



# Commercial Safety Gates and Industrial Barriers

Choosing the best comprehensive protection for loading docks and warehouses

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## Introduction

Loading docks are some of the most dangerous places within a manufacturing or storage facility. Approximately 25% of all accidents that take place in warehouses happen on loading docks, and for each incident that occurs, there are hundreds of near misses.<sup>1</sup> One of the most dangerous and common accidents at the dock involves falling from the platform, which on average is 48 inches in height, leading to serious injuries, hospitalizations and fatalities.

Loading areas are inherently dangerous because they are the hub of all distribution operations for any business and an essential part of the material handling industry. They are filled with forklifts, workers on foot, trucks coming and going, pallets of freight and various other items and activities. This traffic and congestion, paired with the high-speed industrial environment and unprotected edges, reinforces the need for commercial-strength barriers and gates to help safeguard personnel, products and property. But increasing warehouse safety shouldn't just be limited to loading docks. Hazardous areas, pedestrian walkways and expensive machinery are also at risk and require additional protection.

In this white paper, we'll address the frequency and severity of warehouse and loading dock accidents and give you tips on how to protect your business from forklift falls, damaged equipment and injuries. We'll also evaluate different types of safety gates and industrial barriers and to see which styles are best suited for material handling areas and in-plant operations. Next, we'll analyze the primary factors facility managers should consider when determining the right safety barrier or gate for their application and needs.

We'll discuss the design needed to protect against falls at the dock and how to maximize space for uncompromised productivity and efficiency. Then, we'll examine how a best-in-class safety gate is setting new standards for pedestrian, forklift and equipment protection in terms of strength, ease of use and the highest impact rating in the industry.



*Defender Gates™ from NOVA Technology*

## Loading Dock Injuries

The Occupational Safety and Health Administration (OSHA) has over 670 recent case investigations into accidents that occurred, both fatal and nonfatal, at loading docks across the US. As expected, many of these incidents involve semi-trailers and employees being struck by vehicles outside of the dock, but the vast majority document the dangers that exist on the dock's interior. For instance, on June 24, 2019, an employee in Illinois was pulling galvanized pipe from a storage rack near the loading dock and stumbled as he neared the end of the dock. The employee lost his footing and fell backward, falling 51 inches to the ground below and was killed.<sup>2</sup> On August 23, 2019, an employee in New Jersey was using a forklift to move pallets of merchandise within a warehouse and was reversing near an open loading dock door. The forklift fell off the edge of the loading dock and the employee was thrown to the ground and killed.<sup>3</sup> On September 17, 2019, an employee in Ohio jumped down from a loading dock to take a break outside. When he landed, his knees gave way and he struck his head on the ground, fracturing his vertebra and killing him.<sup>4</sup>

Not only did these accidents result in a loss of life, but all workplace injuries (fatal and nonfatal) also come with a variety of costs and the combined financial impacts can be detrimental for businesses. Beyond the physical and emotional impact, a single nonfatal accident can lead to \$38,000 in direct expenses and \$150,000 in indirect costs.<sup>5</sup> According to the National Safety Council, fatal accidents on average cost \$1,190,000 per death. The total cost of all fatal and nonfatal workplace injuries in the United States in 2018 was \$170.8 billion, which includes wage and productivity losses, medical and administrative costs, employer's uninsured costs and damage to motorized vehicles.<sup>6</sup> However, the true cost per year is even higher, and this estimate does not include product damage or equipment repairs. Additionally, employers may be subject to fines and fees from OSHA if an investigation follows and finds that the employer was violating safety regulations that otherwise would have prevented the accident.

OSHA investigates hundreds of fatal and nonfatal loading dock injuries every year. Tragically, the incidents listed above and many other reported cases could have been avoided if the proper safety measures were in place. In each instance, a safety gate or barrier should have been installed at the dock. The 1910.28 OSHA regulations require guardrail systems to be installed at any loading dock or elevated surface with an unprotected side or edge that is 4 feet (1.2 meters) or more above a lower level.<sup>7</sup> A safety barrier would have caught the first worker from falling off the dock. With a high enough impact rating, a safety gate could have saved the second employee from reversing the forklift off the edge of the dock. Finally, a safety system with crawl-through security would have closed off access to the dock door opening and prevented the third employee from jumping down.

## Commercial Safety Gates and Industrial Barriers

Unprotected loading dock edges pose serious threats to pedestrian workers and forklift operators and the consequences of a fall to a lower level can be detrimental to employers. The National Safety Council ranks falls to a lower level as the third leading fatal workplace event and the fifth leading cause resulting in time away from work. In 2019, 711 workers died and 48,040 were injured from falls to a lower level. The median days away from work was 8 days following a nonfatal workplace injury, but due to the severity of accidents caused by or involving falls to a lower level, the average time away from work was 22 days. Among the fatal and nonfatal falls to a lower level that occurred, 21% of all cases occurred at manufacturing and warehouse facilities.<sup>8</sup> When narrowing our focus to forklift-related accidents, the National Safety Council found that 51% of all accidents occurred at manufacturing and warehouse facilities and 26% were due to falls to a lower level.

Fortunately, material handling suppliers offer numerous safety barrier systems to help facilities operate safely, efficiently and prevent life-threatening injuries. However, it is important to note that not all safety barriers are created equal and facility managers must evaluate specific criteria when considering what type of barrier to use for their application. What may work adequately to protect racking or equipment may not offer the same reliability or strength needed to stop forklift or pedestrian falls. As discussed in the previous section, facility managers also must consider the specific OSHA guidelines for fall protection, especially when being installed at a loading dock or other walking-working surfaces with an unprotected side or edge that is 4 feet (1.2 meters) or more above a lower level.<sup>7</sup> OSHA regulation 1910.29 outlines the requirements for safety barrier systems, stating that they must have a top rail at 42 inches above the walking-working surface with a midrail located at 21 inches high. Each safety barrier system must also not deflect to a height of less than 39 inches when a 200-pound test load is applied in a downward direction.<sup>9</sup> These requirements mean that visual barriers and chains are no longer compliant.

Fabric, mesh and net barriers are unable to provide the level of protection and functionality needed for high-traffic areas with frequent amounts of forklift and pedestrian activity. Not only do they flex when pressure is applied, but they also sag and require frequent maintenance and adjustments to remain taut. They are also difficult to operate and not very user-friendly. Barriers made from thin, fiberglass mesh material typically retract into a bollard and require employees to manually drag the barrier out and lock it into place. The automatic-retracting design generates a constant pull against employees while opening and closing the barrier, creating the risk that it could slip out of a worker's hands and potentially injure personnel or damage nearby products and equipment. Mesh barriers also use horizontal deflection that requires a lengthy runway, very large bollard footprints and must be positioned farther away from what they are



*Mesh barriers sag, require frequent maintenance and are not OSHA compliant*

trying to protect, taking up valuable cross-traffic space on the warehouse floor or in front of loading docks. Additionally, flex barriers also lack the rigidity and durability needed to deliver long-lasting performance. If struck with forklift blades or grazed by sharp edges from pallets and cargo, barriers made from fabric, mesh or netting may also tear or puncture. Any damage to the material will create weak spots in the barrier and further depreciate its performance. Along with being unsafe and awkward to use, fabric barriers also do not meet OSHA regulations for fall protection. Although they may be acceptable for some in-plant operations, they are not compliant or safe for use at loading docks.

## The Solution

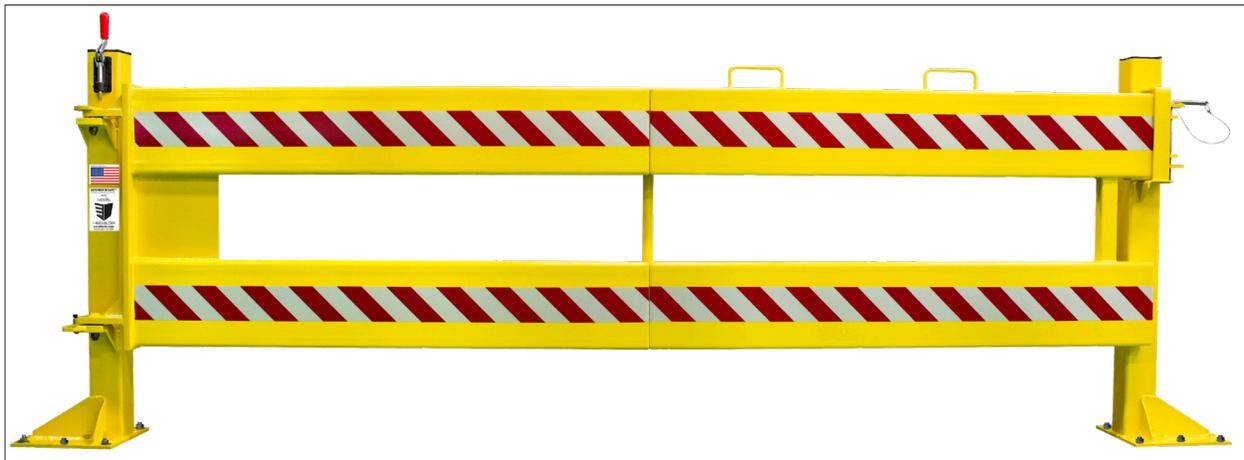
In the previous two sections, we discussed the threats of unprotected loading dock edges and took a look at different styles of safety barrier systems available for the material handling industry. We also discussed OSHA regulations for fall protection at loading docks and other elevated surfaces. Knowing the dangers, safety regulations and options available in the industry can help you make an informed decision about the best commercial safety gate or industrial barrier for your application.

Metal gates are a superior choice for safety barrier systems for interior facility protection and loading docks. Unlike fabric or mesh, the metal construction will not flex when pressure is applied and they are less susceptible to damage. However, with so many to choose from, there are several factors and functions to consider when selecting the correct gate for loading dock or elevated warehouse applications.<sup>10</sup> For optimum performance and efficiency, gates should:

- Move out of the way either vertically or horizontally
- Be brightly colored and easy to see
- Operate quickly and easily for one person
- Involve only basic motion ranges
- Have a small footprint and require little to no runway
- Not interfere with dock operations
- Possess a capacity high enough to stop forklift traffic

Most metal gates and safety barriers will fit into one or more of the criteria selection listed above. However, most gates are only rated to stop pedestrians and pallet jacks or to catch falling loads. Finding a gate that fits into every category can be more challenging. While metal safety gates offer more durability, reliability and strength than fabric or mesh barriers, not all of them meet OSHA standards for fall protection or have high enough capacity ratings to prevent forklift falls.

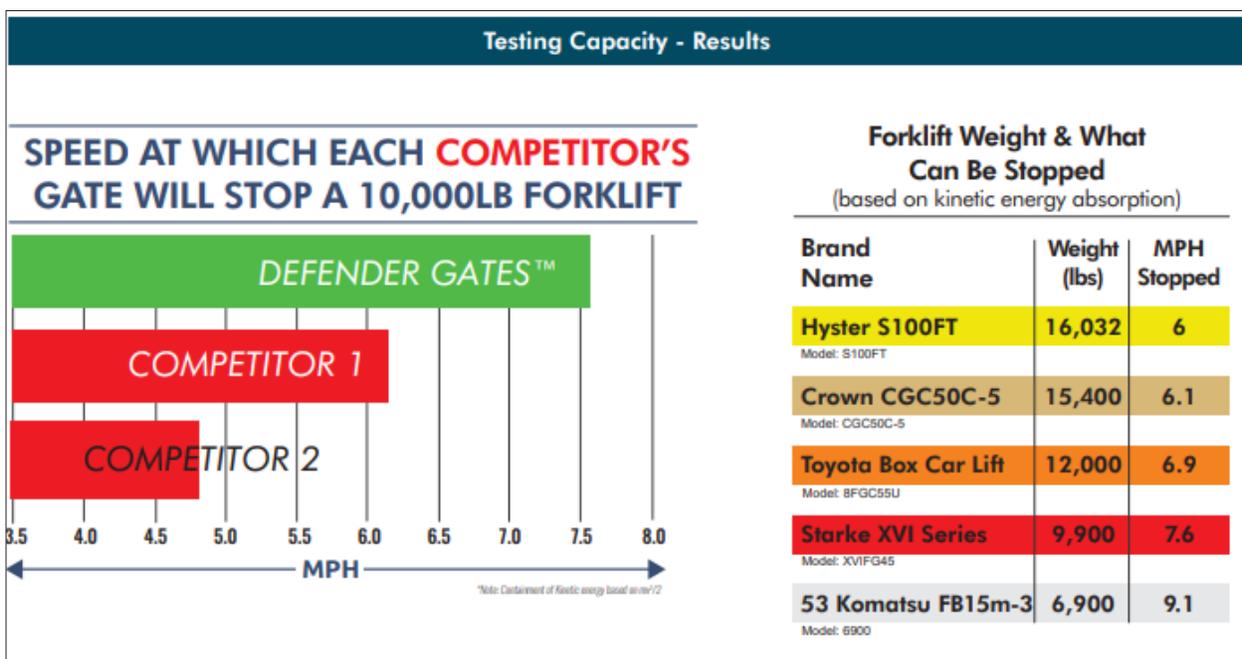
The Defender Gate™ from NOVA Technology, however, fits into every category we analyzed and is setting new standards for fall protection at the loading dock. It features an all-steel construction and has been tested to stop a 13,500-pound forklift traveling at 6.5 miles per hour. Its best-selling model, the Defender Gate™ 20, features double guardrails to meet and exceed OSHA standards for fall protection and heavy-duty bollards to protect doors, door tracks and other equipment against impacts from forklifts and pallet jacks. The Defender Gate™ has easy-glide hinges for quick, effortless operation and can open or close with minimal effort. Employees simply hold onto the top grab handles as they walk the gates open or closed, further preventing workplace accidents by keeping hands away from pinch points at all times. With an opening range of 90 to 180 degrees, the Defender Gate™ allows full pass-through clearance and includes an adjustable backstop so employees can choose the best operational angle for loading and unloading.



*Defender Gates™ feature a durable steel construction with a yellow powder-coated finish and reflective tape for greater visibility*

Available in a variety of sizes and styles, Defender Gates™ are available up to 16 feet wide with either single or double guardrails to suit various application needs. Whether using a single or double guardrail model, all Defender Gates™ feature a lockable latch mechanism that stops accidental or inadvertent opening until the area is secure. Once opened, a panel magnet prevents float and the steel hold down prohibits the gate from

closing prematurely, ensuring the path through the gate remains unobstructed for forklift operators or foot traffic. They are ideal for protecting doors, door tracks, equipment and unprotected edges and are designed to absorb impacts from forklifts and pallet jacks. Gates are easily installed and simply anchor into concrete with all necessary hardware included. Each gate has heavy-duty bollards with compact footprints to remain functional in tight areas and facilities where space is limited. For added safety, each gate has a safety yellow powder-coated finish with 3M® reflected tape for greater visibility.



*Defender Gates™ have the industry's highest impact rating, stopping 13,500-pound forklifts traveling at 6.5 miles per hour*

## Key Takeaways

Loading docks and elevated surfaces are inherently dangerous and OSHA has set strict guidelines for barriers to help ensure employee safety. Unprotected edges at any facility present fall hazards that can result in injuries or fatalities. These accidents can have costly ramifications in terms of employee medical expenses, time away from work, damaged equipment and fines for failing to meet OSHA compliance. Fortunately, most accidents can be avoided with the proper protective barriers in place. Knowing how to evaluate the performance of various types of commercial safety gates and industrial barriers can help you choose the right product for your application.

In this white paper, you learned:

- The dangers of unprotected loading dock edges
- Physical and financial impacts of falls to a lower level
- OSHA 1910.28 and 1910.29 requirements for fall protection
- Factors to assess when considering fabric or mesh barriers
- The benefits of metal safety gates and the criteria to evaluate their performance
- How the Defender Gate™ from NOVA Technology leads the industry in impact ratings for forklifts and is a best-in-class safety barrier system with options available for loading docks or in-plant safety applications

There are many different factors to consider when selecting the proper gate or barrier for your needs, but all should prioritize safety, ease of use, strength and maximize workspace for uncompromised performance and efficiency. A metal safety barrier that is OSHA compliant with a high impact capacity like the Defender Gate™ will provide enhanced protection against forklift collisions and can be used at loading docks or throughout the warehouse. Safety gates and industrial barriers allow you to protect vehicle and pedestrian traffic in your facility and defend your business from costly accidents.

## About NOVA Technology

NOVA Technology is an international manufacturer and distributor of loading dock equipment and accessories. For over 30 years, NOVA has provided the innovation, reliability and resources needed for our customers to handle the continuously evolving needs of the material handling industry. We offer a variety of dock levelers, seals and shelters, vehicle restraints, light communication systems, dock lifts, safety barrier products and a selection of aftermarket parts and accessories. All of our products are designed to maximize safety, productivity, security and environmental control at loading docks and throughout commercial facilities. Call us today at 1-800-236-7325 or send an email to [sales@novalocks.com](mailto:sales@novalocks.com) for more information or to find a dealer in your area.

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