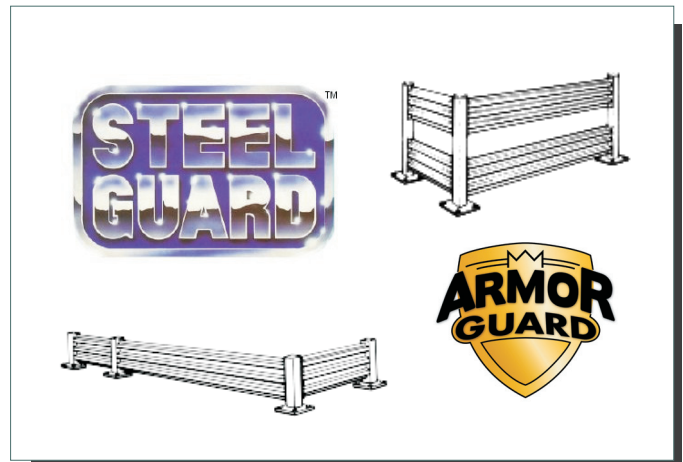


# Guard Rail User's Manual



## 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 guard rail system.*

**ALL PERSONNEL WHO COME IN CONTACT WITH THE GUARD RAIL SHOULD READ THIS MANUAL CAREFULLY!**

**Operators of industrial lift trucks must be trained and certified per OSHA regulation 29 CFR 1910.178.**

**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.



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**Thank you** for your purchase of a Steel King guard rail system.



**Read these instructions before assembling or using your guard rail system.**

To obtain the maximum benefit from any guard rail system, and for the safety of those around the product, the system must be properly assembled and maintained. The information in this booklet will assist you in fulfilling your responsibility to provide a safe, properly maintained guarding system.

**Assembly Information**

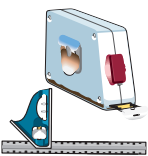


**Guard rails should be assembled only by trained personnel, experienced with proper assembly procedures.**



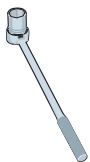
Improper assembly can not only cause poor performance of your system, but can also pose a safety hazard in your facility, during and after assembly. Some guard rail components are heavy, and need to be handled in a safe and ergonomically correct fashion.

*If you are unfamiliar or inexperienced with guard rail assembly, you should contact Steel King or your Steel King Distributor for professional assembly services.*



**The guard rail structure must be installed in a plumb, level, and square condition.**

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



**"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.



**Never climb on guarding, during or after assembly.**

Guarding systems are not designed to be stepped on or climbed upon. 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 guarding. This communication can include training and appropriate signage.



**Every column must be anchored to an adequate concrete floor.**

The normal anchor connection is four (4) 3/4" diameter x 5-1/2" concrete expansion anchors per column, tightened to 150 foot pounds with a torque wrench.

Anchor bolts are included with Steel King guard rail systems. **You will find the anchor bolts packaged in a box and taped to the open end of each post.** It is important to assemble the guarding prior to drilling anchor holes or installing the anchors.



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 guard rail installation or to withstand the shock of fork truck impacts to the guarding. The architect of record will be able to confirm these facts.



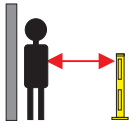
**Be cautious when intermingling new and existing parts.**

As the established leader in guard rail systems since the mid 1980's, Steel King guard rail systems have been imitated and some parts might actually interchange. Steel King has no control over the quality of components designed and manufactured by other firms, therefore any and all warranties and guarantees are made void if non-Steel King parts are used in conjunction with Steel King parts. Malfunctions of imitation products produced by others have been reported. Accept only genuine Steel King components.



**Install good lighting in every traffic aisle.**

Good lighting improves efficiency, reduces risk of accidents, and reduces accidental damage to the guarding system.



**Allow adequate spacing between guarding and the people or equipment to be protected.**

If hit with sufficient force, speed, and angle, guard rail can deflect in the opposite direction of impact or become dislodged from the floor. By allowing adequate space behind the guarding, you decrease any chance of an impacted rail striking any object behind the guarding system.

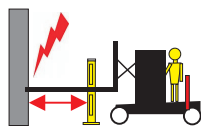
Make sure spacing also allows for doors, drawers, etc to be opened and accessed sufficiently.



**Consider length of lift truck forks when determining spacing between guarding and equipment to be protected.**

Steel King guard rail is not a solid barrier. Openings or gaps exist between the floor and the lower rail; and between rails. These gaps will allow lift truck forks to penetrate and go beyond the guard rail itself. Lift truck operators should be cautioned and trained to not allow lift truck forks to penetrate guard rail barriers.

If forks penetrate a guard rail barrier, they may cause serious injury or damage to people and equipment behind the guard rails.



Particular attention should be paid to the distance between electrical boxes and guard rails protecting them. If adequate spacing is not provided, forks could penetrate the guard rail and cause electrical outages or electrocution.



**Use Steel King guard rail only in appropriate applications.**

Steel King guard rail is intended to act primarily as a visual barrier and as an additional degree of protection against accidental and incidental impacts from light weight industrial traffic operating at low speed. Steel King guard rail is not intended to protect against equipment traveling at high rates of speed or heavier than standard fork lift trucks. Do not use for highway guarding applications.

**Operational & Maintenance Information**



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

Check for:

- All hardware (including anchors) properly tightened
- Plumb, level, and square
- No dents, kinks, or otherwise damaged components



**Replace damaged or missing parts immediately.**

In the event of an impact, contact Steel King or your Steel King Distributor for replacement parts (damage reduces capacity, creating the potential for product failure and injury).



**Train the operators, and maintain the equipment they use in conjunction with the guard rail.**

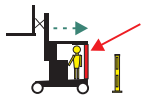
**Minimizing actual contact between the guarding and the handling equipment is the most important factor affecting operational safety and product longevity.**

**Operational & Maintenance Information Continued**

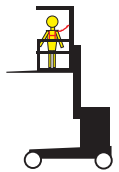


**Do not cut, weld, or in any other way modify any component of your Steel King guard rail system.**

Such modifications may decrease the load carrying capability of the component, and the weakened component can jeopardize the integrity of the entire structure. A weakened structure decreases the ability of the product to protect your personnel and equipment. 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.



Be certain that the fork truck operator is protected from overhead loads falling and a crushing injury if the fork truck is allowed to back under a rack section and pin him. 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 the 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 guard rail, it's assembly, operation, or maintenance?**

We would be pleased to assist you. Contact Steel King or your Steel King Distributor with any questions or free additional copies of this manual.

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