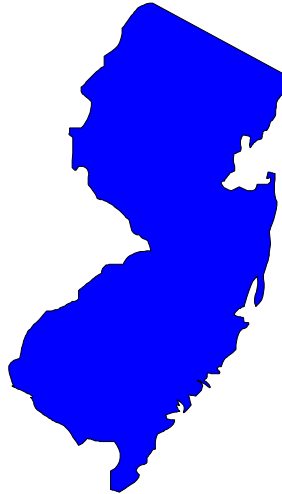


F.A.C.E. INVESTIGATION REPORT

Fatality Assessment and Control Evaluation Project

FACE #97-NJ-059-01
Air Conditioning Worker Dies After Falling From a
Fixed Ladder



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TO: Division of Safety Research
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FROM: Fatality Assessment and Control Evaluation (FACE) Project
New Jersey Department of Health and Senior Services (NJDHSS)

SUBJECT: FACE Investigation #97-NJ-059-01
Air Conditioning Worker Dies After Falling From a Fixed Ladder While Climbing
To A Roof Hatch

DATE: FIRST DRAFT

SUMMARY

On July 22, 1997, a 58-year-old air conditioning technician was killed after falling from a fixed industrial ladder leading to a roof hatch. The incident occurred at a clothing company warehouse where the victim and his co-workers were servicing the air conditioning units on the roof of the building. The job required the victim to return to his truck to get further supplies. Shortly before 2:00 p.m., the victim had left for his truck to get a gauge for his tanks of compressed nitrogen. He was climbing a 13-foot high fixed steel ladder leading from the top of a staircase to the roof hatch when his co-workers reported hearing the metal gauge falling in the stairs. They looked down the hatch and found the victim lying on the cement at ground level, about 25 feet below the hatch. NJDHSS FACE investigators concluded that, to prevent similar incidents in the future, these safety guidelines should be followed:

- ! **Employers should stress to all employees the importance of exercising caution when working from ladders.**

- ! **Employers should conduct a job hazard analysis of all work activities with the participation of the workers.**

- ! **Employers should develop, implement, and enforce a comprehensive employee safety program.**

Although not related to this incident, the following recommendation is made to employers who work near skylights:

- ! **Employers should read and follow the recommendations in the attached publication, *NIOSH Alert: Preventing worker Deaths and Injuries from Falls Through Skylights and Roof Openings.***

INTRODUCTION

On August 7, 1997, NJ FACE personnel received a newspaper article of a work-related fatal fall that occurred on July 22, 1997. After contacting the employer, FACE investigators conducted a site visit on August 27, 1997. During the site visit, FACE investigators interviewed an employer representative and examined and photographed the incident site. Additional information was obtained from the *OSHA compliance officer, the police report, and the medical examiner's report.*

The employer was a small air conditioning and refrigeration contractor that had been in business for 20 years and employed nine people. The company specialized in installing and maintaining large air conditioning units in offices, warehouses and computer rooms, working mostly in the New Jersey and New York area. The company did not have a formal safety program. However, safety training was done on-the-job and included monthly safety meetings before jobs. The company was not unionized and hired many of their employees from trade schools.

The victim was a 58-year-old air conditioning technician who had previously worked for more than six years with another company that did heavy industrial air conditioning work. He was hired by this employer in June 1996, and was injured one month later when he was thrown from a rented scissor lift that was suddenly moved forward. The six-foot fall fractured his back, requiring him to undergo extensive physical therapy and occupational rehabilitation before he was able to return to work in April 1997. The victim's supervisor described him as a sensible worker who was married with two children.

INVESTIGATION

The incident occurred indoors at a large warehouse and office building in an industrial park. The air conditioning contractor was very familiar with the building, having installed the large air conditioning (A/C) units on the roof when the warehouse was built in 1987. After the A/C units were installed, building tenant contracted with the company to regularly maintain and service the system. The company visited the building about once a week, inspecting the A/C units and

replacing belts and filters as needed. This continued until the summer of 1996 when a new tenant moved into the warehouse and canceled the service contract. Without regular service, the air conditioning began to break down. In June 1997, the new tenant made an emergency service call to the air conditioning contractor, stating that the A/C had failed in parts of the warehouse. The contractor responded by sending out the victim to check on the system and estimate the repair job.

The roof could be reached through two roof scuttles (metal hatchways), one of which was in the tenant's warehouse. To get to the A/C units on the roof, the victim had to climb a 13 foot high, fixed steel ladder leading to a 3 foot long, 2.5 foot wide roof scuttle hatchway. The ladder was located at the top of a 12' 5" high, four foot wide staircase leading to the second floor. Directly to the side of the stairs was a five foot wide, 25 foot high (from the roof to the floor) open area. The employer noted that the roof hatch had been installed backwards; it opened so that a worker faced the steel hatch door as he climbed off the top of the ladder. This interfered with climbing on or off the ladder, since the worker could not hold onto the unstable door and was forced to twist around to climb off the side of the hatch. The victim successfully examined the air conditioning units, finding that the filters were clogged and the equipment was in need of maintenance. He then wrote up a work proposal and cost estimate, which was accepted by the tenant.

The weather the day of the incident was hot and sunny. A crew of three men was assigned to servicing the rooftop air conditioning units, an extensive job expected to take all day to complete. Work began at ____ in the morning, except the victim who first dropped by the office to talk to his supervisor before arriving at the site between 10:00 and 11:00 a.m. Equipment was lifted up to the roof by using ropes and buckets slung from the side of the building. Each member of the crew was assigned to a different task such as power-washing, changing filters, and charging the A/C units. Over the course of the morning, the victim made several trips to his truck to get equipment. Sometime before 2:00 p.m., he made a trip to his truck to get a nitrogen valve, a valve used to regulate compressed nitrogen gas used to flush out the freon in the A/C system. He left some other equipment on the landing at the bottom of the hatchway ladder, he was apparently climbing the ladder with the valve in his hand when he fell. He fell off the ladder, over the side rail, and onto the concrete floor at ground level. His co-workers reported hearing the heavy metal valve hit the floor and went to investigate. They found the victim on the floor, bleeding badly from his head. The workers called for help, and the police and EMS arrived and started CPR on the unresponsive victim. He was transported to the local hospital where he was pronounced dead at 3:12 p.m. After the incident, the employer provided professional crisis

counseling to the victim's co-workers.

There were no direct witnesses to the incident, so it is not known why the victim fell from the ladder. Possible explanations are that he lost his balance on the vertical ladder as he was carrying the valve in his hand. He may have also dropped the valve and lost his footing as he tried to catch it. It is also possible that he fell as he twisted himself around to climb off the mis-installed hatchway.

CAUSE OF DEATH

The county medical examiner determined the cause of death to be from "craniocerebral injuries."

RECOMMENDATIONS & DISCUSSIONS

Recommendation #1: Employers should stress to all employees the importance of exercising caution when working from ladders.

Discussion: The direct cause of this incident is not known. Possible causes are the victim's losing balance on the ladder while carrying up the nitrogen valve or the incorrect installation of the roof hatch. To prevent falls from ladders, the FACE Project recommends that employers should constantly stress to employees the importance of exercising caution when climbing or working from ladders. It should be noted that the OSHA standard 29 CFR 1926.1060 outlines the employee training requirements for ladders.

Recommendation #2: Employers should conduct a job hazard analysis of all work activities with the participation of the workers.

Discussion: It is recommended that employers conduct a daily job hazard analysis of the work activities and construction area with the employees. This can be done while planning the day's work, and should include an examination of the work area for fall hazards, loose debris, electrical, weather conditions, and other hazards the workers may encounter. After identifying the hazards, the crew should be instructed on how to correct or avoid them.

Recommendation #3: Employers should develop, implement, and enforce a comprehensive employee safety program.

Discussion: FACE recommends that employers should emphasize worker safety by developing,

implementing, and enforcing a comprehensive safety program to reduce or eliminate hazardous situations. The safety program should include, but not be limited to, the recognition and avoidance of fall hazards and include appropriate worker training. The following sources of information may be helpful in developing a safety program and obtaining information on safety standards:

U.S. Department of Labor, OSHA: On request, OSHA will provide information on safety standards and requirements for fall protection. OSHA has several offices in New Jersey which cover the following counties:

- Hunterdon, Middlesex, Somerset, Union, and Warren counties...(732) 750-4737
- 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.....(609) 757-5181

NJ Department of Labor, OSHA Consultative Services: This organization, located in the New Jersey Department of Labor, will provide free consultation on methods of improving health and safety in the workplace and complying with OSHA standards. The program may be contacted at (609) 292-3922.

New Jersey State Safety Council: The NJ Safety Council provides a variety of courses on work-related safety. There is a charge for the seminars. The address is 6 Commerce Drive, Cranford, New Jersey 07016, telephone (908) 272-7712

Although not related to this incident, the following recommendation is made to employers who work near skylights:

Recommendation #4: Employers should read and follow the recommendations in the attached publication, *NIOSH Alert: Preventing worker Deaths and Injuries from Falls Through Skylights and Roof Openings.*

Discussion: It was noted that the building roof had several skylights built into it that can present an additional hazard to roofers. After studying a number of fatalities involving falls through skylights, NIOSH published an alert with case studies and recommendations for preventing future incidents. This publication is attached to this report.

ATTACHMENTS

NIOSH ALERT: Perverting Worker Deaths and Injuries from Falls Through Skylights and Roof Openings. DHHS (NIOSH) Publication 90-100, National Institute for Occupational Safety and Health, Cincinnati OH, (513) 533-8287.