



STATE OF NEW YORK DEPARTMENT OF HEALTH

FATALITY ASSESSMENT AND CONTROL EVALUATION

Maintenance Mechanic Killed when Improperly Installed Overhead Garage Door Topped Scissors Lift Case Report: 04NY135

SUMMARY

On December 13, 2004, a 62-year-old maintenance mechanic employed by a facility maintenance firm, was fatally injured while servicing an overhead garage door for a shipping company. The facility maintenance firm had been contracted by the shipping company to repair the garage door. At the time of the incident, the victim and a co-worker were testing the door when the door became jammed with the bottom of the door three feet above the ground. The victim was working on the platform of a scissors lift that was extended approximately 15 feet above the ground and parked parallel to the door. No additional fall protection was used nor is it required by the Occupational Safety and Health Administration (OSHA) when operating a scissors lift with a standard guardrail system. The victim first tried to manually disconnect the garage door arm assembly from the track with the emergency release handle by pulling the handle and cord assembly, but it would not release. He then asked the co-worker for a screwdriver. The co-worker and a shipping company mechanic were both in the area on the ground. The mechanic provided a screwdriver to the victim. The victim used the screwdriver to pry the emergency disconnect away from the chain drive assembly. According to the co-worker, both he and the victim anticipated that the door would go down upon being manually released due to its weight. Instead the door abruptly sprang upwards to the fully open position, striking the guardrail of the scissors lift and causing the lift to topple to the concrete floor. The co-worker and shipping company mechanic ran to the victim who had fallen out of the scissors lift and was lying on the concrete unresponsive. The mechanic called 911. The EMS squad and police arrived within minutes. The victim was quickly transported to a hospital where he was pronounced dead.

New York State Fatality Assessment and Control Evaluation (NY FACE) investigators concluded that to help prevent similar incidents from occurring in the future, employers should:

- ***Ensure that workers stay clear of overhead door paths when working on overhead doors;***
- ***Make an installation/service manual available for workers working on overhead doors and;***
- ***Develop an overhead door safety program and ensure workers receive adequate training.***

INTRODUCTION

On December 13, 2004 at approximately 7:00 p.m., a 62-year-old male maintenance mechanic who was employed by a facility maintenance firm, was killed when the scissors lift he was working from was struck by an overhead garage door in a cargo terminal building at an airport. The facility maintenance firm had been contracted by the owner of the cargo building, a shipping company, to repair the overhead door. NY FACE staff learned of the incident on December 14 from both a newspaper article and an area office of the Occupational Safety and Health Administration (OSHA). On March 15, 2005, a NY FACE investigator traveled to the incident site and conducted an investigation. Additional information was obtained from the reports of the police investigator, the medical examiner's office, death certificate, and OSHA.

The victim's employer had been in the facility/building maintenance business for several years and had six employees, including the victim, at the time of the incident. The facility maintenance firm had been contracted by the shipping company on a regular basis to perform maintenance tasks on its buildings at the airport.

The victim had worked for the maintenance firm for approximately two years. He did not receive specific training on installing overhead doors, although, according to a co-worker, he had worked on numerous overhead doors prior to the incident. This was the company's first work-related fatality.

INVESTIGATION

On December 6, seven days prior to the incident, the maintenance firm was contracted by the shipping company to replace an overhead garage door in the center bay of its cargo terminal building. The maintenance contractors replaced major door components and installed new hinges, a motor operator, rollers, and door panels. The newly installed door (photo 1) was a standard (20 feet wide by 18 feet high) steel-insulated panel door. Including the hardware, the door weighed approximately 1,000 pounds. The maintenance firm did not have the door service manual available for the workers when they installed the new door.

Following installation, the new door did not operate properly and the top door panel was bent in the middle. The victim and a co-worker returned to the cargo building on December 9 to make adjustments. They examined the door and then called the overhead door sales company to discuss the problem. The owner of the garage door company stated that he had several phone conversations with both the victim and his employer. In order to assist in determining a solution, the owner of the garage door company needed to know the door lift type and the size of the lift drums. The victim and his employer told the door company owner that the new door was a high-lift door with eight-inch lift drums; although, in fact, the door was a standard lift door with six-inch lift drums. Based on the incorrect information provided by the maintenance firm, the owner of the overhead door company recommended installing two additional torsion springs to balance the weight of the door. It was also recommended that a piece of angle iron be installed across the bent section of the top panel to straighten the panel and improve the door operation.



Photo 1. The overhead door that was involved in the fatal incident: a standard lift steel insulated door with six-inch lift drums. The door in the photo was adjusted and repaired by a garage door technician after the incident.

On the day of the incident, the victim and a co-worker arrived at the cargo terminal building around noon to install the additional parts. After installing the torsion springs, the victim and his co-worker were testing the door and making final adjustments when the door became jammed with the bottom of the door three feet above the ground.

At approximately 7:00 p.m., the victim was working on the platform of a scissors lift that was extended approximately 15 feet above the ground and parked parallel to the door. No additional fall protection was used. Fall protection is not required by OSHA when operating a scissors lift with a standard guardrail system. The victim first tried to manually disconnect the door arm assembly from the track with the emergency release handle by pulling the handle and cord assembly, but it would not release. He then asked for a screwdriver. At this time, the co-worker and a shipping company mechanic were both in the area on the ground. The shipping company mechanic provided a screwdriver to the victim. The victim used the screwdriver to pry the emergency disconnect away from the chain drive assembly. According to the co-worker, both he and the victim anticipated that the door would go down upon being manually released due to its weight. However, the door abruptly sprang upwards to the fully open position, striking the guardrail of the scissors lift, and causing the lift to topple to the concrete floor. The co-worker and the shipping company mechanic ran to the victim who had fallen out of the lift and was lying on the concrete unresponsive. The mechanic called 911. The EMS squad and police arrived within minutes. The victim was quickly transported to a hospital where he was pronounced dead.



Photo 2. Post incident scene: the scissors lift was struck by the garage door after the door was released by the victim, toppling the lift. (Courtesy of OSHA)

According to the post-incident examination, the scissors lift had been operated within the scope of the technique specifications and performance capacity at the time of the incident. There were no known mechanical defects or malfunctioning parts on the scissors lift that may have contributed to the incident.

The owner of the garage door company went to the cargo terminal building several days after the incident to repair the door for the shipping company. According to the garage door company owner, the facility maintenance firm made multiple mistakes when installing the overhead door: the hinges and the tracks were both installed incorrectly, and the door panels were placed upside down and inside out. If the door had been installed properly, the rollers would have been able to move easily inside the tracks. The incorrectly installed hinges and tracks inhibited the rollers' movement and caused the door to jam. The overhead door was a standard lift door with six-inch drums. The two torsion springs later recommended were for a high-lift door with eight-inch lift drums; this was the door model mistakenly reported to the garage door company owner. It could be reasonably speculated that the force applied by the torsion springs was incorrect for this door. These mistakes may have caused the unbalanced door to spring up after the door was manually released.

CAUSE OF DEATH

The cause of death listed on the autopsy report was multiple traumatic injuries due to fall from height.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: *Workers should stay clear of overhead door paths when working on overhead doors.*

Discussion: A jammed door may have tremendous potential energy that may be released suddenly when the jam is cleared. Workers should stay clear of overhead door paths. The door path should also be clear of any lift or other equipment that may cause injury if struck by the moving door.

Recommendation #2: *Employers should ensure that installation/service manuals are available for workers working on overhead doors.*

Discussion: The installation/service maintenance manual for the overhead door was not available for the workers while they replaced the door parts and serviced the door. When working on overhead doors, employers should ensure that an installation/service manual is available for reference and that workers follow the manufacturer's recommendations.

Recommendation #3: *Employers should develop standard safety procedures for overhead door maintenance and ensure workers receive adequate training.*

Discussion: A garage door that does not go up and down smoothly when manually operated most likely has a problem with the track and roller system or a spring system that is out of balance. Overhead door springs are both very powerful and very dangerous and can cause serious physical injury and death, as happened in this case. Maintenance companies should develop a standard safety procedure for overhead door maintenance to address the potential safety hazards involved in working around overhead doors as well as proper safety precautions and protective measures. Employees should receive adequate training before being allowed to work on overhead doors. For problems beyond the scope of the training and experience of the maintenance staff, the employer should hire professional garage door technicians to work on the doors.

Keywords: *overhead door, torsion springs, scissors lift, mechanic, struck by, fall*

The Fatality Assessment and Control (FACE) program is one of many workplace health and safety programs administered by the New York State Department of Health (NYS DOH). It is a research program designed to identify and study fatal occupational injuries. Under a cooperative agreement with the National Institute for Occupational Safety and Health (NIOSH), the NYS DOH FACE program collects information on occupational fatalities in New York State (excluding New York City) and targets specific types of fatalities for evaluation. NYS FACE investigators evaluate information from multiple sources. Findings are summarized in narrative reports that include recommendations for preventing similar events in the future. These recommendations are distributed to employers, workers, and other organizations interested in promoting workplace safety. The FACE program does not determine fault or legal liability associated with a fatal incident. Names of employers, victims and/or witnesses are not included in written investigative reports or other databases to protect the confidentiality of those who voluntarily participate in the program.

Additional information regarding the New York State FACE program can be obtained from:

New York State Department of Health FACE Program
Bureau of Occupational Health
Flanigan Square, Room 230
547 River Street
Troy, NY 12180

1-866-807-2130

www.health.state.ny.us/nysdoh/face/face.htm