

PRACTICAL GUIDE
TO **RACK DAMAGE**
ASSESSMENT

DAMOTECH



You've located
some rack damage
in your warehouse...

Now what ?

Assessing an engineered rack system's condition can be quite challenging due to the variety of issues that can be encountered and their pervasiveness throughout the warehouse environment.

This pocket guide provides simplified guidelines to help you determine what needs to be addressed. These guidelines are based on the following standards and recommendations: ANSI /RMI, OSHA, FEM.

For more details, and a free survey checklist visit damotech.com/surveys

THE 1-2-3 RULE

To determine if a deflection on an upright should be addressed, we recommend using this simple 1-2-3 rule.

Here's what to look for:

1

over 1/8" of **frontal** deflection on an upright, within a span of 40"

2

over 2/8" of **lateral** deflection on an upright, within a span of 40"

3

over 3/8" of deflection on a brace

It can be difficult to establish the severity of a damage, therefore, if there is doubt, it is best to call an expert.

1-877-990-DAMO

THE 1-2-3 RULE

UPRIGHTS - FRONTAL

1

Over 1/8" of **frontal** deflection within a span of 40"

Deflection $> 1/8"$ →

FRONTAL DAMAGE SEVERITY

Low

- less than 1/8"

Medium

- between 1/8" and 2/8"

High

- more than 2/8"



Also look for other types of damage such as dents, cracks, bulges, pinched columns and signs of corrosion.

THE 1-2-3 RULE

UPRIGHTS - LATERAL

2

Over 2/8" of **lateral** deflection within a span of 40"

Deflection $> 2/8"$

LATERAL DAMAGE SEVERITY

Low

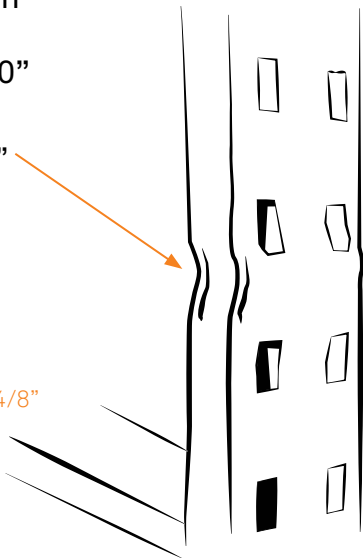
- less than 2/8"

Medium

- between 2/8" and 4/8"

High

- more than 4/8"



Also look for damage occasionally hidden behind the beam connectors.

THE 1-2-3 RULE

BRACES - HORIZONTAL & DIAGONAL

3

Over 3/8"
of deflection
on a brace

BRACE DAMAGE SEVERITY

Low

- less than 3/8"

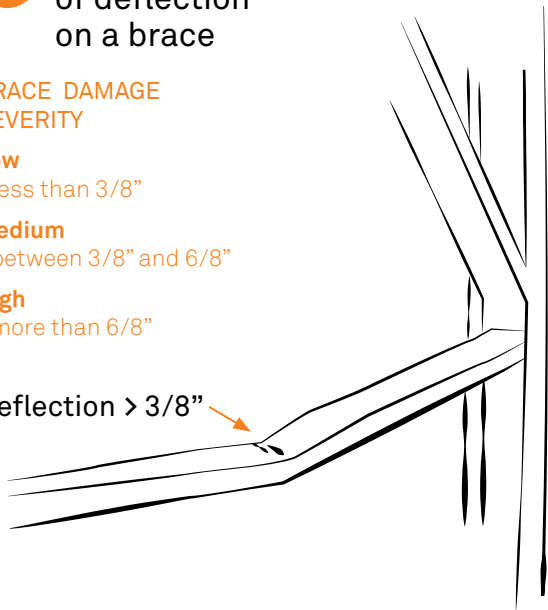
Medium

- between 3/8" and 6/8"

High

- more than 6/8"

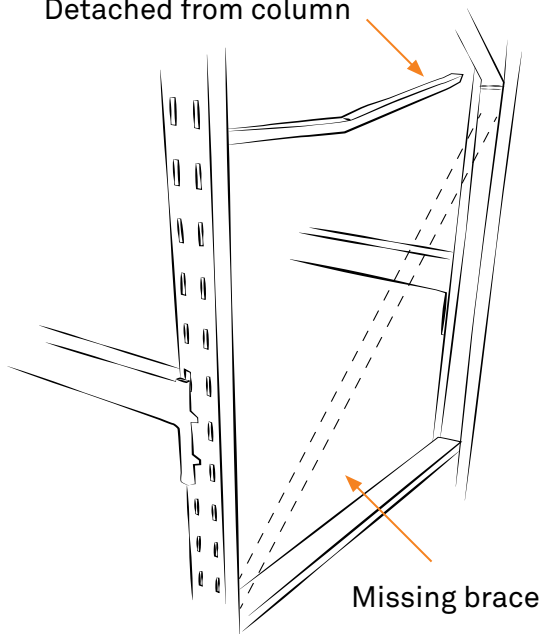
Deflection > 3/8"



Also look for cracked or broken welds between the column and the brace.

BRACES

Detached from column



Missing brace

Horizontal and diagonal braces are essential to the capacity and stability of the rack system. Any missing or detached braces should be addressed.

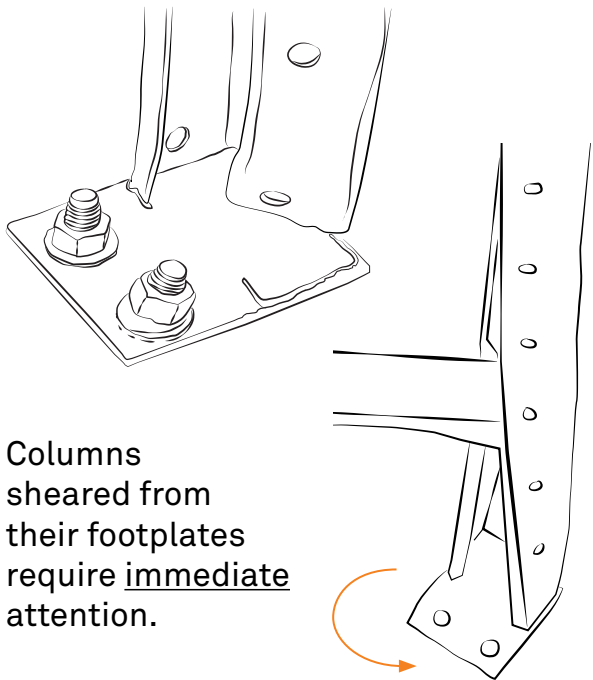
Need help ?

Damotech is the first and largest rack repair and prevention company in North America. Damotech and its network of distributors can assist you by providing expertise in assessing the condition of your rack systems and offer an effective solution.

Visit damotech.com or call us at **1.877.990-DAMO**

Damotech, its dealers and employees assume no responsibility and disclaim all liability of any kind, however arising, as a result of acceptance or use of these guidelines. Anyone using these guidelines specifically understands and agrees that Damotech, its dealers and employees shall not be liable under any legal theory of any kind for any action or failure to act with respect to the repair, replacement, design, erection, installation, manufacture, and preparation for sale, characteristics, features, or delivery of anything covered by these guidelines. Any use of this information must be independently determined and verified by the user to be in accordance with applicable federal, state, and local laws and regulations.

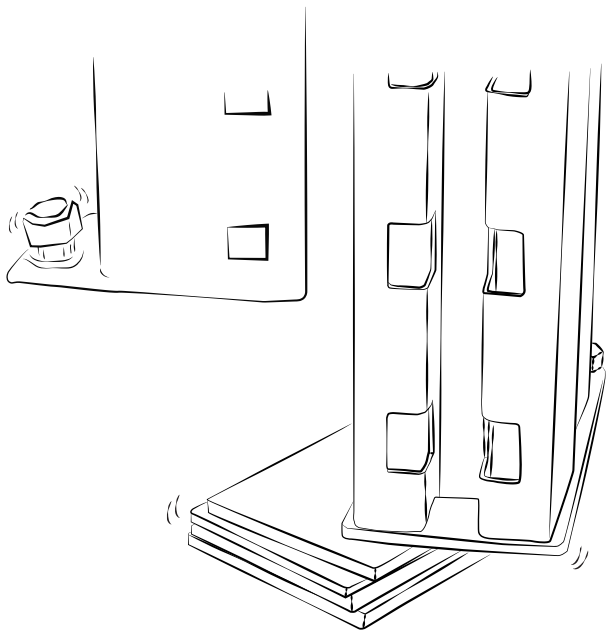
SHEARED OR TWISTED COLUMNS



Columns sheared from their footplates require immediate attention.

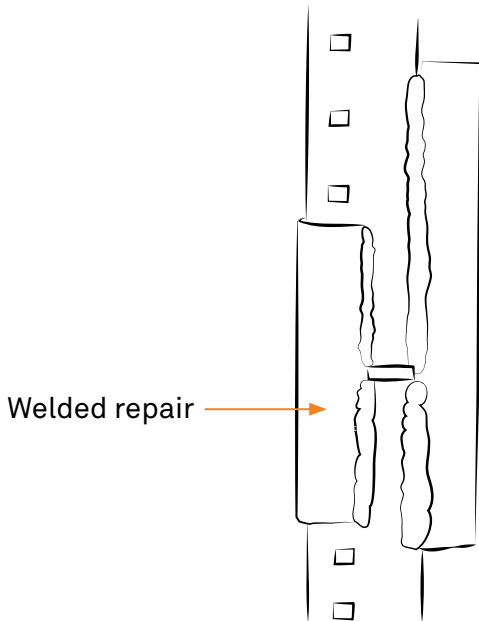
Twisted columns are difficult to assess. They may impede the load capacity of the rack, which is why we recommend calling an expert.

ANCHORING



Look for missing, loose and/or damaged anchors or foot plates. Shims should be well seated, well secured and of equal size to the footplate.

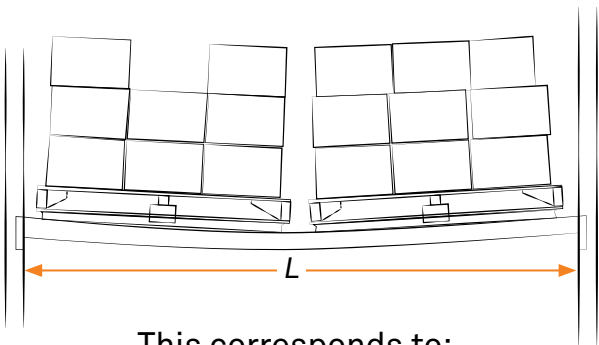
LOCAL REPAIRS



Unless approved by an engineer, any homemade repair should be replaced by an engineered repair solution. Welded splices and non-matching extensions are signs of local repairs.

BEAMS

The maximum allowable beam deflection is: $L / 180$



This corresponds to:

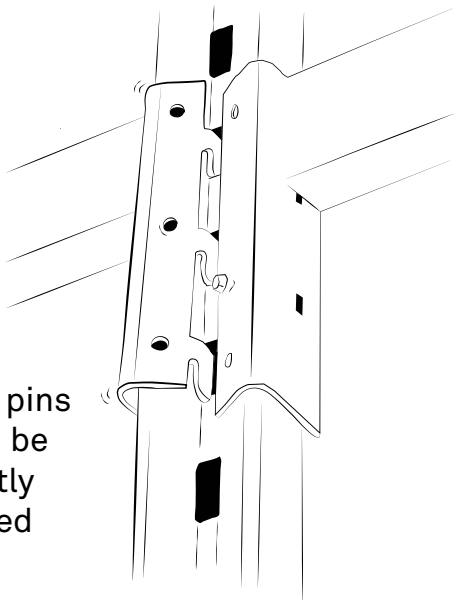
8' beam = $4/8''$

10' beam = $5/8''$

12' beam = $6/8''$

Look for deflected, damaged, unclipped and/or overloaded beams. Other common issues are missing safety bars, overloaded, improperly positioned or damaged pallets.

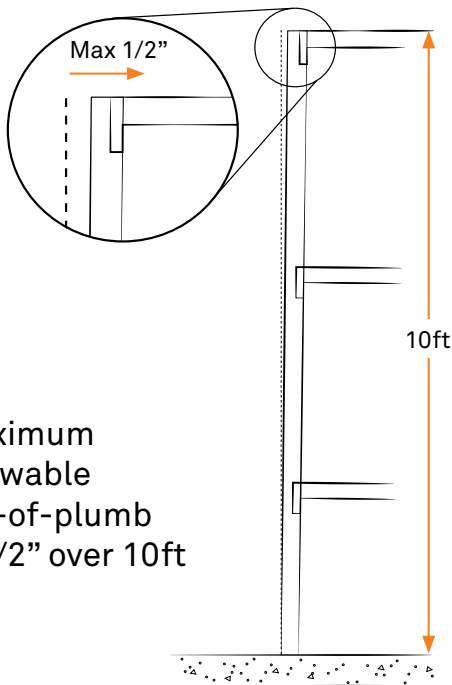
BEAM CONNECTORS



Safety pins
should be
correctly
installed

Look for corrosion, deformations, cracks in the welds, broken connectors and/or missing safety pins. Safety pins are essential to prevent beam clips from detaching.

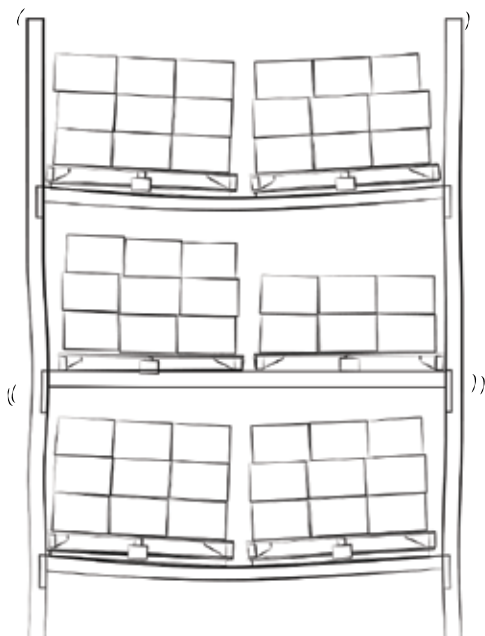
OUT-OF-PLUMB



Maximum
allowable
out-of-plumb
is 1/2" over 10ft

An out-of-plumb upright means that it is not exactly vertical. The same rule applies in the cross-aisle and down-aisle directions.

LOAD CAPACITY



Labels that state the maximum load capacity should be visible and easily read by all. If you don't know the load capacity of the racks, contact Damotech for further assistance.

OUR APPROACH TO RACK REPAIR

THE DAMO PRO

Designed and engineered to permanently repair and reinforce damaged upright columns.

- Lifetime warranty against impact.
- Fits on any type of rack system.
- Accommodates multiple beam levels.
- Respects the configuration of the upright.
- Restores its original load capacity.



Visit damotech.com to consult our full line of products.