



A GUIDE TO GUARD RAILS

 Cisco-Eagle

WAREHOUSE GUARDRAIL SYSTEMS

cisco-eagle.com/guardrail

PROTECT PEOPLE & PROPERTY



“Warehouse guard rails and the type you see on roads have different missions. Roadway rails absorb and disperse impacts. They slow down vehicles to protect the car and driver. Warehouse rails deflect impacts. They try to stop the forklift cold and protect the people, machinery or building structure behind them and maintain their integrity. Even the flexible rails only give a little so they can protect people, machinery, walls, columns, etc.”

—Taylor, Employee-Owner Since 2006
Strategic Sales Director



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GUARDRAIL IMPACT RATINGS

WHAT DO IMPACT RATINGS MEAN? HOW ARE THEY CALCULATED?

Since guard rail is essential safety equipment, you must know how impact ratings were calculated

It's not always clear how much impact a particular guardrail can sustain. Here are some of the deciding factors:

- **“Apples-to-oranges”** Manufacturer standards vary. Until it's known how these railings were tested, that's never certain.
- **No federal standards.** There is no definition of what ratings mean, and no requirement that rails are engineered to any particular strength.
- **Industry standards, exist, but not everyone adheres to them.** According to the MHI (Material Handling Industry)'s Protective Guarding Group, acceptable guard rails are designed to deflect a 10,000 pound collision at 4 MPH. But manufacturers test their systems differently. For instance, Steel King released its full testing methodology for its Steel Guard rail system—an 8,000-pound, sit-down counterbalance forklift with pneumatic tires into an 8' long rail, traveling in reverse at 5 MPH at initial impact. After the one-second impact, the guardrail had a 6" dent. There was no damage to the forklift, and no observed damage to the concrete floor; no anchor bolts had been loosened, bent, or pulled out. The result for a two-rail system was a rating of 13,000 pounds.
- **Guard rails degrade with impact.** A fully-loaded forklift carries 8,000 to 10,000 pounds, so an adequate guard rail should be able to deflect it. This can be counted on the first time it's hit. After that collision, impact ratings are affected. Inspect both the rail and the floor, and consider replacement for any rail that's protecting people or critical assets.
- **Speed changes everything.** Impact ratings apply to vehicles at whatever the standard was established at (usually 4 or 5 miles per hour) by the manufacturer and testing engineer. Any faster, and the ratings will be reduced. Other factors may include angle, installation method, floor integrity and others.
- **Warehouse and highway guardrails are different.** Facility rails are built to deflect impacts and maintain integrity. Highway rails absorb/disperse impacts.
- **Guard rails are never guaranteed to stop a forklift.** A heavy lift, at a high enough speed can take down any guardrail. That typically doesn't happen, but it can. It's critical to understand the operation around the guardrail, even if it has a very good impact rating.



“HOME BREW” GUARDRAILS

Some companies fabricate their own guardrails. It's easy, with steel posts and rails welded or bolted to each other. The problem is uncertainty. Fabricated systems are almost always unrated and untested. Even built with heavy steel and beefy hardware, without impact testing, there is no way to know how much impact, at what speed and at what angle a rail may be able to withstand before it fails. Engineered rails cost more, but most provide a tested impact rating you can rely on.

FLEXIBLE VS. RIGID GUARDRAILS



“Flexible rails absorb the forklift hit and flex back to shape, reducing damage to guardrails, the floor and the forklift. They dissipate impact energies, protect your business and last for the long term. Rigid steel rails are more economical and also absorb impacts and protect the people and things behind them, but may sustain more damage and require painting. We can help you identify the right guardrail for your needs.”

—Chris, Employee-Owner Since 2024,
Account Executive



YOU HAVE PROTECTIVE OPTIONS

It used to be that guard rail always meant rigid steel, but in recent years, other options have emerged. The two dominant types are traditional, rigid steel railing and newer flexible systems. Which might work best for you?



- **Rigid systems have higher maintenance & replacement costs.** They may require painting and more component replacement. You might have to repair a damaged floor more often.
- **Rigid systems are available in many configurations** from a host of vendors. Systems abound that can fit specific situations.

Factors for flexible poly guard rail systems

- **Ideal for high-risk areas.** If a section of guard rail is always being impacted, it's a great candidate for flexible systems, which deform on impact, then flex back, and don't require replacement components as frequently. Generally speaking, the higher the load weights, faster the speeds, the more replacement or repair costs you see, the case for flexible systems becomes stronger. It may be case where higher traffic areas and impact zones can mix the two systems, with poly rails in place for the most commonly hit areas.
- **Long term ROI:** The return on investment accrues over time as you incur fewer damaged sections of rail and less money spent on replacement parts and floor repairs.
- **No repainting:** Steel systems will scratch when impacted (even minor impacts). Flexible rails are yellow throughout, so scratches are hidden.

Rigid steel guard rail factors

The primary components of steel guard rail are the square tube steel posts, base plates, and steel rails. Impact resistance relies on the thickness of the steel, the number of posts and the general layout of the railing.

- **Steel guard rail resists bumps and dings with ease.** With more powerful collisions, there is potential for a loss of metal strength.
- **Damage to the anchor points and floor surface is key.** When the rail is impacted, some of the impact transfers to the floor. Whenever there is a collision significant enough to replace rails or posts, the anchor points need to be carefully checked for damage.
- **Rigid steel railing is more economical than flexible.** Price may be as much as 40% lower than a flexible system.

The best option depends on your facility, goals, and traffic

It boils down to your needs and your situation. Steel Guard and Flexible Poly systems are both excellent - and appropriate - for the right applications. Both do the job of protecting people and inventory and machines.

- While steel railing doesn't absorb impact as well, it's less costly.
- Flexible poly rails are more expensive, but don't transmit nearly as much force to the forklift, the rail, the posts, and the floor.

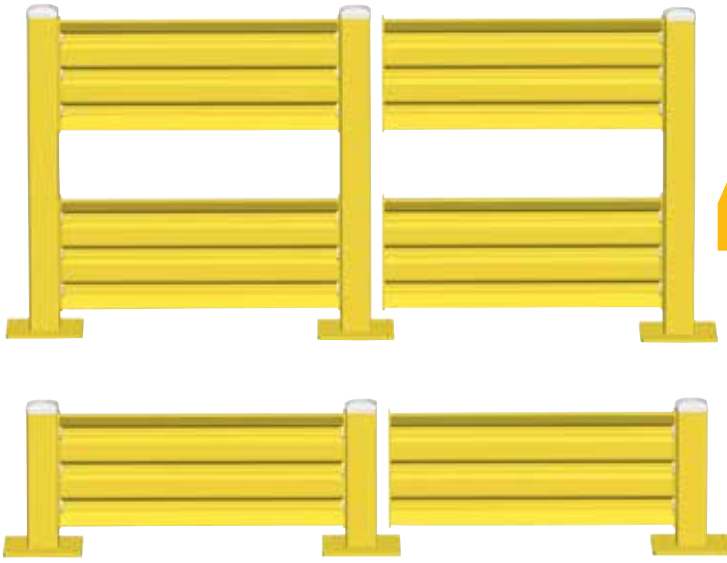
If you aren't sure, call us. We'll help you plan layouts and provide you with specs and cost comparisons to help you determine the rail that works best for you.

HEAVY-DUTY STEEL GUARD RAILS



“Posts are drilled on two sides so you can use them as corner or center posts. This makes ordering, installation and reconfiguration simpler and easier.”

Jarren, Employee-Owner
Account Executive



cisco-eagle.com/steelguard

Protects conveyors, racks, work areas, walls, meters, in-plant offices, or any area where forklifts operate near people, inventory, equipment or other vital areas in need of protection. Steel Guard is the premier guard rail on the market, and we keep a large inventory for fast shipment.

Posts: 4" x 4" x 1/4" structural steel tube posts with 10" x 10" x 5/8" base plates pre-punched for anchoring. Posts function as either corner or center posts.

Rails: corrugated (3-rib) 11-gauge high strength steel rails, 14" high x 2-1/2" deep with a 3-bolt connection on each rail end.

Finish: highly-visible powder coat safety yellow. Easy to assemble and reconfigure.



FLEXIBLE POLY GUARDRAILS

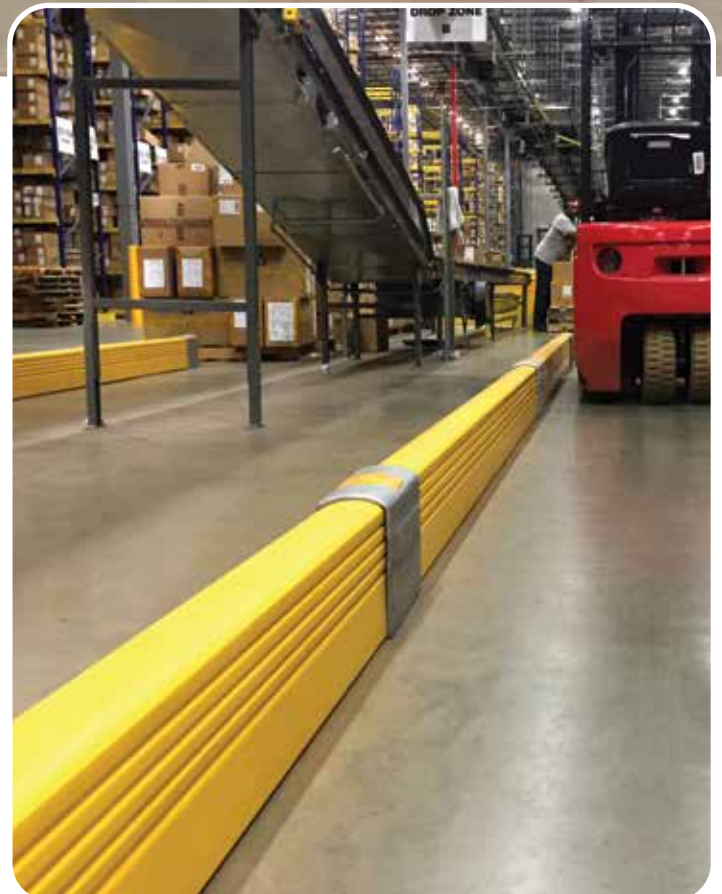
FLEXES, PROTECTS AND DISSIPATES COLLISION IMPACTS



cisco-eagle.com/flexrail

When impacted, these systems flex out and back to original shape, limiting damage to the lift truck, the rail, anchor points, or the floor structure—all while protecting people, equipment, and inventory.

- **Single rail:** Ductile Iron structure with maintenance-free polypropylene rail system is ideal for separating people and machinery from traffic. Lower height maintains an open field of view around the warehouse.
- **Flexcore Double rail:** Protects from forklift impacts and collisions. Its HDPE rails absorb impact and return to their original shape.
- **Flexible handrails:** Flexible system with handrails. Excellent for defining walkways.
- **Flexible handrails with impact barrier:** Add a heavy-duty shock-absorbing rail to the floor of your handrail system for extra protection.



OTHER PROTECTIVE BARRIERS

PIPE GUARDRAILS



- Built with cylindrical steel cores, covered with bright yellow polyethylene sleeves
- Removable and reusable as plans change. Never paint; it just wipes down
- Made of tough schedule 40 and 80 steel pipe sleeved with durable poly for long life and high visibility; it withstands multiple hits and can retain integrity. 12,000 pounds load tested



CUSTOM GUARD RAILS

Cisco-eagle engineers custom guardrail systems for many clients. These systems include:

- Stainless steel or food grade options
- Extensive layout assistance, and integration with traffic management plans
- Integration with AisleCop® and other forklift safety gate systems
- Handrail systems
- Gates and pass-throughs for difficult applications
- Many other types of safety/protective rails

BOLLARDS & SHIELDS

Bollards & covers

cisco-eagle.com/bollards



We offer a variety of bollards, ranging from poly to steel to stainless steel, to meet your needs.

Column guards

cisco-eagle.com/sentrypro

Install easy-to-install column guards around your building's exposed interior columns to prevent repairs, reduce maintenance, and lessen the chances of injuries and equipment damage. The bumper surrounds the column with a cushion of protective air. The guard reduces chances of a collision because it's colored high-visibility yellow.



Corner guards shield building corners

Corner bumpers help absorb the impact when forklifts collide with building corners, reducing damage to both the vehicle and the building. Made with highly-visible, bright yellow EVA material to help prevent collisions. It is tapered to provide protection to the corner while keeping a low profile.



