

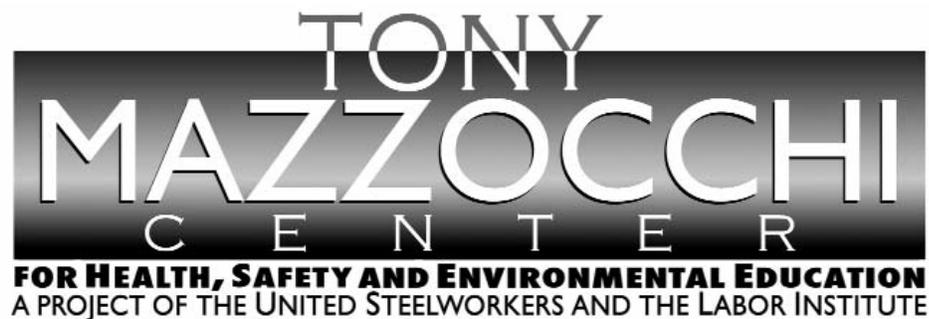


## Forklift Door Injuries

### Purpose

To share “lessons learned” gained from incident investigations through a small group discussion method format.

To understand “lessons learned” through a Systems of Safety viewpoint.



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### **Lessons Learned**

**Volume 08, Issue 12**

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## Background Information

Before beginning this Lessons Learned, please review this and the next page which contain information that will introduce the concepts of Lessons Learned and Systems of Safety.

Creating a safe and healthy workplace requires a never ending search for hazards that sometimes are not obvious to us. These hazards exist in every workplace and can be found by using various methods. Lessons Learned are just as the name suggests: learning from incidents to prevent the same or similar incidents from happening again.

**Systems Are Not Created Equal: Not equal in protection and not equal in prevention.**

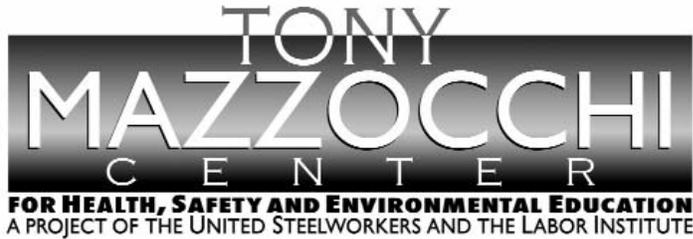
Using our Systems Focus to uncover system flaws or root causes is only one part of controlling hazards. We also need to look at the systems involved to decide on the best way to deal with the problem. The most effective way to control a hazard is close to its source. The least effective is usually at the level of the person being exposed. The system of safety in which the flaw is identified is not necessarily the system in which you would attempt to correct the flaw.



Major Safety System	Design & Engineering	Maintenance & Inspection	Mitigation Devices	Warning Devices	Training & Procedures	Personal Protective Factors
Level of Prevention	Highest—the first line of defense	Middle—the second line of defense			Lowest—the last line of defense	
Effectiveness	Most Effective	←————→			Least Effective	
Goal	To eliminate hazards	To further minimize and control hazards				To protect when higher level systems fail
<b>EXAMPLES OF SAFETY SUB-SYSTEMS**</b>	<b>Technical</b> Design and Engineering of Equipment, Processes and Software Management of Change (MOC)** Chemical Selection and Substitution Safe Siting Work Environment HF	Inspection and Testing Maintenance Quality Control Turnarounds and Overhauls Mechanical Integrity	Enclosures, Barriers Dikes and Containment Relief and Check Valves Shutdown and Isolation Devices Fire and Chemical Suppression Devices Machine Guarding	Monitors Process Alarms Facility Alarms Community Alarms Emergency Notification Systems	Operating Manuals and Procedures Process Safety Information Process, Job and Other Types of Hazard Assessment and Analysis Permit Programs Emergency Preparedness and Response Training Refresher Training Information Resources Communications Investigations and Lessons Learned Maintenance Procedures Pre-Startup Safety Review	Personal Decision-making and Actions HF Personal Protective Equipment and Devices HF Stop Work Authority
	<b>Organizational (must address a root cause)</b> Staffing HF Skills and Qualifications HF Management of Personnel Change (MOPC) Work Organization and Scheduling HF Work Load Allocation of Resources Buddy System Codes, Standards, and Policies**					

HF - Indicates that this subsystem is often included in a category called Human Factors.  
 \* There may be additional subsystems that are not included in this chart. Also, in the workplace many subsystems are interrelated. It may not always be clear that an issue belongs to one subsystem rather than another.  
 \*\* The Codes, Standards and Policies and Management of Change subsystems listed here are related to Design and Engineering. These subsystems may also be relevant to other systems; for example, Mitigation Devices. When these subsystems relate to systems other than Design and Engineering, they should be considered as part of those other systems, not Design and Engineering.

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**Lessons Learned Statement:**

The lack of pursuing safety features on forklift doors at the time of purchase and using an outside source to install them led to workers being injured. *Systems of Safety* are utilized to provide prevention from this type of incident. The protection provided by the mechanical systems of closure dampers or friction hinges could have provided a well-defined **Design and Engineering System of Safety** approach. The practice of the safety and user group personnel reviewing the forklift's cab closing at the time of procurement would have eliminated this hazard. No review was made within this *System of Safety* to determine if better technology was available for the environment in which these doors operated.

Despite previous reports of the condition of the doors slamming unexpectedly, there was no action taken within the **Maintenance and Inspection System of Safety** to repair the doors. The padded door frame is used to seal out the weather and should have a rubber bumper along its edge. The door's surface and weight can generate a lot of force when driven by wind or gravity, therefore requiring a **Design and Engineering** review to see if safer equipment is available.

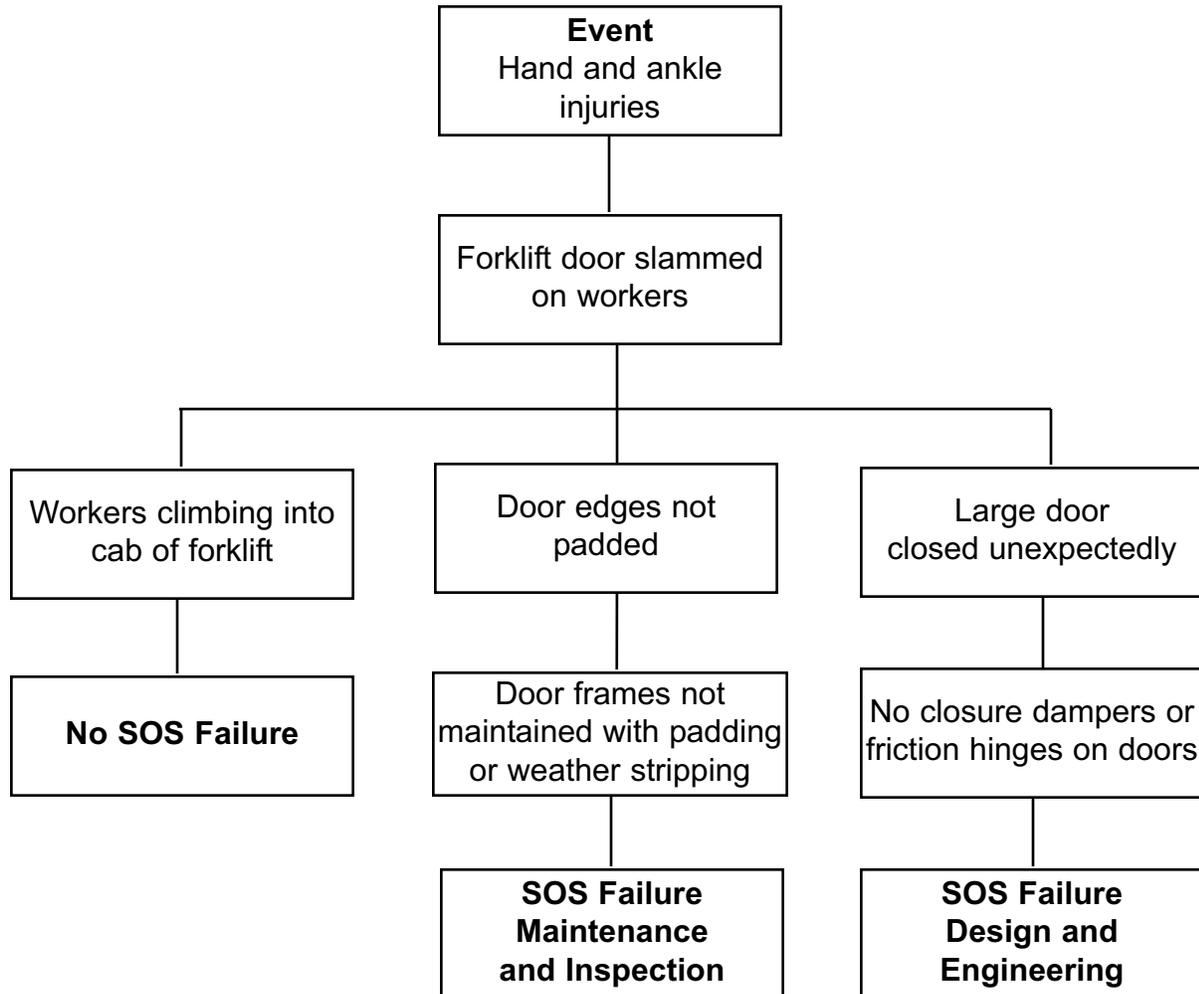
The **Training and Procedures System of Safety** for the fork truck drivers did not include visual checks to assure all safety features were in place prior to proceeding with their entry into the forklift.

**Discussion:**

In three different instances, three fork truck operators were entering the cab of the forklift when the doors closed unexpectedly and caused injury to their feet or hands. The forklift doors are heavy and have a large surface which makes them prone to closing in windy conditions or when parked on a slight incline. The doors are hinged in the rear and can swing closed without the operator being aware. The two ankle injuries stemmed from a horizontal metal plate on the cabin door that struck the operator's ankle when the door slammed shut. The finger injury occurred as the operator was climbing into the forklift. He was holding the door post for support when the wind blew the door shut on his hand. The injuries range from bruises to a minor bone fracture.

**Analysis**

**The Logic Tree** is a pictorial representation of a logical process that maps an incident from its occurrence, “the event,” to facts of the incident and the incident’s root causes.



**Recommended Actions**

1. Require that doors be designed and engineered with closure dampers or friction hinges.
2. Inspect all forklifts with doors and remove any that are not properly equipped with a closure feature.
3. Contact the cab manufacturer for the availability of friction hinges.
4. Remove any sharp edges prior to reinstalling the doors. Install padded and soft surfaces on probable pinch points.
5. Training for fork truck drivers should require a visual conformation of door hinges and surfaces.
6. Develop an administrative policy that states that the job will not begin or that the job will be discontinued at the first failure of any of the safety features.

### Education Exercise

Working in your groups and using the Lessons Learned Statement, Discussion, Analysis and Recommended Actions, answer the two questions below. Your facilitator will give each group an opportunity to share answers with the large group.

1. Give examples of ways to apply the Lessons Learned Statement at your workplace.

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2. Of the examples you generated from Question 1, which will you pursue in your workplace? (**Note:** When we say something you may pursue, we mean a joint labor-management activity or a union activity rather than an activity carried out by you as an individual.)

## Trainer's Lessons Learned Success Inventory

Following a Lessons Learned (LL) session, **the trainer who led the LL** should complete this form. This information will: 1) Help you reflect on the successes and challenges of the session; 2) Help USW with new curriculum development; and 3) Help USW as a whole better understand how the LL Program is supporting their workers.

By reviewing LL from different sites or from other areas of their workplaces, workers are able to analyze the information and apply these lessons to their own workplaces in order to make their workplaces healthier and safer.

1. Site name (if there are participants from more than one site, please list all).

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2. Date of LL training \_\_\_\_\_

3. LL number used in today's Training \_\_\_\_\_

4. Your name \_\_\_\_\_

5. **Summary of Education Question 1:** Please summarize participants' examples of ways to apply this LL Statement to their workplace.

**Please continue on reverse side.**

- 6. Summary of Education Question 2:** Please summarize actions or recommendations participants discussed pursuing at their workplace(s).

**Thank you for completing this form.**

# EVALUATION

## Lessons Learned: Forklift Door Injuries

Please answer the two questions below:

1. How important is this lessons learned to you and your workplace? (Circle one.) Rate on a scale of 1 to 5, with 5 being the most important.

1	2	3	4	5
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2. What suggestions would you make to improve this Lessons Learned?

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**End of Training Trainer’s Instructions**

Please complete the information below.

Trainer’s Name \_\_\_\_\_  
 (Please Print)

Date of training: \_\_\_\_\_

No. of Participants: Total \_\_\_\_\_ Hourly \_\_\_\_\_ Management \_\_\_\_\_

Location of Training: \_\_\_\_\_

USW Local # \_\_\_\_\_

Send:

1. This page;
2. The Education Exercise (page 8);
3. The Trainer’s LL Success Inventory form (pages 9 and 10);
4. The evaluation for each participant (page 11); and
5. The Sign-in sheet (page 13) to:

<p><b>If you are a TOP Site                  (excluding DOE TOP Sites)</b></p>	<p><b>Send to:                  Steve Cable                  2915 Gradient Drive                  St. Louis, MO 63125</b></p>
<p><b>All other sites                  (including DOE TOP Sites)</b></p>	<p><b>Send to:                  Doug Stephens                  United Steelworkers                  3340 Perimeter Hill Drive                  Nashville, TN 37211</b></p>

Thank you for facilitating the sharing of this  
 Lesson Learned with your coworkers.



