

# How to Select Pallet Rack Beams

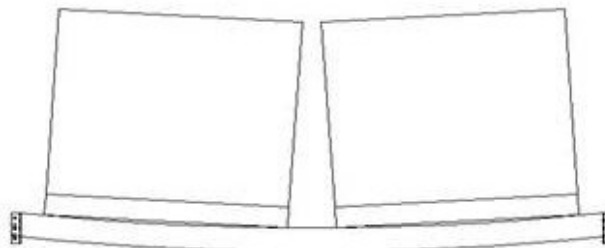
## Part Two

As we began discussing last issue, choosing beams for selective pallet rack might seem to be a simple decision, but there are many things that are often overlooked. We covered Ledge Loading and Uniformly Distributed Loads, now we'll move on to beam deflection and load clearances.

### Beam Deflection

When a load is placed on beams they deflect or bend down in the center based on how much weight is put on the beams. At the beams maximum rated capacity, the deflection is greatest. The industry standard allowable maximum deflection is  $L/180$  (the length of the beam in inches divided by 180).

Beam Deflection



Beam deflection is greatest at mid-span of beams.

While knowing the allowable deflection of a beam is valuable, you cannot use that calculation to select your beams. After all, a 2.5" high beam will have a very different capacity from a 6" high beam. Always use the manufacturer's capacity charts to select the proper beam for your load.

When beams are not overloaded the beams will return to their original shape when unloaded. The use of high yield steel gives beams this memory or elasticity. If the beams do not return to the original horizontal shape when unloaded, they have been deformed (overloaded) and should be replaced immediately. ***If not replaced, overloaded beams could result in rack collapse and property damaged and serious or fatal injury.***

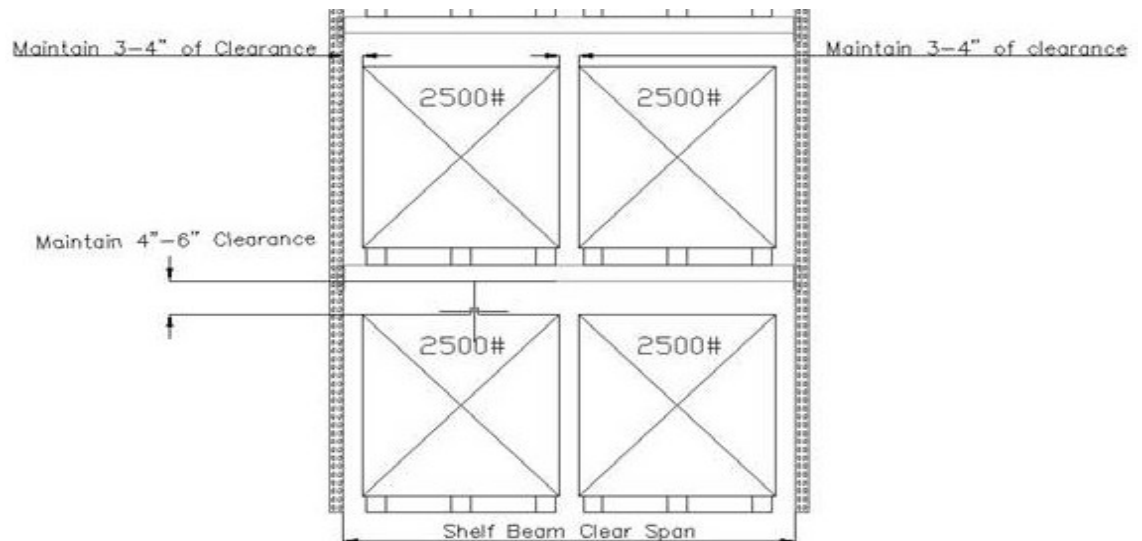
Beam spreading can also occur with improper operating techniques, for example when a fork truck operator drags a pallet out of the rack, thereby causing the front beam of the rack to bow outward. To avert this safety hazard pallet supports should be used to connect the front and back beams together to prevent beams from spreading. Typically flanged, tek-screwed, or roll-in supports are used. Wire decking of the outside waterfall type may also be used. Depending on the length of beams manufacturers may recommend one or two safety supports to prevent spreading.



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## Load Clearances

Proper horizontal and vertical clearances are essential to safe use of the storage rack. Sufficient clearances will help to prevent damage to the rack and enable drivers to perform work safely. For safe pallet loading it is recommended that 3-4" horizontal clearance is maintained between load and the rack column and between load to load. Vertical clearance should be 4-6" between top of the load and the rack beam above.



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