

RACKING'S INTERFACE WITH LIFT TRUCKS IS OFTEN A by Richard Rix TRICKY ONE

It is easy to take storage racks for granted. They stand there impassively, year after year, fulfilling their intended function. As long as they provide good selectivity as the basis for high productivity, they rarely draw a second thought from users.

Yet a casual attitude toward storage racks can be a mistake, according to David Weatherseed, professional engineer and storage systems specialist based in Vaughan, Ontario.

“Owners should adopt a maintenance program for their storage racks in a way that they do for their lift trucks,” Weatherseed says. “In particular, they should be on a constant lookout for damage.”

Most damage to storage racks is caused by impact from lift trucks. The interface between them is an exacting one, and any contact generally punishes the rack more than the vehicle. Walkies and reach trucks tend to do more damage to racks than do

counterbalance trucks, since they have a closer relationship with racks.

“Proper system design early on in the project is the key to minimizing potential damage,” Weatherseed says. “By designing adequate aisle widths and lift clearances to suit both the lift equipment and the picking frequency, the potential for rack impact can be greatly reduced.”

Even facilities that appear identical may need different racking designs, Weatherseed says. “Two facilities can each have ten aisles, but if one uses one or two lift trucks running a single-shift, and the other has four or five lift trucks and a three-shift operation, their racking design can be quite different.”

Weatherseed says users must pay attention to building constraints and the product profile, when specifying racks. He urges users to try to plan for growth ahead of time, to allow for easy reconfiguration in the future.

The training of lift truck operators is



important for ensuring rack integrity. It is not enough for operators to understand how to manoeuvre a lift truck in isolation. They must learn how to approach racks and work with care in storage aisles, especially where space is tight. As well, any rack damage must be addressed immediately.

Weatherseed says that a formal maintenance program for racks should be part of the activities of a company's joint health and safety committee, with damage reports being a key aspect of the program.

“If damage is ignored, it generally leads to more damage taking place, in addition to undermining rack stability,” he says. “Lift truck operators may adopt a cavalier attitude if they perceive that no one really cares about dings and dents, and the situation deteriorates from there.”

Weatherseed adds that damage to racks resulting from lift truck impact can be reduced through the strategic use of protective devices at the bases of frames and the ends of rows. These include various barriers and post protectors, as well as design features like recessed legs that minimize the opportunity for lift truck contact.

How seriously do rack suppliers themselves take the subject of damage? Many of them won't actually repair racks, instead replacing affected components to OEM specifications. There are few published specifications regarding how racks should be designed, let alone repaired, though the Canadian Standards Association (CSA) is in the process of finalizing a technical standard and user-guidelines for industrial racks.

Weatherseed says users must realize that they should not modify or change their rack systems without expert guidance, because the racks are meant to operate as a system, not as individual components.

Among other things, users should not be moving beams around to accommodate new load profiles. Relocating a beam a foot or two higher than its originally designed position can dramatically undermine a rack's integrity. One reason why many racks are not labelled in terms of capacity is that a subsequent unauthorized change can render the information misleading.

Ontario at least has taken steps to address the situation. Modification of a racking system, including the relocation of beams, is now regulated by the Ministry of Labour. After any modification, a Pre-Start Health and Safety Review (PSR) by a professional engineer is required. This is to ensure compliance with current applicable standards as per section 7, Regulation for Industrial Establishments, Regulation 851. It applies to pallet racks, stacker racks, drive-in racks, cantilever racks, and more.*



A PSR is not required if the rack is designed and tested for use in accordance with an applicable standard. The standard that is commonly referenced for PSR exemption – or to support compliance – is the Rack Manufacturers Institute's (RMI) Specification for the design, testing and utilization of industrial steel storage racks. RMI is an affiliate of the trade group Material Handling Industry of America, based in Charlotte, NC.

The rack owner or user must be able to produce the documentation to support exemption from a PSR. It generally takes the form of structural drawings, letters of certification and capacity charts and tables. Failure to have proper documentation can result in facility shutdown by provincial authorities.

While non-mandatory, the proposed CSA user guidelines will help rack purchasers prepare specifications so that their storage rack's design and construction meet the conditions of the working environment. They will address technical issues faced by engineers, as well as matters of concern to users.

The CSA guidelines will likely focus on high-performance pallet racks, though they may also apply to other forms of racks, including deep-reach, push-back, drive-in and drive-through. They are expected to emphasize that a rack system is indeed a system and not a collection of steel structures that can be shuffled around on anyone's whim.



*More information on section 7 of the Regulation for Industrial Establishments regarding PSRs in Ontario may be found at: http://www.e-laws.gov.on.ca/DBLaws/Regs/English/900851_e.htm http://www.gov.on.ca/LAB/english/hs/guidelines/prestart/gl_psr3.html

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