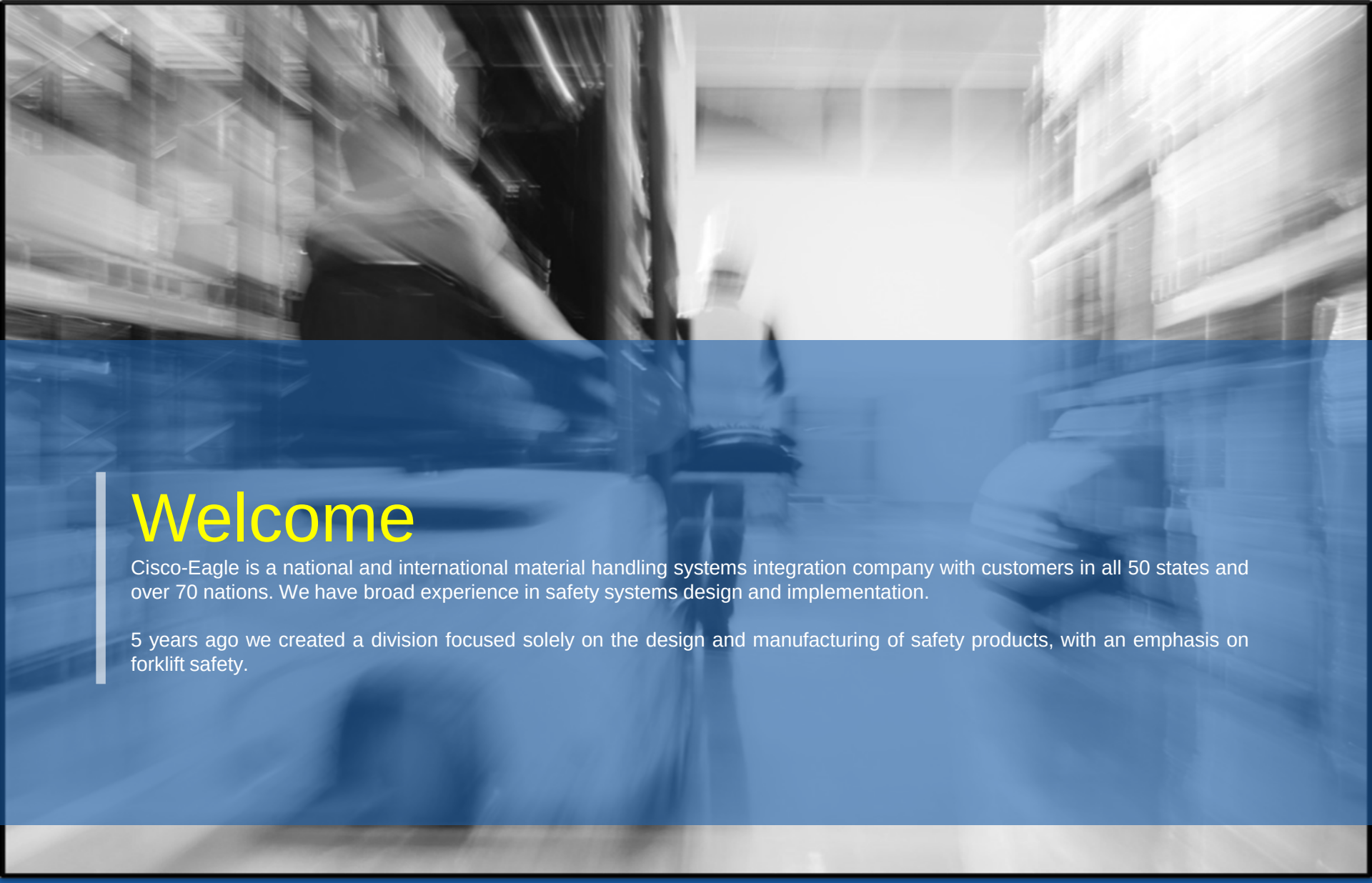
Forklift/Pedestrian Safety: Reducing Risks



Welcome

Cisco-Eagle is a national and international material handling systems integration company with customers in all 50 states and over 70 nations. We have broad experience in safety systems design and implementation.

5 years ago we created a division focused solely on the design and manufacturing of safety products, with an emphasis on forklift safety.

About Me

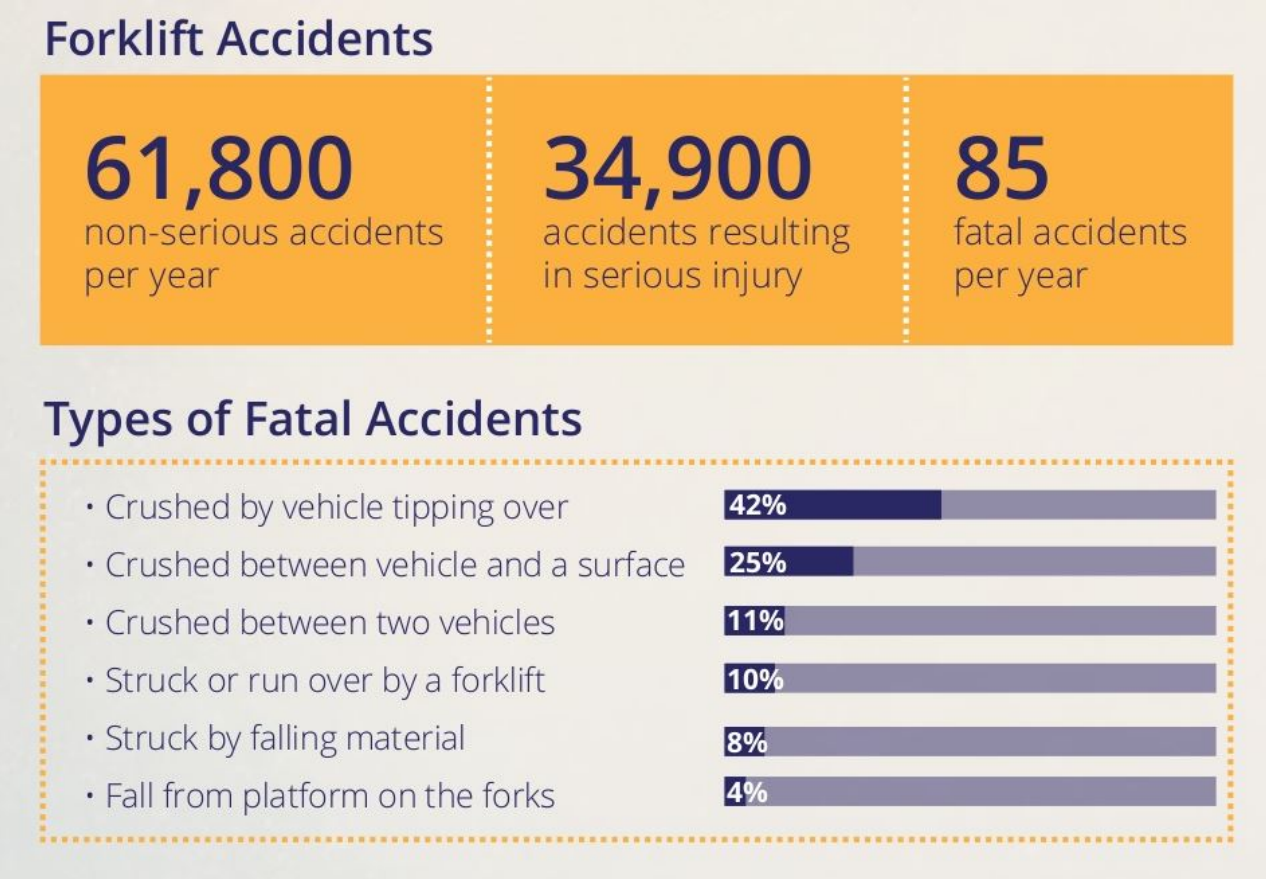
I started with Cisco-Eagle in 2016, and work with our safety products division

I frequently attend PPSA, ASSE and NSC show. You can find my articles on forklift/pedestrian safety on the Cisco-Eagle blog.

Session Objectives

1. Understand the threat forklifts pose to pedestrians
2. Create a facility-wide forklift/pedestrian process

Why Is This Process Important?



Of the accident types listed above,
46% involve a pedestrian—
someone other than the forklift driver.

Forklifts aren't cars

- The average car weighs roughly 3,000 pounds, while the average forklift weighs 9,000 pounds
- Forklifts don't maneuver or brake as well as cars. They have worse line of sight for the driver.
- Forklift drivers are often moving in reverse or have loads raised
- Dangers are constant
  - Pedestrians misunderstand the way forklifts maneuver, and the danger of walking or working around them.

Why Is This Process Important?

Formula for tragedy:

- Pedestrian not paying attention
- Driver has forks up, so visibility is low
- Safety gate would help keep the pedestrian from coming into contact
- Sight lines obstructed by rack against the wall
- Warehouse egress points concern

Step 1: Assemble a cross-functional forklift safety team

Step 2: Develop a baseline assessment

Step 3: Identify forklift/pedestrian interaction zones

Step 4: Assess risks at each interaction zone

Step 5: Implement safety upgrades

Step 6: Measure your progress

Step 1:

Assemble A Cross-Functional Forklift Safety Team

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This team should lead the process

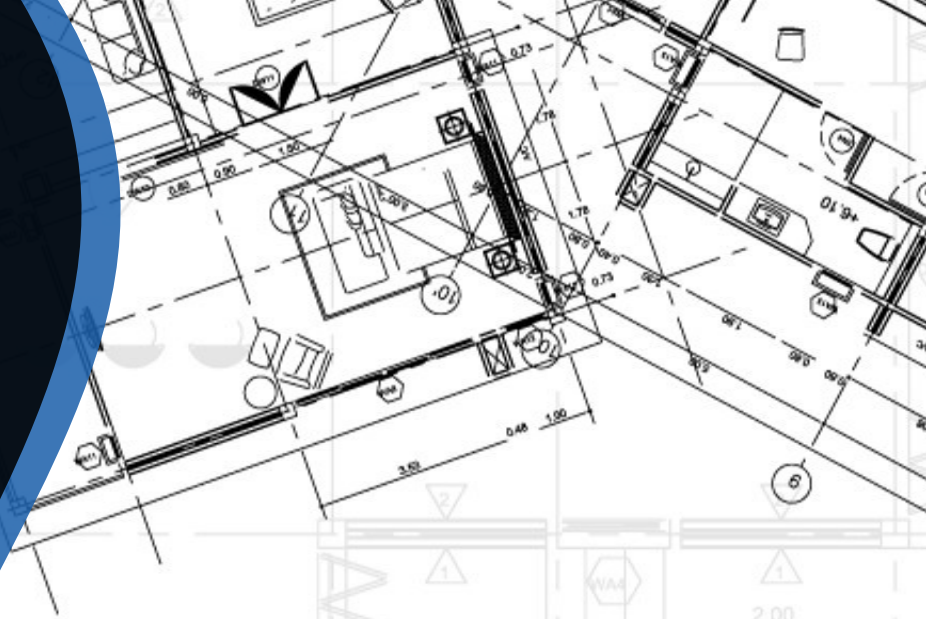
Include a manageable number of employees, and draw a diverse team:

- Forklift Operations
- Supervisors and Foremen
- Safety & EHS Personnel
- Warehouse Employees
    - Shipping/Receiving
    - Order Picking

Each member represents a diversity of opinion, and can help the safety department make better decisions

Responsibilities include:

- Helping with baseline analysis
- Conducting risk assessments of high traffic areas
- Creating actionable solutions



Step 2:

Develop a Baseline Assessment

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Developing A Baseline Assessment

Document the current conditions:

- *Include these factors:*
  - Cross functional information to determine facility-wide issues
  - Assets you have at your disposal
  - *Current condition* (what processes or behaviors currently exist)
    - What exists now that segregates vehicles from pedestrians
      - Audio/visual control systems?
    - On-board controls on forklifts?
    - What are the current behaviors for drivers/pedestrians?

Developing A Baseline Assessment – Sample Survey

CISCO-EAGLE SAFETY PRODUCTS DIVISION
SAFETY SURVEY

SAFETY AWARENESS

This survey was created by Cisco-Eagle's Safety Products Division to help you review existing areas of pedestrian and vehicle interaction. The completion of this survey will not only help you become more conscious of the risks, but also will help start your company down the pathway of safety improvement.

PRINCIPAL INQUIRY

Do records indicate that pedestrians are adequately protected from vehicle traffic in this area? (Answering yes to one or more of these questions indicate serious need for safety review.)

Question	*YES*	*NO*	*N/A*
Has an accident or near miss involving forklifts or other equipment occurred in this area?			
Are there unprotected or unguarded pedestrians interacting with vehicles in this area?			
NOTES:			

TERMINOLOGY*

Guarded by location – An area that is separated from another by equipment, wall or other barrier with reasonable expectation of being guarded from impact from a vehicle.
Pedestrian – Any person, including workers, contractors and visitors. This includes their cargo taken with them when carried by unpowered means and not larger than an average person in size and weight.
Signage – Written language and symbols that warn of hazards. Should be legible, clear and concise and appropriate for hazard.
Sufficient guarding / sufficient physical barrier – Permanently affixed guarding or other barrier that would have expectation of demarcation, separation and guarding against damage to equipment or injury to personnel. Includes guardrail, large equipment, pallet racking, etc.
Vehicle – Any powered industrial equipment or other powered or unpowered means of transporting people and/or goods that is larger than an average person in weight and size.

Focus on the following factors:

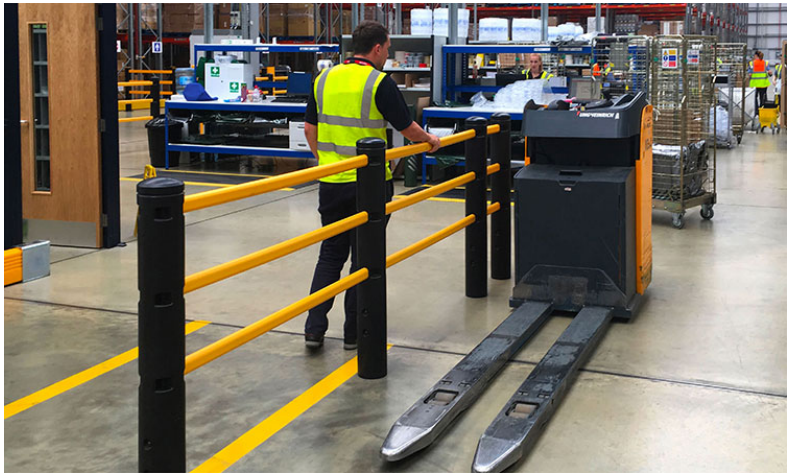
- **Elimination:**
  - In this scenario, an area is set up for foot traffic only. Forklifts are not allowed at all. These areas should be delineated with guardrails or other physical barriers. You can also employ painted or taped crosswalks or other visual methods to mark these zones when necessary.

Focus on the following factors (continued):

- **Reduce forklifts with alternative pallet handling methods:**
  - Identify areas where foot traffic is constant, forklift traffic is not desirable, but pallet movement is necessary. You might handle pallets with stackers, pallet jacks, conveyors, pallet dollies

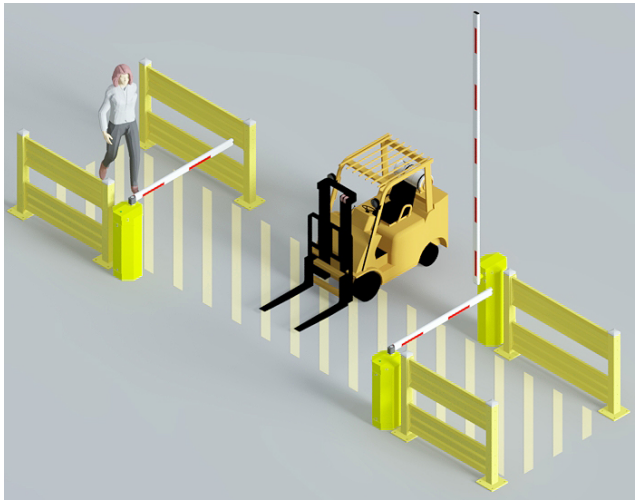
Focus on the following factors (continued):

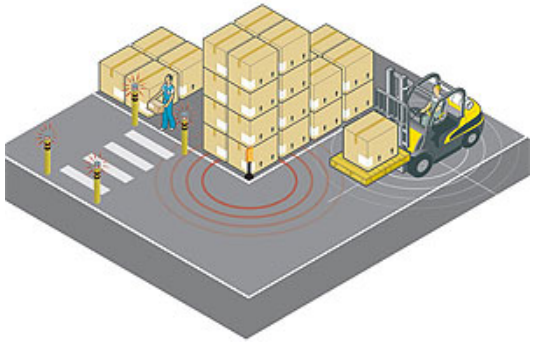
- **Barriers & physical controls:**
  - Are physical controls such as guard rails, bollards, curbs, gate systems or other solid separation means present? Can they be installed to improve the situation?



Focus on the following factors (continued):

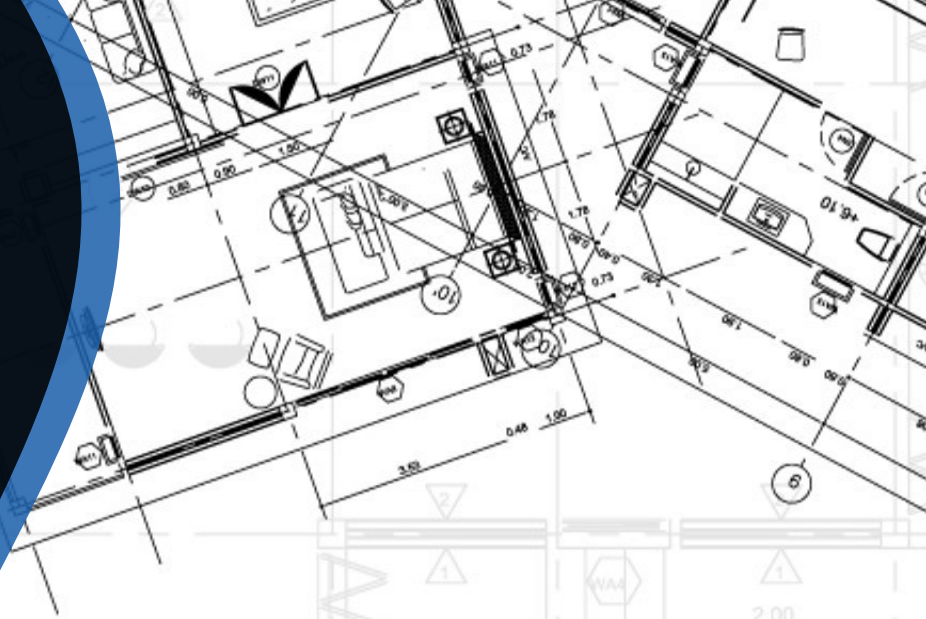
- **Visual Warning Systems:**
  - Protective systems like sensors, mirrors, signs, warning lights, or proximity detection technologies. Score your facility on the presence or absence of these warning systems.





Focus on the following factors (continued):

- **Training/Processes:**
  - What's currently in place in terms of training, rules, and processes that impact forklift safety? *(Example: require dedicated crossing points, or exclusion zones).* Are workers allowed to use smart phones in the facility? Are they paying attention to the pathways? How are egress points into the facility handled? How are guests and visitors protected?



Step 3:

Define Interactions for Forklifts and Pedestrians

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Define “Interactions” For Forklifts and Pedestrians

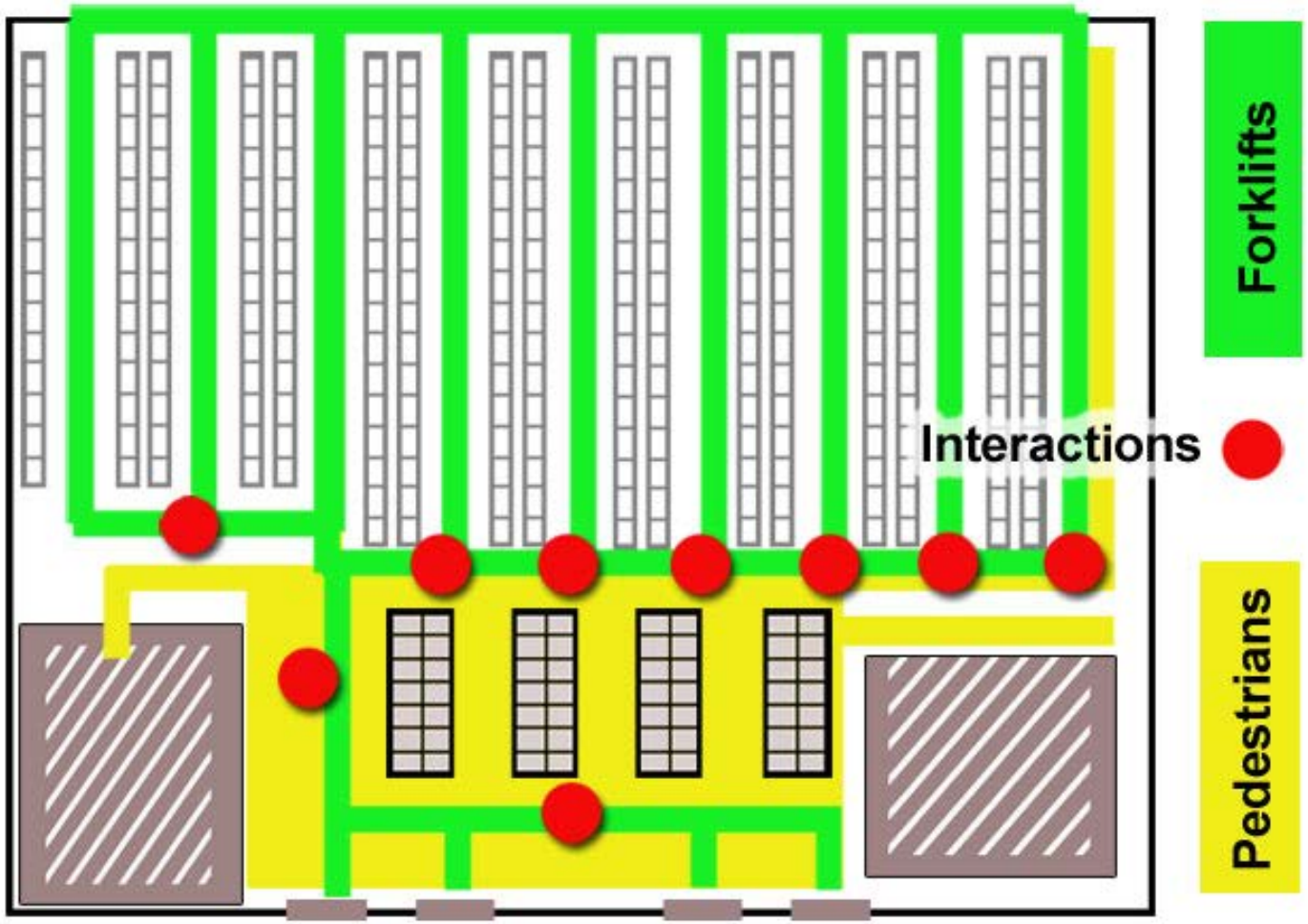
It’s critical to understand where your pedestrians and forklifts interact.

When you create a safety plan, segregate people from forklifts as much as possible, and then focus on *interaction zones* where separation isn’t possible.

Separation of forklift and pedestrian aisles helps create a safer space

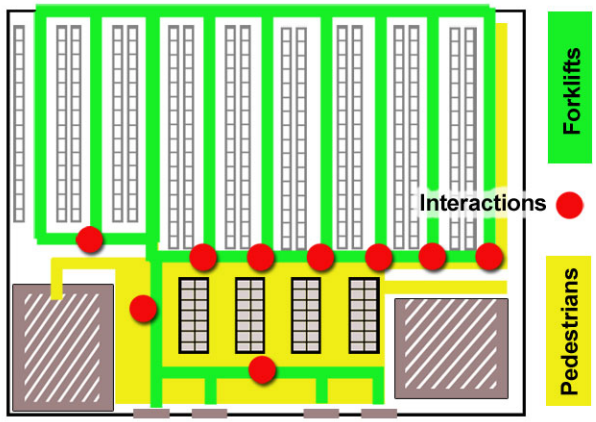
- Reduces the amount of interactions between workers and trucks
- Lowers the risk of injury
- Creates a safer work environment for workers and visitors

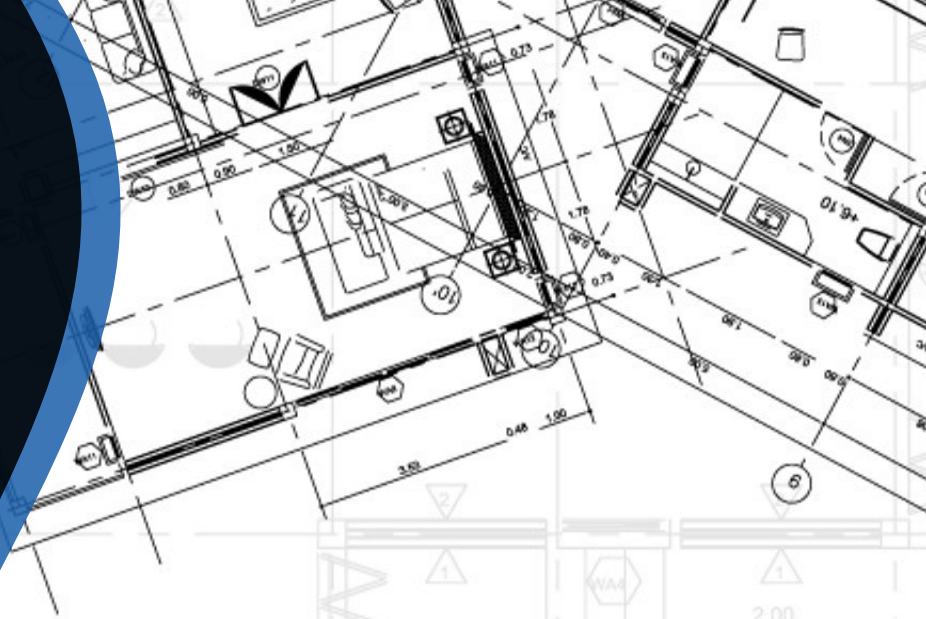
Define Interactions For Forklifts and Pedestrians



Define Interactions For Forklifts and Pedestrians

- Print a drawing of your facility and map these interactions
- Create a color-coded visual representation of pedestrian traffic aisles and then use a different color to represent forklift areas
    - In the example above, pedestrian areas are yellow, forklift lanes are green, and interaction zones are red dots
- The points where pedestrians and forklifts intersect are your interaction zones
    - Mark and number these interaction zones.
    - Create a list of these zones
    - Address the needs of each zone.





Step 4:

Assess the Risk Factors in Each Interaction Zone

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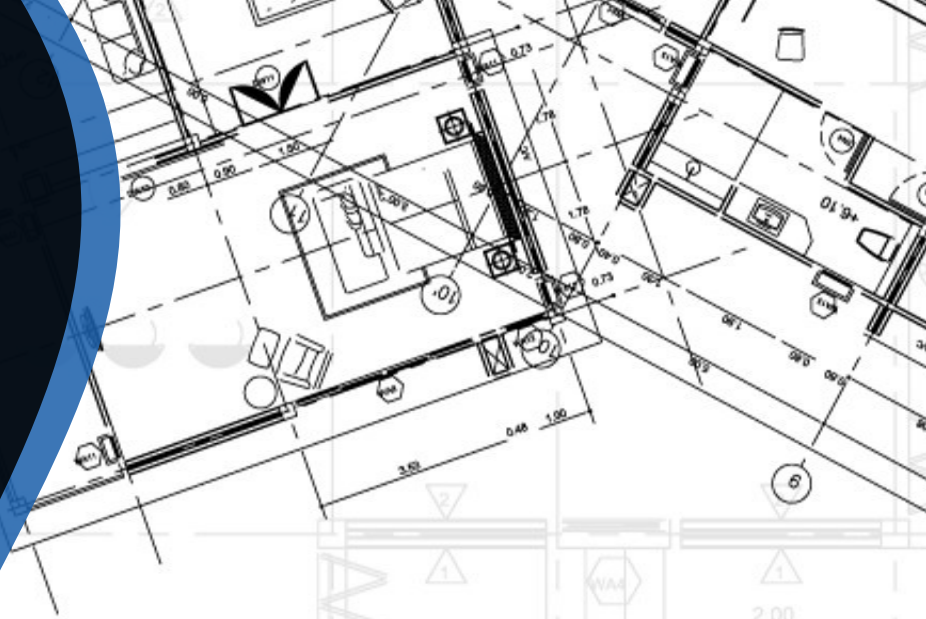
Assess The Risk Levels In Each Interaction Zone

- Once you've identified the at-risk areas, you should rate each of them (feel free to use your own assessment system). This risk assessment will help you prioritize each intersection or crossing and suggest a course of action to reduce the risks in that zone.
- The assessment should include the following factors:
    - **Accident probability:** How close will forklifts and pedestrians get to each other? How tight is the area? What speed are the forklifts traveling? Is visibility adequate for safe operations? Are pedestrians paying attention to their surroundings? Are drivers honking horns and actively looking for pedestrians?

- **Traffic levels at the interaction point:** How often do people pass through or work in the area? How frequently do forklifts run through? Is it infrequent, constant, or somewhere in between?

- **Frequency of pedestrian/forklift conflict:** Count the number of times per day that forklifts and pedestrians intersect, or are both present in an area that lacks guardrails or other physical barriers. This does not have to be direct contact. It can be the simple presence of both types of traffic in an area where an accident is possible

Once you have profiled each interaction zone, it's time to address that particular point, with a plan and priority.



Step 5:

Implement Safety Upgrades

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Time to build a solution. These solutions can vary from zone to zone, based on the factors in your assessment. If that's not possible, move toward solutions that address the area's safety concern. These may include:

- **Whenever possible, create exclusion zones where people and forklifts aren't allowed to mingle.** Decide whether the zone can be changed into an exclusion zone, where there is no interaction between people and forklifts. You will want to create as many exclusion zones as possible, since they are the safest alternative.
  - For instance, many companies build pallet rack systems with carton picking on the floor level and bulk pallet storage in higher bays. This is an efficient way to use space, and it does create a full aisle where people and lift trucks frequently share space. This may change plant layout and routes a bit, but the safety gains tend to justify it.

Implement Safety Upgrades

- **Implement hard barrier controls, such as guardrails, bollards or gates.** These should be used to create areas where people are physically separated from lift truck traffic.

- **Increase visibility,** with methods like floor striping, signage, forklift warning lights, mirrors or paint lines. These are relatively passive methods, but they are necessary to help reinforce expected behavior and make people aware of the potential dangers. Consider gates or straps to close aisles.

- **Make it a process:** administrative controls, such as training, process improvements and new policies

- **Consider automation:** Automated controls, such as warning sensors, automated gates, backup sensors, onboard speed controls, cameras and other methods for managing forklifts & pedestrians

Step 6:

Measure Your Progress

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Measure your progress

- To gauge the effectiveness of implemented changes in the way people and forklifts interact, we recommend that you periodically:
  - Update your assessment guide
  - Re-assess the interaction areas to see if further changes should be made
  - Revisit the process as facility and personnel changes occur

Resources

- A Step-by-Step Safety Process for Forklifts and Pedestrians
- Cisco-Eagle Safety Blog
- Reducing the Risk of Injury Between Forklifts and Workers
- Why the Floor is Better than Eye Level for Forklift Safety Warnings

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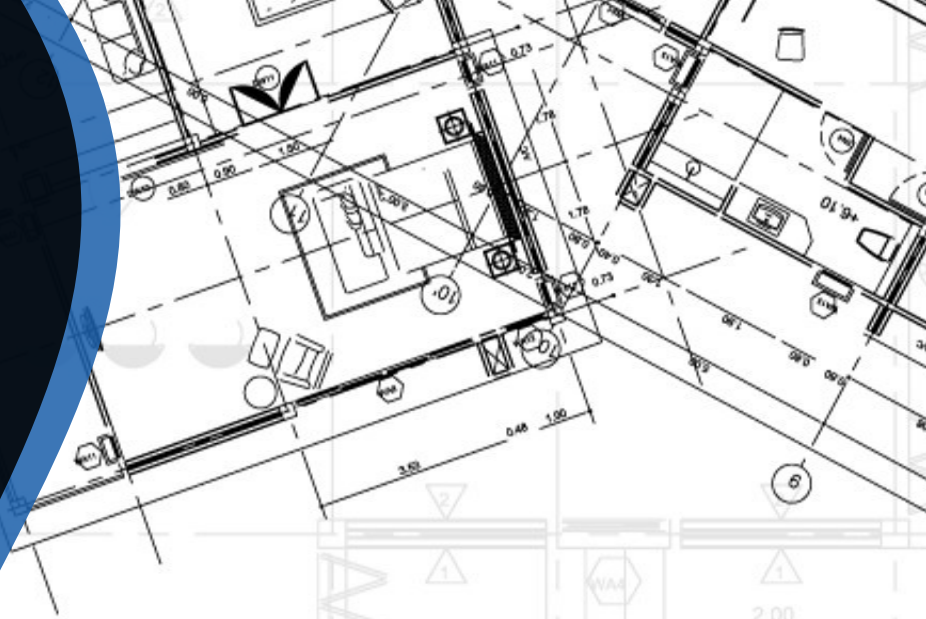
Questions?



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