maintenance of Pallet Racking

Pallet Racking usually sits in a busy and potentially dangerous environment. We recommend scheduled inspections of your racking to make sure it is safe and conforms to the Australian Standard and local Worksafe requirements.

This Unirack guide will help you to understand the inspection of your racking. It shows how to spot damage or to evaluate whether an accident will require your racking to be replaced or repaired.

Unirack offers **FREE Racking Inspections** upon request. We also offer **TWO Free 6 monthly inspections** for all new installations. In most cases, we can rectify small problems on the spot.

Call your local outlet to arrange an inspection today.

S.W.L. (Safe Working Loads) signs explained

SAFE WORKING LOADS
IN CONFORMANCE WITH AS 4084

1000 Kg 1000 Kg

UNEVEN-POINT LOAD
REFER MANUFACTURER

2000 Kg

9000 Kg
TOTAL BAY LOAD

1 Total weight capacity per pallet space.

2 Total capacity of load for uneven or oversized pallets. Uneven loads reduce overall capacity. Please refer to manufacturer's guide to calculate likely capacity changes.

3 Total capacity for each beam level.

4 Total capacity of bay.

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SPEEDLOCK
MANAGING SPEEDLOCK STORAGE EQUIPMENT SOLUTIONS
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Quick guide to correct load placement

A 1000kg
70% 30%

Load on a pallet must be evenly distributed across a pallet.

B 1000kg 1000kg

CORRECT
Good loading practice.

C 1000kg

Badly positioned pallet.
Not overloaded but prevents storage of a second pallet.

D 2000kg

Overloaded.
Beams designed for 2 × 1000kg Pallets.



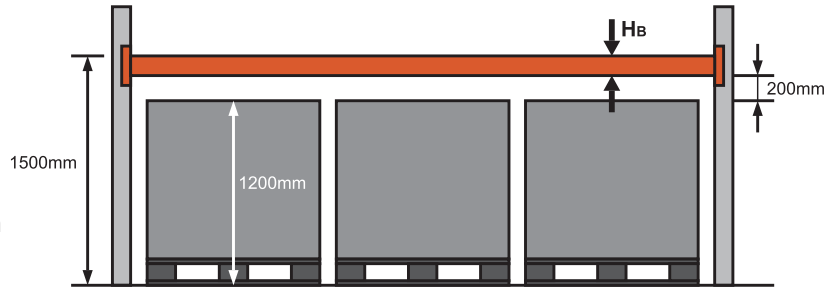
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Step by Step Guide - Beams

Beam Height

To maintain the highest load capacity of your uprights, the first level of beams should be no higher than 1500mm.

Measure the load height of the pallets stored in the lower bay, then add 200mm to allow for adequate clearance. If you require the first beam level higher, the overall load capacity of the bay will be reduced. Refer to manufacturers guide.



The first beam level should be at 1500mm or below

Beam Damage

A visual inspection of beams should be conducted every 6 months. Check the beam length (on all 4 faces) for dents, then check the connectors where the beam meets the upright.

Any damaged beams should immediately be replaced. Their load capacity can be significantly compromised by seemingly small imperfections. It is also important to check the beam slots on the upright. If they have been damaged or are misshapen, the beams should be repositioned to an undamaged slot.



Damaged beams should be replaced.



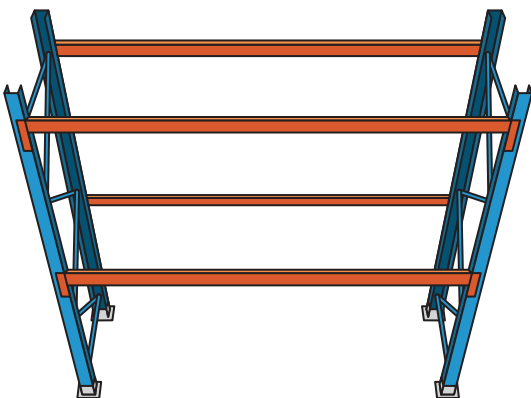
Check beam slots on the upright.

Overloading Beams

Never overload the beams. Always refer to the S.W.L (Safe Working Load) signage. A beam that has been previously overloaded may also be unsafe.

Measure the "deflection" of a beam when loaded and unloaded to work out whether a beam is still safe to use at the prescribed SWL. See right.

- Horizontal Beam Deflection -



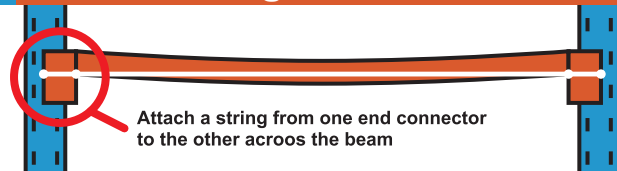
- How to Calculate Deflection -

1 Calculate Allowable Deflection

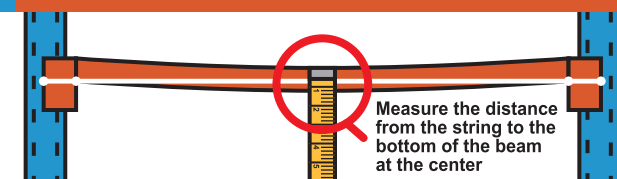
$$\frac{\text{Loaded Deflection}}{\text{Length of Beam}} = \frac{\text{Unloaded Deflection}}{\text{Length of Beam}}$$

$$\frac{180}{800} = \text{Allowable Deflection (mm)}$$

2 Attach String Line



3 Measure



Example: With a standard 2591mm beam, an unloaded beam should show no more deflection than 3.24mm (2591 divided by 800). A loaded beam should not show deflection of more than 14.4mm (2591mm divided by 180).



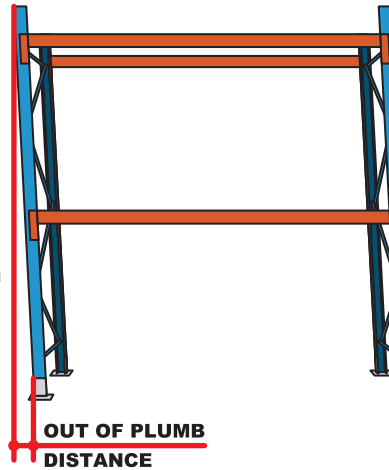
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Step by Step Guide - Uprights

Out of Plumb

Upright frames must be upright! Not out of plumb (i.e. not out of vertical or true). And as level as possible.

To check this, place a 1m spirit level on an unloaded racking upright. Move the level until it reads "plumb" and measure the distance between the base of the spirit level and the upright. To keep within tolerance this distance must be less than 2mm. (1000mm divided by 500 gives you 2mm)



Check your "Out of Plumb" distance over larger heights

If you wish to test over a larger area then use the formula below.

$$\text{Tolerance} = \frac{\text{measurement length (mm)}}{500}$$

Example, for a 3658mm upright, the "out of plumb" distance at the base of the upright should be less than 7.3mm.

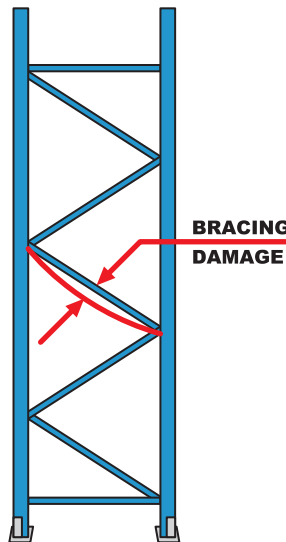
$$\frac{3658\text{mm}}{500} = 7.3$$

Bracing Damage

Damage to bracing occurs in normal warehouse operations. It should be actively looked for during routine inspections.

If damage is within an acceptable tolerance, then the racking may continue to be used (see diagram and discussion right).

Bracing that is damaged must be replaced immediately and cannot be done while uprights are loaded.



The maximum Bracing Damage in either direction or plane over a 1000mm distance = 10.0mm

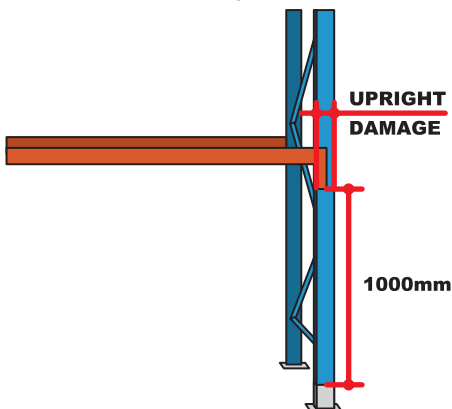
The allowable damage for bracing less than 1000mm in length is pro-rata the above.

Eg 5.0mm over 500mm or 7.5mm over 750mm.

Upright Damage

Damage to the uprights can occur in 2 ways: Side-to-Side or Front-To-Back (more common).

If the damage is within acceptable tolerances, the uprights can still be used. In most cases, if there is only one damaged section and it is less than 3mm over a 1000mm section of the upright, you can still use the upright.



1 Front To Back Damage Tolerance

The maximum Upright Damage due to impact in the direction of the bracing over a 1000mm distance = 3.0mm

- If the damage is localised, the allowable damage for a distance less than 1000mm in length is pro-rata the above.
Eg 1.5mm over 500mm or 2.25mm over 750mm

2 Side To Side Damage Tolerance

The maximum Upright Damage due to impact in the direction of the beams (Side to Side) over a 1000mm distance = 5.0mm

- If the damage is localised, the allowable damage for a distance less than 1000mm in length is pro-rata the above.
Eg 2.5mm over 500mm or 3.75mm over 750mm
- Please Note: Where possible always test over 1000mm span



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Pedestrian Safety

What can you do?

Pedestrians have right of way in your warehouse.

Pedestrian walkways must be clearly marked and signposted. Paint it bright and they will follow! Train your staff where to walk and keep your local Worksafe Authority happy.



If walkways are close to racking, wiremesh backing panels should be installed. This prevents items being dislodged from above by a forklift operator on the other side. Remember, forklifts and pedestrians don't mix! Make sure your signage is visible and clear.

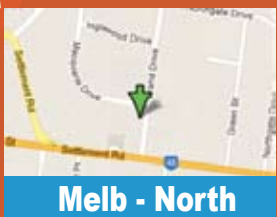
Keeping your racking checked and maintained will keep your workers safe from unnecessary accidents and injury!

Work Safe
VICTORIA

Recommend You Check Your Racking EVERY 6 Months

Date of safety check	Checked by	Signature	Next check

**WE CAN DO YOUR SAFETY CHECKS . . . RING TODAY.
CONTACT YOUR NEAREST UNIRACK OUTLET**



Melb - North

1/5 Brand Drive, Thomastown
(03) 8376 9460



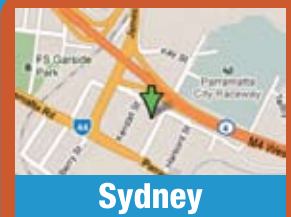
Melb East

9/56 Smith Rd, Springvale
springvale@rackpallet.com.au
(03) 8376 9461



Melb West

18 Tottenham Pde, W. Footscray
footscray@rackpallet.com.au
(03) 8376 9462



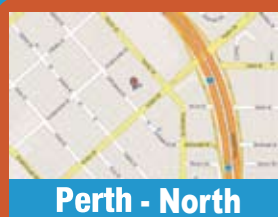
Sydney

14-16 Wentworth St, Granville
sydney@rackpallet.com.au
(02) 9637-5908



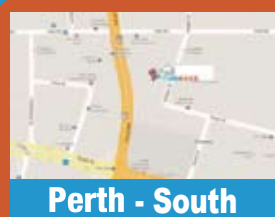
Adelaide

2/49 Naweena Rd Regency Park
matt@rackpallet.com.au
(08) 8244 1033



Perth - North

1/51 Collingwood St Osborne Park
perth@rackpallet.com.au
(08) 9204 5700



Perth - South

Rear 9 Keegan St O'Connor
david@rackpallet.com.au
(08) 9331 1222



Brisbane

238 Earnshaw Rd Northgate
james@rackpallet.com.au
1800 227 693



For more info go to www.unirack.com.au