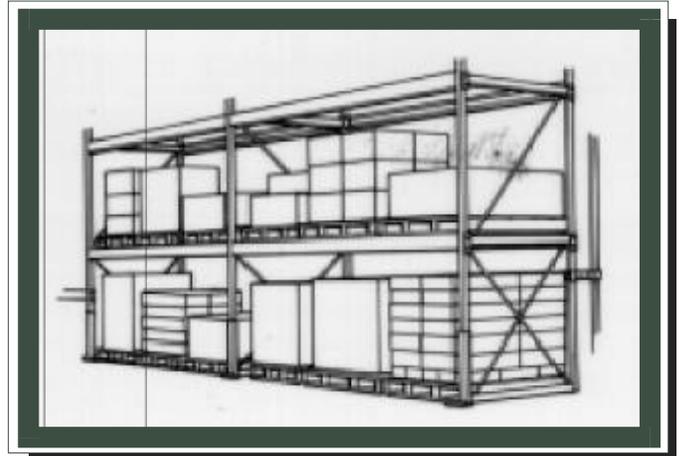


# Pallet Rack User's Manual



## This manual contains:

- 1) Assembly and installation information
- 2) Maintenance information

*Correct assembly, installation, use, and maintenance are critical to the safe operation of your storage rack system.*

**ALL PERSONNEL WHO COME IN CONTACT WITH THE STORAGE RACK SHOULD READ THIS MANUAL CAREFULLY!**

Keep this manual in a convenient location, for future reference, retraining, and orientation of new users of the product.

## **Guide to symbols in this manual:**



figure 1

**DANGER** is indicated by a red exclamation point within a red triangle, as shown in figure 1. These symbols denote situations which could cause damage, injury, or death.



figure 2

**CAUTION** is indicated by a yellow exclamation point within a yellow triangle, as shown in figure 2. These symbols indicate situations which require an extra measure of your attention.



# STEEL KING

Thank you for your purchase of a Steel King storage rack system.



**Read these instructions before assembling or using your storage rack system.** To obtain the maximum benefit from any storage rack system, and for the safety of those around the rack, the rack must be properly assembled and maintained. The information in this booklet will assist you in fulfilling your responsibility to provide a safe, properly maintained storage rack assembly.

**Assembly Information**



**Storage racks should be assembled only by trained personnel, experienced with proper rack assembly procedures.**



Improper rack assembly can not only cause poor performance of your system, but can also pose a safety hazard in your facility.

If you are unfamiliar with rack assembly, you should contact Steel King or your Steel King Distributor for professional rack assembly services. Steel King cannot provide guarantee or warranty coverage for any system assembled by anyone other than a Steel King approved Installation Contractor.



**It is very important that the rack structure be installed in a plumb, level, and square condition.**

Since few floors are perfectly flat, shimming of the racks is frequently required. A four foot long carpenter's level is a good choice for checking level and plumb conditions on storage racks of average proportions. A vertical tolerance of 1/8" in 4 feet (or other as specified on Steel King installation drawings) is generally acceptable.



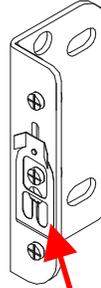
**The rack structure should be assembled and used only as shown on Steel King's assembly drawings.**



**Changing the configuration (such as adjusting storage levels) can adversely affect the load carrying capacity and reduce the structural integrity of the rack system. Before adjusting the rack configuration, contact Steel King or your Steel King Distributor, to verify the safety and structural adequacy of the new configuration.**



**"Nut and Bolt" connections are to be tightened to a snug and secure condition.** 60 foot-pounds is typical for 1/2" diameter hardware, but tightening to the point of crushing tubular components is to be avoided.



**Safety locks on boltless connections (SK2000 series) must be fully engaged through the beam connector and upright column connector holes.** These safety locks help prevent accidental dislodgment of the load beams. The locks should engage automatically, however the beam needs to be fully seated, in the bottom of the teardrop shape connector hole.



**Beams must not be used with damaged or missing safety locks.** Extra safety locks are available from Steel King.

*plated beam safety lock*



**Every column of each rack frame must be anchored to an adequate concrete floor.**

The normal anchor connection is one 1/2" diameter x 3-3/4" concrete expansion anchor per column, or as indicated on the Steel King installation drawings.

Anchor bolts are not included with Steel King rack systems unless specifically detailed on the Bill of Materials.



Since anchor bolts vary in strength, if you are purchasing your own anchor bolts, contact Steel King or your Steel King Distributor for minimum anchor specifications for your installation.

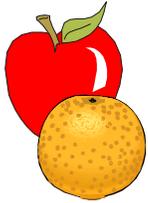


Since concrete floors vary greatly in design and load carrying capacity, Steel King cannot guarantee that a particular concrete slab is adequate to support a particular rack installation. The characteristics of the slab should be obtained from the building architect before the racks are specified, so that the rack supplier can design the rack to suit the slab.

Assembly Information (continued)



**Do not install racks outdoors**, unless specifically designed by Steel King for this purpose. Outdoor usage requires consideration of wind loads, snow loads, etc., which are not normally considered in rack design.



**Be cautious when intermingling new and existing parts.** Even components produced by the same manufacturer can vary in design. Many manufacturers offer a variety of basic designs (for example bolted and boltless connections), and basic designs are often altered slightly over the years to improve performance. These differences can adversely affect the overall performance and safety of a rack structure.

Many storage rack systems have such similar designs that a rack system can be assembled using parts from more than one manufacturer. However, since Steel King has no control over the quality of components designed and manufactured by other firms, any and all warranties and guarantees are made void if non-Steel King parts are used in conjunction with Steel King parts.

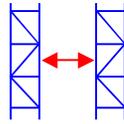


**Installation of "capacity plates" is strongly recommended.** These plates should identify the characteristics for which the rack was designed, such as load size, load weight, and rack configuration. These plates are very useful for communicating safe loading information to both present and future users. Several signs should be prominently located for easy visibility, and be permanently affixed to the rack structure. Appropriate signs can be obtained locally, through industrial mail order catalogs, or from Steel King or your Steel King Distributor.



**Never climb on racks, during or after assembly.** Storage racks are not designed to be stepped on or climbed on. A slip or fall may result in serious injury.

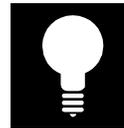
It is your responsibility to communicate this important warning to all who come into the proximity of your storage rack. This communication can include training and appropriate signage. If your rack is used in a retail environment, prominently placed, high visibility warning signs are especially helpful in preventing this misuse of a storage rack structure.



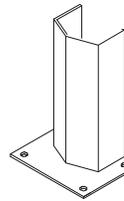
**Allow adequate aisle spacing.** Aisles which are too narrow for the handling equipment, or are reduced in size by obstructions (such as temporary floor stacking at rack row ends) increases the danger of collisions between the lifting equipment and the rack structure, and may cause a danger to pedestrian traffic.



**Maintain adequate clearances around loads.** These include those dictated by local fire codes (between loads in back to back rows, and overhead between the uppermost load and the roof structure). Also between adjacent loads horizontally, and between loads and rack horizontal and vertical members. Clearances which are too tight could increase fire risk, will decrease handling speed, and increase the likelihood of damage to rack components and/or loads.



**Install good lighting in every rack aisle.** Good lighting improves handling efficiency, prevents accidents, and reduces accidental damage to the rack structure.



**Install optional "column protectors" at aisle facing rack columns, and guard rails at ends of rack rows.** These devices provide a visual and physical barrier against accidental handling equipment impacts. A variety of these guarding devices are available from Steel King and your Steel King Distributor.



**Do not cut, weld, or in any other way modify any component of your Steel King storage rack.** Such modifications may decrease the load carrying capability of the component, and the weakened component can jeopardize the integrity of the entire rack structure. Any modification of any component, except as performed or authorized in writing by Steel King Industries, Inc. engineering personnel, will make null and void any warranties and guarantees.

**Operational & Maintenance Information**



**Use only pallets of the best quality.** Broken or cracked boards, protruding nails, and other deficiencies can cause palletized loads to fall from racks, or cause dynamic racks to become jammed and inoperable. For extra security, a variety of pallet supports are available from your Steel King Distributor.



**Perform regularly scheduled inspections (at least annually) and maintenance of the rack system.**

Check for:

- All hardware (including anchors) properly tightened
- All beam safety locks operational and fully engaged
- All racks plumb, level, and square
- No dents, kinks, or otherwise damaged components
- Load sizes and weights match original specifications



**Replace damaged or missing beam safety locks immediately!** Do not use beams without safety locks.

Unload damaged racks immediately, and contact Steel King or your Steel King Distributor for replacement parts (damage reduces capacity, creating the potential for collapse and injury).

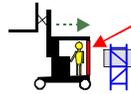
Check finish, touch up chips or scratches, to prevent corrosion.



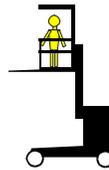
**Train the operators, and maintain the equipment they use in conjunction with the storage racks. Minimizing actual contact between the racks and the handling equipment is the most important factor affecting rack longevity.** Educate rack users to avoid "impact loading" (dropping loads onto the rack), how to position loads for even distribution of load weight, report any rack damage, etc.



**Do not overload any rack component, bay, or system.** Your storage rack is designed to support a specific load weight, in a specific configuration. Should your load weights or sizes change, contact Steel King Industries before using the rack to store the new loads. Using your rack in any manner other than originally configured could lead to rack collapse and injury.



Be certain that fork truck is equipped to protect operator from accidental crushing against storage rack, loads, and other objects. If operators would be exposed to such dangers, contact the manufacturer and/or reseller of the fork lift equipment, and demand that protective devices (such as a protective rear post on stand up type trucks) be immediately installed on the equipment to protect the operator.



Be certain that fork truck is equipped to protect operator from accidental falls. Platforms upon which operators stand must be of a type that is approved by the lift equipment manufacturer and OSHA. Operators should be restrained or otherwise protected from falling off of the equipment. If operators would be exposed to such dangers, contact the manufacturer and/or reseller of the lift equipment, and demand that protective devices be immediately installed on the equipment.



**Establish good housekeeping practices.** Keep aisles clear of litter or obstructions, do not use aisles for floor stacking pallets. Keep aisle surfaces clean and free of ice and condensation, so handling equipment travel is not affected.



**Do you have any questions about your Steel King rack, it's assembly, operation, or maintenance?** We would be pleased to assist you. Contact Steel King or your Steel King Distributor with any questions.

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