

# Operation and Maintenance of Racking

## Information

The user should be provided with information regarding the technical limitation of the racking in terms of load carrying capacity and warnings of the dangers of re-arranging the configuration of the racking without the manufacturer's technical appraisal.

Signage will display the safe working load criteria for defined areas of the racking. It will warn of specific dangers that may be encountered in operating the system and it will provide advice on the essential maintenance requirements of the system.

## Adjustable Pallet Racking Operation

Generally, the safe working loads of adjustable pallet racking are declared on the load notices attached to the rack and are normally quoted in terms of a maximum bay load. It is important that the loads applied to the beam are uniformly distributed loads and that both beams are loaded equally.

The bay load is governed by many factors with the height to the first beam level, the height between beam levels and the number of floor fixings per upright being of prime importance. Beams must not be removed or re-positioned without reference to the supplier.

During loading, the pallet should be carefully lowered to ensure that it is supported equally by the beams. During unloading, the load should be lifted, taking care not to intrude on the level above, and to ensure that it is clear of the beams before it is manoeuvred. The load should never be pushed or slid into position across the beam.

## Access

Pallet racking is not designed as access equipment and personnel should not be permitted to climb racks. If access is required to the upper levels of a racking installation, then appropriate equipment should be used.

The following non-exhaustive list contain the minimum requirements expected of warehouse operators:-

- Good truck/rack interface.
- Correct placement of pallets.
- Clear aisles.
- Adequate clearance around loads.
- Pallets in good condition.
- Good driver skills.
- Regular maintenance.
- Report all damage and repairs.



## Inspection and Maintenance

A regime of regular inspection for the pallet racking installation should be carried out at a series of levels of competence.

Warehouse staff and fork lift truck operators should be encouraged to report all damage immediately as it occurs to ensure appropriate action is taken to protect the safety of operatives and others. This will, however, require a diplomatic approach to disciplinary procedures for careless drivers.

**Regular formal inspections** of all racking should be undertaken by warehouse supervisors at weekly and monthly intervals to identify and act upon any damage not yet reported. This should typically include removal of product from random bays to provide more detailed inspection access.

**Yearly or half-yearly formal inspections** should be carried out by a technically competent individual (preferably SARI registered), fully experienced in the identification and categorisation of racking damage. This individual might be a fully trained member of the management, a rack manufacturer's technical expert or an independent consultant.

**The frequency** of each level of inspection must be adjusted with due regard to the throughput of the warehouse. High usage stores require a more regular inspection. Cold store conditions are more arduous for materials and staff and must be taken into account in determining the necessary frequency of inspection and the skill level of the inspector.

For further information and advice see SEMA Guideline 6 Guide to the Conduct of Pallet Racking and Shelving Surveys.

All surveys must be conducted, and in particular documented in the maintenance log, in a systematic and clear manner. The survey will classify damage according to severity and corrective action necessary.

Generally, three degrees of damage will exist; Green, Orange and Red Alert Levels.

**Red** alerts are items which are severely damaged well beyond the limitations of the SEMA code. In such circumstances, the racking should be immediately off-loaded and isolated from future use until repair work is carried out. Such repair work would normally be the replacement of the damaged item. For items identified as Designation Red, a written procedure must be adopted by the Inspection Engineer in order to inform the user of the seriousness of the situation.

**Orange** alerts are items that are damaged beyond the limitations of the SEMA code, but not sufficiently serious to warrant immediate off-loading of the rack. A procedure should be in place to ensure that once the rack is off loaded, it is not re-used until repairs have been carried out. In the event that the location is still occupied 4 weeks after initial identification, the rack should be off-loaded for repair without further delay.

**Green** alerts are items which are damaged but are within the limitation of the SEMA code. Such items would be recorded as being suitable for use but be identified for future reference and monitoring.

## Damage Requiring Replacement

Anything which significantly changes the original cross section profile or deforms the straightness of any load bearing member or which significantly weakens jointed members due to failed welds or loose bolts, requires replacement.

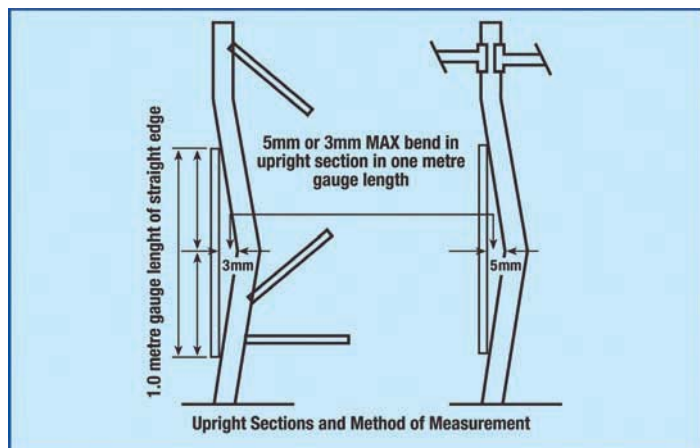
## Damage to racking

Any damage to a rack upright will reduce its load carrying capacity. The greater the damage the greater will be the reduction in its strength until the upright collapses at its normal working load.

Damage to bracing sections will reduce the capacity of racking frames to withstand accidental frontal impacts and may also reduce the axial load carrying capability of frame uprights.

## Assessment of Damage to Uprights and Bracing Members

A steel straight edge 1.0 metre long is placed in contact with a flat surface on the concave side of the damaged member such that the damaged area lies central as near as possible to the length of the straight edge.



For an upright bent in the direction of the rack, beam spans the maximum gap between the upright and straight edge should not exceed 5.0mm.

For an upright bent in the plane of the frame, bracing the maximum gap between the upright and straight edge should not exceed 3.0mm.

For bracing members bent in either plane, the gap between straight edge and bracing member should not exceed 10mm.

These rules apply only to damage which produces an overall bend in a member. They do not apply to highly localised damage such as dents, buckles, tears, splits. Members subjected to these defects should be replaced. Localised bends over a length of less than one metre, may be judged pro-rata to the 1.0 metre limits e.g. over a half metre length half of the prescribed limits apply. Dents, buckles, tears and splits should be replaced.

## Assessment of Damage to Beams

Beams will naturally deflect under normal loading conditions to a maximum permissible of span/200. This deflection should disappear when beams are unloaded and should not be confused with permanent deformation caused by overloading or impact damage.

### Damage should be measured against the following criteria:

- Beam and connectors which show any clearly visible deformation should be unloaded and expert advice sought from the equipment supplier.
- Welded connections between beam section and end connector should show no signs of cracking.

Telephone: 0800 975 4933

## ACCIDENT / DAMAGE REPORT FORM FOR THE YEAR ENDING

COMPANY

*Tick as appropriate*

**ACCIDENT DAMAGE REPORT**

**WEEKLY INSPECTION REPORT**

*Carried out by one of the company's inspectors*

JOB REFERENCE

DATE

RACKING SUPPLIER

LOCATION I.D REF

FLOOR FIXING

FRONT UPRIGHT

BRACING

REAR UPRIGHT

FRAME BOLTS

1ST. LEVEL BEAMS F/R

2ND. LEVEL BEAMS F/R

3RD. LEVEL BEAMS F/R

4TH. LEVEL BEAMS F/R

5TH. LEVEL BEAMS F/R

6TH. LEVEL BEAMS F/R

ROW SPACER

WALL TIES

FRAME GUARDS

SHELVES

ACCESSORIES

FLOOR CONDITION

**NB: The component damage should be ticked in the appropriate box above.**  
**The inspector should write along side it the damage category, (Red Risk or Amber) together with any remedial action taken (i.e. bays unloaded).**

Accident damage report by:

Accident damage inspected by:-

Inspector

Date / /

Monthly inspection of report book by manager

Name

Date / /

Report book inspection by Independent Racking  
Inspection Engineer

Name

Date / /

Damage Category

Key: Red risk items - R Amber risk items - A