

Is Your Storage Racking Safe To Use

AN AWARENESS GUIDE FOR CONSTRUCTION COMPANIES AND CLIENTS

If you use, or are responsible for storage racking, the risk of its collapse may be higher than you think. In recent years, there has been an increase in the number of incidents where racking has collapsed, often resulting in severe or fatal injuries and subsequent prosecution. To reduce the risk of racking collapsing, it is important that you are fully aware of the safe procedures to be followed.

SAFEGUARDS

In most cases, information on the safe use, installation and maintenance of racking can be found in the manufacturer's operation and maintenance (O&M) manual. This information will help you to comply with the Provision and Use of Work Equipment Regulations, 1998 (PUWER).

In many cases, the O&M manual will also recommend in-service inspections. These inspections are often a necessary part of the risk-management process, maintaining adequate standards of health and safety; as your risk assessment will reveal.

Zurich Engineering can independently provide periodic in-service inspections, to help you comply with the requirements of PUWER.

The following are critical safe operating procedures:

- All racking should be clearly marked with its safe operating load
- All persons operating forklift trucks should be suitably trained
- Any damage should be reported and promptly repaired, or the racking should be quarantined until repair

More specifically, the issues that can be encountered with racking include:

a) Inadequate forklift truck driver training

Drivers must be instructed in the correct use of the forklift and the racking, as well as any specific requirements, in terms of rotating pallets or directions for entering aisles etc, arising from the general layout.

b) Carelessness

Retraining, supervision and increased management awareness can help reduce incidents caused by carelessness.

c) High speed of operation

Drivers differ in their ability to operate quickly and safely. Input/output cycle requirements must be compatible with the abilities of the drivers.

d) Inadequate design of layout

Racking layouts that give good access and adequate aisle/ lane dimensions must be considered at a very early stage in planning. People who will eventually have responsibility for the operation should be involved in the planning.

e) Use of forklift trucks

The forklift is an integral part of the installation design and must be considered at the planning stage. Arbitrary, seemingly innocuous, changes in the choice of – or setup of – forklift, can lead very quickly to extensive damage, particularly where aisles/clearances are rendered too small or too wide.

f) Use of wrong or damaged pallets

Not all pallets are suitable for use in pallet racking and even fewer are suitable for use in drive-in racking. The SEMA Code of Practice for the Use of Static Pallet Racking and current ISO standards both provide useful information. Broken or sagging pallets can cause premature beam failure by outward pressure on the inside faces of the beams.

g) Use of floor guide rails

Floor guide rails may fail to constrain forklifts in their correct attitude to the equipment. This is frequently due to failed floor fixings – often caused by poor flooring material – or to excessive forces from forklifts (which, in turn, can be caused by failing to compensate for truck-mounted guide rollers by adjustment or by reversing trucks into aisles.).

h) Housekeeping

Poor housekeeping can cause aisles and access ways to be obstructed by pallets, rubbish etc.

The usual result of any of these above issues is impact damage to the front upright in the first metre of height and to the beams at the first level.

i) Inexperienced personnel relocating, adjusting, re-assembling or re-erecting without authorisation

Any of the above could make equipment unstable. Similarly, neither the intermixing of products from different manufacturers, nor the use of incompatible accessories, is recommended. Further causes of racking problems include:

j) Climbing the face of racking, potentially collapsing the front edges of racks

k) Impacts from heavy packages dropped onto racking giving rise to point load effects

l) Overloading racks by not controlling the number of items (unit loads) stored.

m) Racking becoming unstable because of unsuitable access equipment or being inadequately fixed.

n) Use of fork trucks and other heavy lifting equipment in the vicinity of racking.

o) Use of unauthorised handling equipment in the racking aisles.

p) Forcing items into place causing racks to be lifted off their supporting clips thereby increasing loads on lower racks.

In addressing these issues you should consider and make use of 'active' and 'passive' measures to control the risk.

'Active'

- Follow good installation design - layout, lighting, trucks, clearances etc.
- Provide driver training on the job and safety education.
- Use correct pallets that are in good condition.
- Lay adequate floor markings.
- Display loading/safety notices.
- Adhere to good housekeeping generally.
- Undertake preventative maintenance, including in-service inspection and repair.

'Passive'

Use:

- Physical barriers – e.g. Armco.
- Column guards.
- Guide rails.

If you have any concerns about the above and require assistance, Zurich Engineering can provide comprehensive guidance, details of which can be found in Appendix A.

IN OUR VIEW

If you are planning to purchase racking or already have it installed, you should assess the risks.

Several incidents of racking collapse have occurred, prompting the HSE to issue a number of guidance documents (INDG 412, and OC 687/5, etc.). These cover the types of racking used in various industries, and provide an example risk assessment for warehouses.

Documents highlighting the risks involved and the actions to be taken to mitigate them are freely available at the HSE's website (go to www.hse.gov.uk and search for 'storage racking').

Meanwhile, the Storage Equipment Manufacturers Association (SEMA) has guidance available on the installation, safe use and inspection of racking at www.sema.org.uk.

Remember: just because racking meets current standards for design and manufacture, it does not mean that it will always be safe to use. You should assess how the equipment is going to be used in practice. Remember, the risk reduction hierarchy places engineering control (i.e. robust design, installation, inspection and maintenance) over 'discipline' (i.e. using it carefully).

APPENDIX A – ZURICH PALLEY RACKING AND SHELVING SURVEYS

Surveys should be carried out as a regular audit to check the condition of equipment for Health and Safety purposes.

Surveys must be conducted and documented in a systematic manner. This is best done by means of a structured report, so that others can understand precisely what was done, to what extent, and can physically locate any component referred to accurately and quickly.

Key requirements to meet these objectives:

a) Where more than one area of equipment exists on a site, each must be given a unique reference. Each run of racking or shelving within an area (a double entry unit consists of two runs) or each block of drive in/drive through or dynamic storage must be similarly identified.

b) Each upright in a run or block must be encoded for individual recognition as must each level of storage. Note: many racks are clearly labelled for stock location purposes. This can be the basis of the survey report but may need some adapting.

c) If goods are stored on the equipment at the time of survey, it is normally possible to carry out the checks, unless their distribution restricts the visibility of structural components. If this is the case, the goods should be removed to allow access to the racking components. The Engineer Surveyor should record the type of goods, weight, condition of pallets, method of access used, etc.

d) All equipment employed and its methods of use should be fully described. The owner of the surveyed racking or shelving should ensure that all necessary access equipment used is suitable and safe for the purpose - e.g. the use of personnel safety cages for use with fork lift trucks.

e) The SEMA code is used as a guide to examination and defect categorisation.

An Engineer Surveyor conducting an inspection for damage will normally commence with a visual check from ground level. This should include reporting on peripheral items such as loose guide rail or floor fixings, moving parts such as wheels and brakes within dynamic storage systems, missing beam connector locks, or obvious failings in floor screeds/expansion joints. Items such as sprinkler/smoke detection fixtures are usually not included in the survey.

The racking will be inspected based on the customer's requirements and as the loading permits. This may be a visual from ground level only or plus a sample 10% at height or an inspection at all levels

Access equipment will be required for high level inspections, including safety harnesses, where appropriate. Reference should be made to the Work at Height Regulations and Technical Guide Note PM28, issued by the Health and Safety Executive, regarding personnel working platforms and safe high-level inspections.

It remains the responsibility of the user to take safe corrective action whenever defects or damage have been identified, even when engineer surveyors have been regularly consulted and Health and Safety damage inspections have taken place. Surveys will normally classify any defects/damage found into a series of categories as follows:

'A (before further use) defects' – Defects that should be remedied before further use – equivalent to the SEMA 'Red' category

These 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. Repair work normally means the replacement of the damaged item. An on-site written defect report will be left by the Engineer Surveyor in order to inform the user of the seriousness of the situation.

'B (timed) defects' – Defects that should be remedied by the specified date – equivalent to the SEMA 'Amber' category

These are items which are damaged beyond the limitations of the SEMA Code, but not sufficiently serious to warrant immediate offloading 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 within the specified time period.

'C defects' – Defects that should be remedied as soon as is reasonably practicable – equivalent to the SEMA 'Green' category

These are items which are damaged but are within the limitation of the SEMA Code. Such items would be recorded as, 'Suitable for use but identified for repairs.'

The frequency of survey should initially be based on risk assessment, then subsequently on reviewing those risks, plus evaluating any trends as surveys take place.

Regardless of these categories: it is recommended that racking installations requiring operatives to perform new techniques – or significantly increased levels of activity – should be surveyed within four months of installation, at most.

SUMMARY

The consequences of objects falling from racking, or the racking collapsing, can be costly and result in serious or fatal injuries and prosecution.

To reduce the risk of this happening: we recommend that racking must be designed, manufactured, installed, serviced and maintained correctly and, of course; that it is used safely and inspected at least every twelve months by a competent person.

Any deficiencies in the above could create a gap in the coverage of risks which day-to-day inspections may not expose.

As well as providing an inspection service, Zurich Engineering can help you assess the risks and take action to improve the risks if necessary.

Should you require any further guidance, please contact:

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