Best Practices: Implementing an Effective Pallet Rack Safety Program

Charles Carbonneau, Ph.D., P. Eng.
Chief Engineer

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Charles Carbonneau Ph.D., P.E.

Chief Engineer, Damotech

Why is Rack Safety Important ?

Racks are highly efficient and optimized structures that require all components to be free from damage to fully bear the load placed on them.

The improper selection, installation, use, or maintenance of racking and storage systems can put workers at risk of injury.

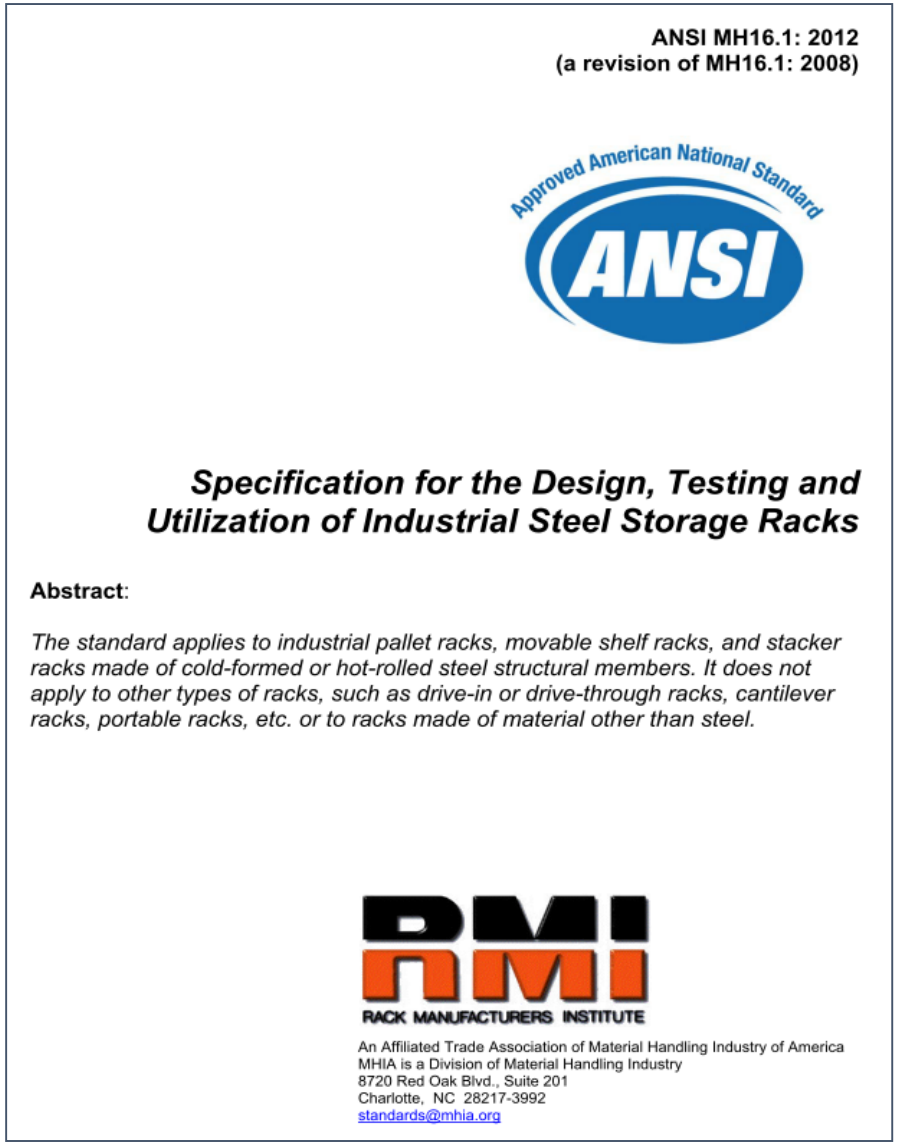
The Responsibilities of Pallet Rack Owners

The Occupational Safety and Health (OSH) Act of 1970 requires that employers offer a workplace that is **free from known hazards** to its employees.

Hazards are defined as "those likely to cause serious physical harm or, worse case, death.

Design Codes

- Conformity
- Stay up-to-date



ANSI MH16.1: 2012
(a revision of MH16.1: 2008)

Approved American National Standard
ANSI

Specification for the Design, Testing and Utilization of Industrial Steel Storage Racks

Abstract:

The standard applies to industrial pallet racks, movable shelf racks, and stacker racks made of cold-formed or hot-rolled steel structural members. It does not apply to other types of racks, such as drive-in or drive-through racks, cantilever racks, portable racks, etc. or to racks made of material other than steel.

RMI
RACK MANUFACTURERS INSTITUTE

An Affiliated Trade Association of Material Handling Industry of America
MHIA is a Division of Material Handling Industry
8720 Red Oak Blvd., Suite 201
Charlotte, NC 28217-3992
standards@mhia.org

Rack Safety Program

Pallet Rack Safety Program

1. Assess through inspections
2. Report
3. Prioritize issues
4. Take action
5. Continuously Re-assess

1. Assess through regular inspections

A. Who
B. Frequency
C. What to look for
D. Classification of damage
E. Do you have all the documentation needed?
F. When or why do you need a third party

A. Who Can Inspect

A person with professional knowledge of racks, capable of assessing potential hazards.

Only a **Professional Engineer** can determine the load capacity of a racking system.

B. Frequency

Yearly inspection
by third party
(Independent report)

Monthly inspections
by trained warehouse
employees

Ongoing
Report and address issues

Keep documents
(audits, modifications, repairs)
for 3 years

B. Frequency

Examples of when to inspect:

A. After an event (accident, collapse)
B. Incomplete documentation
C. Pre-Purchase / Change of Tenant
D. Operations & Safety Optimization
E. Performance Benchmarking

C. What To Look For

Damaged + Missing Upright Components	Verticality (Out-of-Plumb) Rust	Loose or Damaged Anchors
Damaged: Beams, Connectors & Safety Pins	Damaged Pallets Positioning Double-stacking Sprinkler Clearance	Wire Mesh Nets or Safety Bars
Load Capacity Displayed	Disparity Between LARCs & Actual Pallet Loads	Missing LARCs (Load And Rack Configuration)

D. Classification of Damage

If the rack hasn’t collapsed (yet),
it doesn’t mean the damage is not important,
or that it won’t happen!

D. Classification of Damage

Levels	Degree	Severity	Color Codes
Level 1	Low	Minor	Green
Level 2	Medium	Watch	Yellow
Level 3	High	Severe	Red

E. Load Capacity

- Must have LARCs
- Labels or plaques must reflect up-to-date LARCS
- Should be visible to forklift operators and workers

F. Third Party Expert

- To update your LARCS
- Generate plaques or labels
- Independence, and uniformity in reports and inspections
- Recommend once a year (conformity)

F. When Do You Need an Expert ?

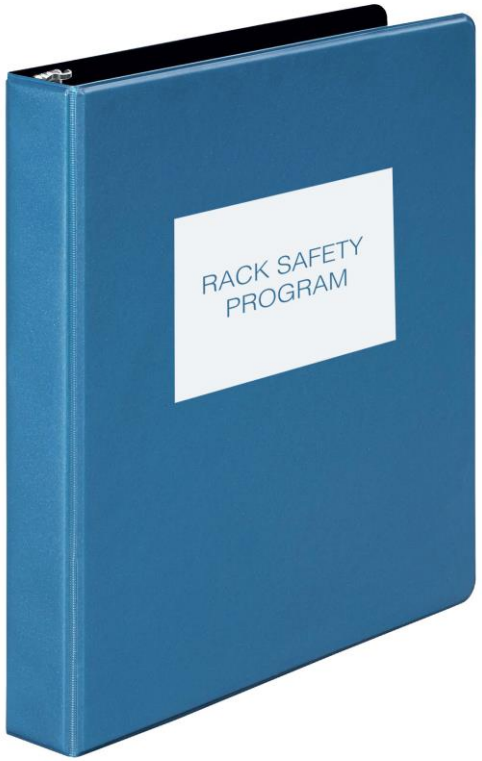
- To establish severity of damage
- Wish to make modifications to a racking system (ie. beam changes)
- Cannot find the rack design drawings (LARCS)
- Need the max load capacity for your racking calculated
- After modifications have been made to a rack
- A rack owner needs to validate the installation of a new rack system
- Need a full conformity inspection and stamped report for your rack systems

2. Report

- Reporting of accidents and issues? How?
- Encourage employees to report damage
- Example of method: Magnets
- Multi-warehouse monitoring

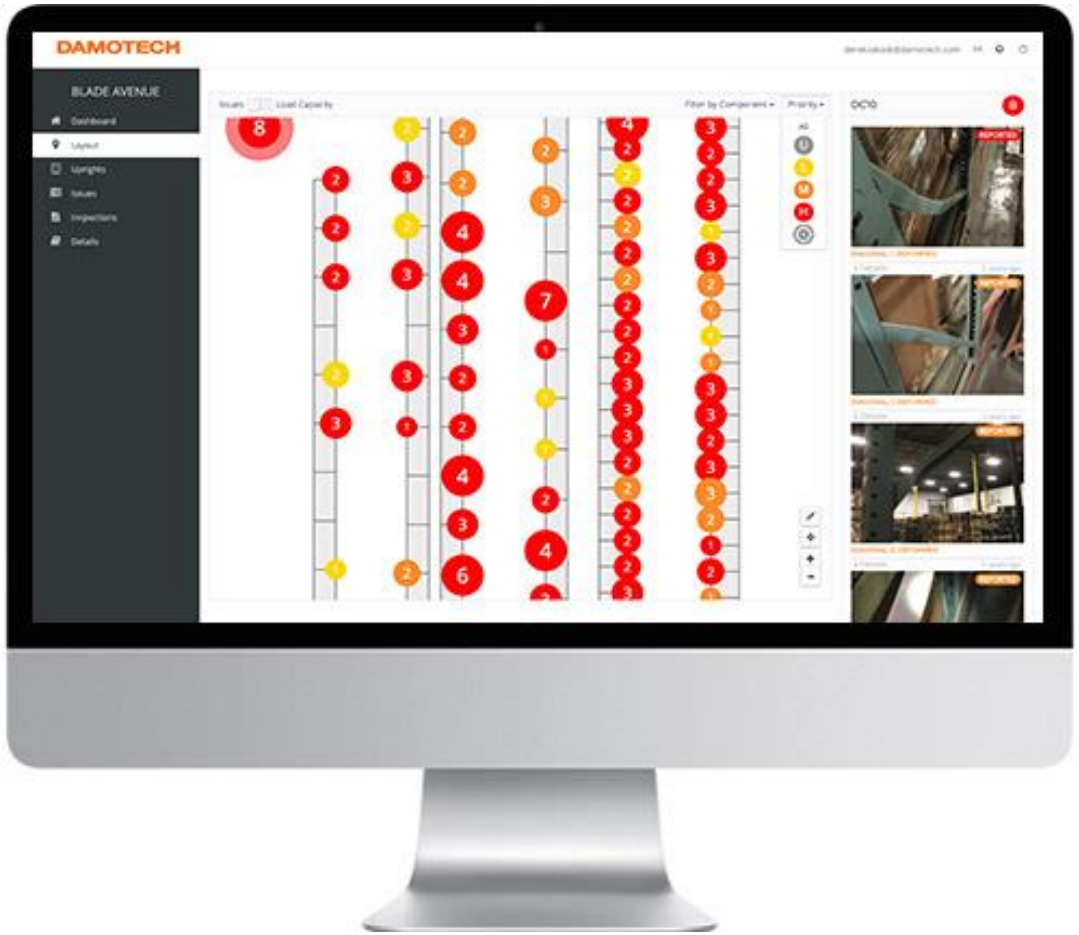
What to Record and Keep

- Up-to-date LARC drawings
- Regular inspections reports
- Employee training records
- Repairs and modifications
- Any stamped engineer drawings



How to Record

- Checklist
- Take pictures
- Dated Reports
- App or software



3. Prioritize

- There is no ‘good’ damage
- Example of systems (high/low - colors systems)
- Examples of each type of damage severity (Unload, high, moderate, low)
- When to bring in an expert

Prioritizing Rack Damage

Unload	Immediately unload Record, label and notify management Repair / replace before putting back into service
High Priority	Record / repair / replace as soon as possible
Moderate Priority	Record / repair / replace as soon as practical
Low Priority	Record / monitor / watch

Unload

High Priority

Moderate Priority

Low Priority

Beware of Multiple Issues

Beware - Multiple minor issues can lead to a high priority issue

4. Take Action

- Repair with engineered solution
- Replace like-for-like
- Protect
- Validate (Ongoing)

4. Take Action

As an alternative to rack replacement, rack repair kits not only fix the damage but offer permanent protection against future impacts.

5. Re-assess

- Safety Culture
  (Viewing rack as asset instead of commodity)
- Employee Training (Ongoing)
- Housekeeping / Traffic Flow (Keep aisles clear!)
- Pallet Velocity (paid to pick)
- Measure / Trends / KPIs

Remember

- ✓ Damage reduces load capacity
- ✓ Report issues and address damage as soon as possible
- ✓ Protect rack uprights in high traffic areas

Remember

- ✓ Find a trusted partner with whom to work with who has all the expertise required for the safety and protection of your racking systems and workers.

Remember

When in doubt, unload and seek advice from a rack design professional.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