

# Pedestrian Safety in Forklift Operations: An Introduction

*Automate forklift and pedestrian traffic management; maintain efficient traffic flow*



## The Scope of the Problem: Serious Liability

*People and forklifts don't mix, but we have to make it work*

- **Worse than a car accident:** A 5,000-pound forklift moving at 10 mph with a 4,000-pound load has potential destructive force of 135,000-foot pounds of energy. That's equivalent impact to a large car at 20 miles an hour.
- **It's the mass:** Even at low speeds, forklift collisions are devastating—or fatal—to pedestrians, due to their mass.
- **It's widespread:** “Forklifts cause (on average) nearly 100 deaths, more than 34,000 serious injuries, and another 62,000 minor injuries in the United States every year” *Source – OSHA*.
- **It's painfully expensive:** The costs are staggering - they cost industry hundreds of millions a year. A single incident can easily cost seven figures.
- **Forklifts disproportionately injure people:** They cause only **1%** of industrial accidents but account for a whopping **10%** of the industrial injuries.
- **Pedestrians in peril:** Of these injuries, 25% are crushed between a vehicle and a surface, 11% are crushed between two vehicles, and 10% are run over by a vehicle.

## Safety Applications: What to Guard/Where to Guard

*Areas in your facility where visibility is low, traffic is high, or people are distracted*

- Safety Enhancement Focus:
  - Pedestrian/Lift Intersections
  - Blind or Low Visibility Corners
  - High Traffic Areas
  - **Any area where pedestrians and lifts coexist**
- Six distinct scenarios:
  - Unguarded Walkways
  - Guarded Walkways
  - End of Aisle/Blind Corners
  - Office Entry/Exit Points into aisles
  - Open area walkways
  - Special areas/applications

## It Goes Beyond Just Training

*Most regulators focus on driver training, and (a little) on pedestrian training.  
Both are mandatory—and neither are enough for problem situations*

- **Regulations are vague about what is required.** A NIOSH recommendation from *Preventing Injuries and Deaths of Workers Who Operate or Work Near Forklifts*, is to “make every effort to alert workers when a forklift is nearby.”
- **Training seems inadequate for the high-danger potential areas.** While training processes are a must, are they enough for blind corners, high-traffic aisles, or intersections where forklifts and people on foot mingle.
- **Traffic management plans are a must.** But are they enough?
- **If you have had a hit or a near-miss, chances are you have a problem area.** These incidents are a red warning flag. If workers are complaining about having to dodge running forklifts, training and process may not be enough in tight spaces.

## Safety Enhancement Options

*What are Your Choices? Where can you draw the line between automation, warning systems, training, and process?*

### Eliminate

*Create areas that are “pedestrian free”*

### Minimize/Shorten/Re-Route

*Route pedestrian aisles in more protected areas. Shorten exposed areas and minimize number of crossings.*

### Erect Physical Barriers

*Utilize guard rails, bollards and other protective equipment when possible*

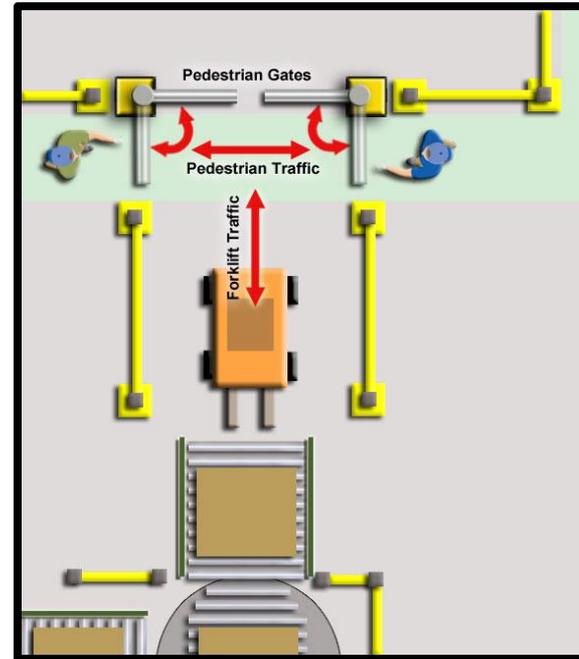
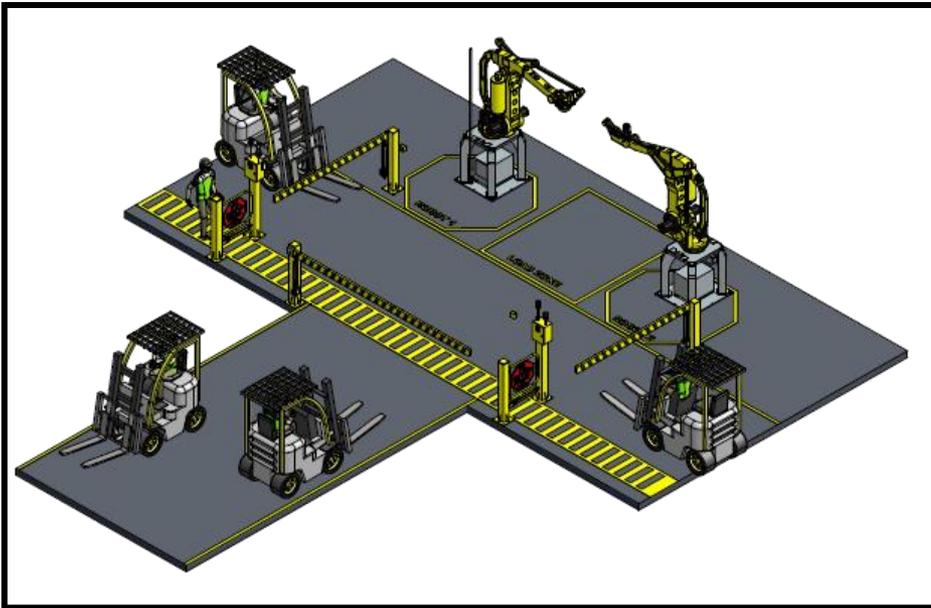
### Enhance with Automated/Manual Safety Systems

*Enhance crossings, blind corners, and intersections with available technologies.*



## AisleCop® Special Area Configurations

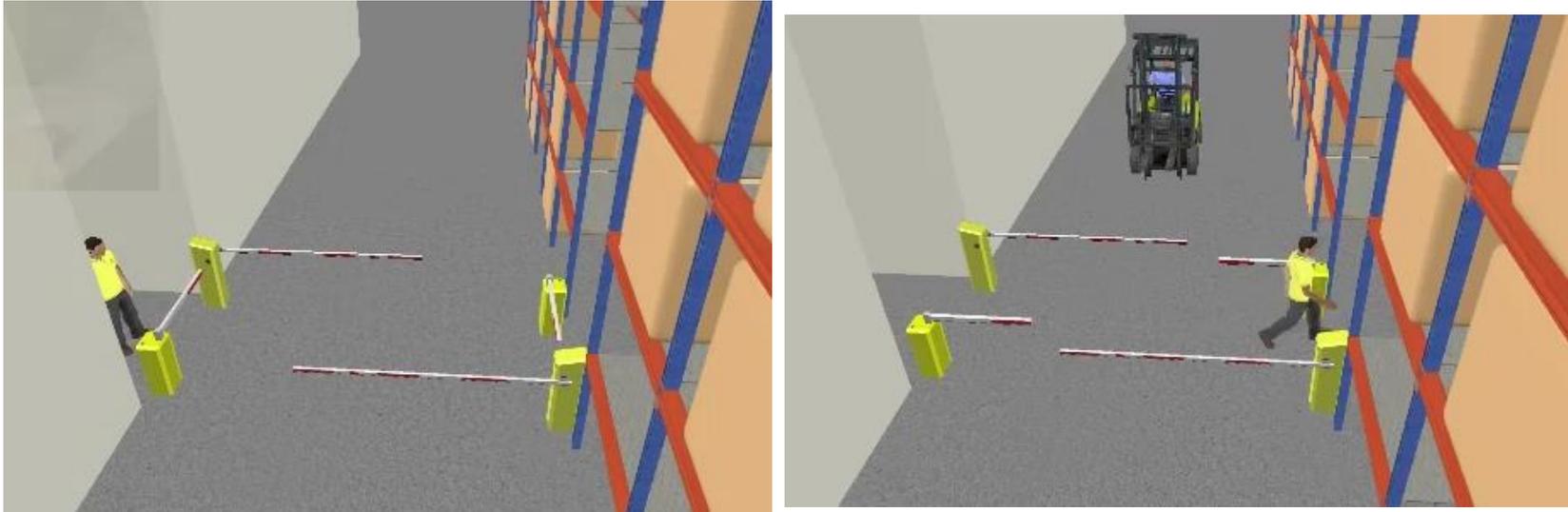
*Ideal for robotic areas, work cells, palletizers, and other places where people, machinery, and forklifts interact*



[More information](#)

## Guarded Crossings and Walkways

*Automated crossing management for high traffic, low visibility or problem areas*



Automated AisleCop® systems help manage dangerous aisles, intersections, and corners with sensor-activated, mechanical gates that are programmed to refuse entry into a dangerous area if a forklift is detected in the monitored zone. Can be purchased in single, dual, or multi-gate configurations, with many detection/activation options, with or without forklift aisle boom arms.

# Unguarded Walkway Safety Options

## *Overhead motion sensor with FloorAlert™ Projection System*

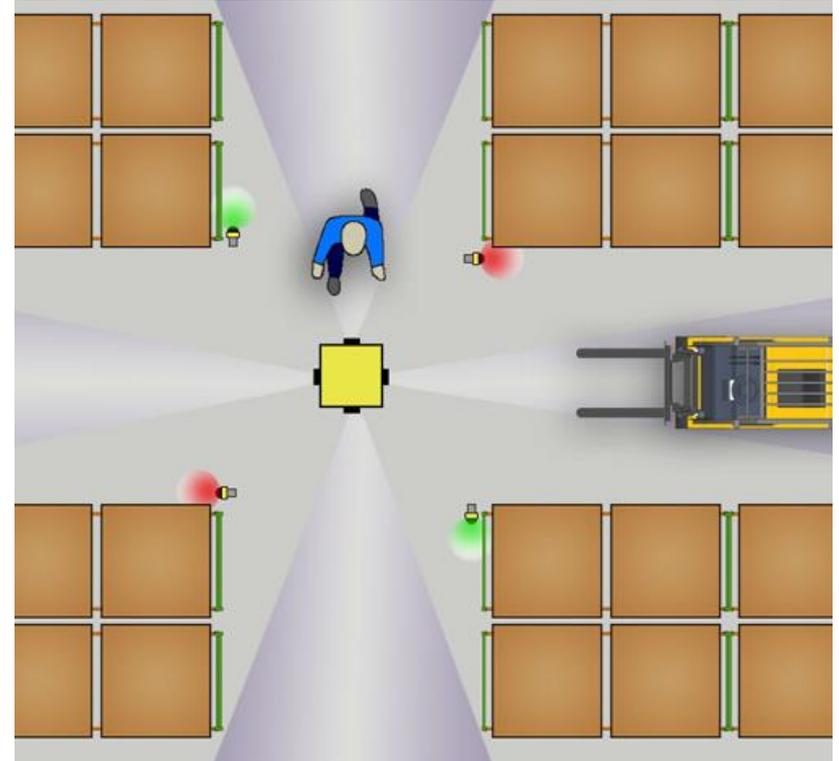
- Ceiling-suspended sensor monitors 2,3, or 4 ways.
- When traffic is detected in at least two directions, a highly-visible flashing alert light is projected on the floor at the center of the intersection.
- Does not trigger for traffic moving away.
- This indicates to pedestrians and forklifts that they should move with caution.
- Once traffic has cleared the monitored zone, the flashing light vanishes.
- Visit:  
[www.cisco-eagle.com/flooralert](http://www.cisco-eagle.com/flooralert)



# Unguarded Walkway Safety Options

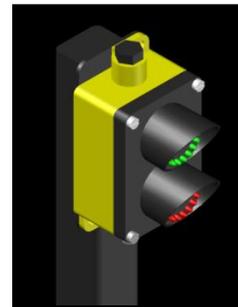
## *Overhead sensor and floor-mounted traffic light system*

- Systems utilize four stoplights controlled by an automated overhead motion sensor.
- The primary (forklift aisle) has priority with green lights until a pedestrian enters the monitored zone.
- When traffic is detected, the lights change to red in the primary aisle. For a preselected timeframe, all lights are red (stop). Then, the secondary aisle turns green to indicate that traffic may cross with caution.
- Once the foot traffic has cleared, the cycle changes so that all lights are red for a preselected time, then green in the primary aisle so that normal traffic can resume.



### **Stoplight systems do not physically block traffic.**

Pedestrians and forklifts should proceed with caution. All normal safety procedures should still be followed.



## Traffic Safety Sensor Warning Systems

*Motion detection helps alert workers and drivers in warehouses, manufacturing*



- Applications include rack aisles, corners, dock areas, entryway doors, and more.
- These are warning systems that do not control or manage traffic. They provide information to both drivers and pedestrians that another may be present in the monitored zone.
- Available rack-mounted, wall-mounted, or ceiling-mounted.
- Simple installation: many models bolt in and plug in. Some models can be wired to facility power or utilize longer lasting batteries.
- See individual sensors for more info.

[More information](#)

# Presence Alert Systems

*A blend of hard and soft safety and traffic control systems*



**Zone ALERT** is a warning device to ALERT workers and other forklift operators that an area is occupied. It has the ability to count forklifts in and out of an area and keeps the alarms triggered until the last forklift has left.

