

NJ FACE INVESTIGATION REPORT



Fatality Assessment & Control Evaluation Project

FACE 13-NJ-049

March 3, 2015

Warehouse Worker Falls From Elevated Forklift Platform

A 35-year-old male warehouse worker died after falling 10 feet from an elevated forklift platform. The incident occurred inside an automotive parts warehouse. On the day of the incident, the victim and a coworker were adjusting metal warehouse shelving. The victim parked the forklift at the end of a warehouse aisle, elevated the platform to approximately 10 feet to help reposition metal racks, walked out onto the platform, and fell off the open end and landed on the cement floor. The victim was wearing a body harness; however, his lanyard was not connected to the anchor point on the forklift. The victim sustained trauma to the head, eye, shoulder, and wrist, and died eight days later from these injuries.

Contributing Factors:

- Unsecured edge of lift platform
- Lanyard not connected to anchor

NJ FACE investigators recommend that these safety guidelines be followed to prevent similar incidents:

- **When operating an elevating platform forklift, a personal fall arrest system should be worn at all times, which consists of an anchorage, connectors, body harness and retractable lanyard connected to appropriate anchor point.**
- **Prior to elevating the forklift, all workers should be tied into the anchor point on the cab.**
- **Forklift manufacturers should consider designing a barrier on the unsecured edge of platform, and a lock-out tag-out system where the machine will not lift unless the anchor is in use.**
- **A safety and health plan based on a job hazard analysis should be developed by the employer and followed where workers are assigned tasks.**



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INTRODUCTION

In summer 2013, NJ FACE staff was notified of the death of a 35-year-old male warehouse worker who was killed after falling from an elevated forklift platform. The incident occurred in an automotive part warehouse in southern NJ. The victim had worked for the company for approximately four months. Employee training was required and included classroom courses (industrial truck operation training and fall protection), and onsite/hands-on training. The employer required all operators to use a fall arrest system when the forklift was in operation, regardless of the height of the platform.

An NJ FACE investigator contacted the OSHA Area Office and conducted a concurrent investigation. Additional information was obtained from the medical examiner's report, death certificate, police report, and the news.

INVESTIGATION

The incident site was a small automotive warehouse located in an industrial park in southern NJ. The warehouse was a new facility, measuring approximately 110-feet-tall by 140-feet-wide, consisting of seven aisles and eight, 20-foot high, metal shelves (Figure 1). The employer was a large autobody parts supplier, with other facilities across the U.S., and serviced car dealers, autobody shops and fleets. Thirteen permanent workers were employed at this specific location, along with a few temporary employees. Parts would come into and be shipped out of the warehouse via a truck loading dock. When a part was ready for shipping, a forklift operator (three total operators were employed, including the deceased) would drive a powered industrial forklift (also known as an "order picker") to the location of the part. The forklift was equipped with a 6-foot-long, 3'4"-wide platform on the forks (Figure 2a). If the part was not reachable at the ground level, the platform (along with the forklift control deck) could be lifted up to 17 feet in the air (Figures 2b-3). The operator controlled the lift by stepping on a round disc on the floor of the forklift's control deck (Figure 4).

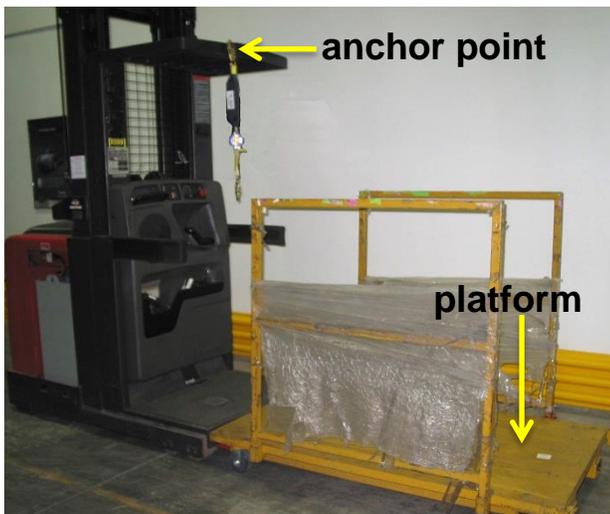
On the day of the incident, the victim arrived at 6:00 am for his regular 8-hour shift. Standard work assignments were issued. The workers usually first offload materials from the truck, then pull orders/put orders away using the forklift. However, it was the day after a holiday and the number of orders was limited, allowing the warehouse workers to catch up on other work. The victim and another employee were assigned to move a metal shelf at the end of one of the aisles. The metal shelf was positioned at 15 feet, and was to be moved down to four feet. Modifying the shelf allowed for more items to be stacked at ground level, saving the operator's time and effort.

Each warehouse row consisted of multiple metal shelves (approximately 8'6" long by 4 feet wide each) fixed to vertical structural units (Figure 5a). The shelves were locked at connection points using sliding metal locking pins into keyhole-shaped openings (Figure 5b). At the time of the incident, the victim was positioned at a shelf near the end of an aisle and a coworker was on the other side of the shelf in the next aisle over. He was wearing a body harness and lanyard, but it was not connected at the anchor point. It is not known exactly how the victim fell (the shelving unit was blocking the coworker's view of the victim), but the coworker heard the noise and rushed over to spot where the victim had landed. The victim was severely injured, but conscious. The coworker ran to get help, and 9-1-1 was called; the victim was rushed to the hospital, and died there eight days later.

FIGURE 1: Incident site, metal shelving and access lane (cement floor).



FIGURE 2a-2b. Forklift and platform in down and raised positions; note anchor point for lanyard of fall arrest system.



2a



2b

FIGURE 3. Demonstration of worker lifting platform to access shelves.



FIGURE 4. Activation pad for lifting forks.

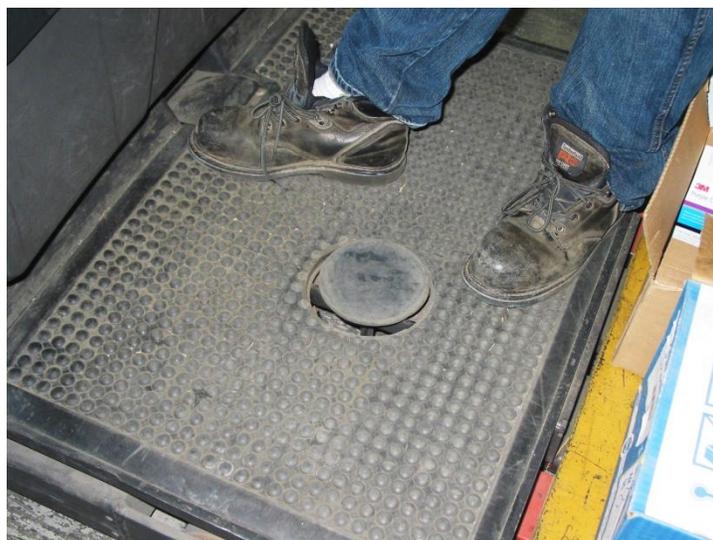


FIGURE 5a-5b: Views of shelf; wire mesh with orange frame (a), and connection point to blue vertical support structure (b).



5a



Locking pin

5b

RECOMMENDATIONS/DISCUSSIONS

Recommendation #1: When operating an elevating platform forklift, a personal fall arrest system should be worn at all times, which consists of an anchorage, connectors, a body harness and retractable lanyard.

Discussion: As per ANSI B56.1-2009, 7.37.1 (Platforms: Elevating), a full body harness should be worn connected to a lanyard that is attached to an overhead anchor point.¹ This system should have enough strength to withstand twice the potential impact energy of a worker free-falling a distance of 6 feet (or less if applicable). NJ FACE recommends that this fall arrest system consist of a retractable lanyard. There are several advantages to the retractable lanyard in this case. With a static lanyard, if a worker cannot reach the pick point, they may be tempted to take off the lanyard. Also, if a worker falls off the platform with a non-retractable lanyard, the fall is the distance of the lanyard (this could result in a contact hazard or swing hazard). Conversely, if a worker falls while wearing a retractable lanyard, the lanyard locks immediately like the seatbelt in a car.

Recommendation #2: Prior to operating the forklift, all workers should be tied into the anchor point on the cab.

Discussion: The most fail-safe approach to the use of the personal fall arrest system is for the worker to ensure that their body harness is connected to the anchor point on the cab prior to any activity. This should be done regardless of whether or not there was an anticipated or planned lifting of the platform. Connecting to the anchor does not hinder the worker in any way, and is recommended as the first step when stepping on the control platform.

Recommendation #3: Forklift manufacturers should consider designing a barrier on the unsecured edge of platform, and a lock-out tag-out system where the machine will not lift unless the anchor is in use.

Discussion: The forklift platform in this case had guardrails on two sides, but the front end remained unguarded (Figure 3). NJ FACE recommends the design of a platform in which the open side is guarded but still allows for a warehouse worker to effectively access pick (or drop-off) points. In addition, NJ FACE recommends that a mechanism be designed such that power to the forklift is cut if the worker is not tied in to the anchor point.

Recommendation #4: A safety and health plan based on a job hazard analysis should be developed by the employer and followed where workers are assigned tasks.

Discussion: Employers should conduct a job hazard analysis, with the participation of employees, of all work areas and job tasks. A job hazard analysis should begin by reviewing the work activities for which the employee is responsible, and the equipment that is needed. Each task is further examined for mechanical, electrical, chemical, or any other hazard the worker may encounter. A source of information on conducting a job hazard analysis can be obtained from the US Department of Labor.²

APPENDIX

RECOMMENDED RESOURCES

It is essential that employers obtain accurate information on health, safety, and applicable OSHA standards. NJ FACE recommends the following sources of information which can help both employers and employees:

U.S. Department of Labor, Occupational Safety & Health Administration (OSHA)

Federal OSHA can provide information on safety and health standards on request. OSHA has several offices in New Jersey that cover the following counties:

-  Hunterdon, Middlesex, Somerset, Union, and Warren counties.....732-750-3270
-  Essex, Hudson, Morris, and Sussex counties.....973-263-1003
-  Bergen and Passaic counties.....201-288-1700
-  Atlantic, Burlington, Cape May, Camden, Cumberland, Gloucester,
Mercer, Monmouth, Ocean, and Salem counties.....856-596-5200
-  Web site: www.osha.gov

New Jersey Public Employees Occupational Safety and Health (PEOSH) Program

The PEOSH Act covers all NJ state, county, and municipal employees. Two state departments administer the Act: the NJ Department of Labor and Workforce Development (NJDLWD), which investigates safety hazards, and the NJ Department of Health (NJDOH), which investigates health hazards. PEOSH has information that may also benefit private employers.

NJDLWD, Office of Public Employees Safety

-  Telephone: 609-633-3896
-  Web site: www.nj.gov/labor/lsse/lspeosh.html

NJDOH, Public Employees Occupational Safety & Health Program

-  Telephone: 609-984-1863
-  Web site: www.nj.gov/health/peosh

On-site Consultation for Public Employers

-  Telephone: 609-984-1863 (health) or 609-633-2587 (safety)
-  Web site: www.state.nj.us/health/eoh/peoshweb/peoshcon.htm

New Jersey Department of Labor and Workforce Development, Occupational Safety and Health On-Site Consultation Program

This program provides free advice to private businesses on improving safety and health in the workplace and complying with OSHA standards.

☎ Telephone: 609-984-0785

💻 Web site: www.nj.gov/labor/lsse/lsonsite.html

New Jersey State Safety Council

The New Jersey State Safety Council provides a variety of courses on work-related safety. There is a charge for the seminars.

☎ Telephone: 908-272-7712.

💻 Web site: www.njsafety.org

Internet Resources

Other useful Internet sites for occupational safety and health information:

- CDC/NIOSH – www.cdc.gov/niosh
- USDOL Employment Laws Assistance for Workers and Small Businesses – www.dol.gov/elaws
- National Safety Council – www.nsc.org
- NJDOH FACE reports – www.nj.gov/health/surv/face/index.shtml
- CDC/NIOSH FACE – www.cdc.gov/niosh/face/faceweb.html
- OSHA – www.osha.gov
- ANSI – www.ansi.org

REFERENCES

1. American National Standards Institute, Safety Standard for Low Lift and High Lift Trucks, Powered and Nonpowered Industrial Trucks. ANSI B56.1-2009, 7.37.1 (*Platforms: Elevating*).
2. *Job Hazard Analysis*. US Department of Labor Publication # OSHA-3071, 1998 (revised). USDOL, OSHA Publications, PO Box 37535, Washington DC 20013-7535

Fatality Assessment and Control Evaluation (FACE) Project
Investigation # 13-NJ-049

This report was prepared by staff members of the New Jersey Department of Health's Occupational Health Surveillance Unit. The goal of FACE is to prevent fatal work-related injuries by studying the work environment, the worker, the task, the tools the worker was using, the energy exchange resulting in the fatal injury, and the role of management in controlling how these factors interact. FACE gathers information from multiple sources that may include interviews of employers, workers, and other investigators; examination of the fatality site and related equipment; and reviewing OSHA, police, and medical examiner reports, employer safety procedures, and training plans. The FACE program does not determine fault or place blame on employers or individual workers. Findings are summarized in narrative investigation reports that include recommendations for preventing similar events. All names and other identifiers are removed from FACE reports and other data to protect the confidentiality of those who participate in the program.

NIOSH-funded state-based FACE Programs include: California, Iowa, Kentucky, Massachusetts, Michigan, New Jersey, New York, Oregon, and Washington. Please visit the NJ FACE Web site at www.nj.gov/health/surv/face/index.shtml or the CDC/NIOSH FACE Web site at www.cdc.gov/niosh/face/faceweb.html for more information.

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