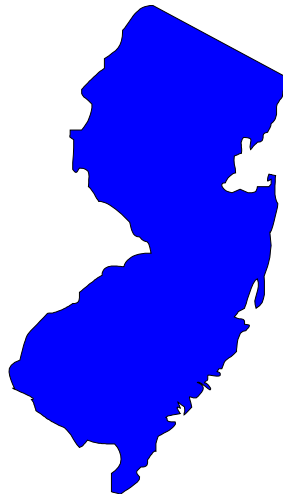


F.A.C.E. INVESTIGATION REPORT

Fatality Assessment and Control Evaluation Project

FACE #97-NJ-087-01
Roofer Dies After Falling 23 Feet
Through a School Skylight



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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 (NJDHSS)

SUBJECT: FACE Investigation #97-NJ-087-01
Roofer Dies After Falling 23 Feet Through a School Skylight

DATE: April 7, 1998

SUMMARY

On September 18, 1997, a 22-year-old roofer was fatally injured after falling 23 feet through a skylight opening. The victim was working to replace the old roofing from a high school gymnasium roof. He and a group of other roofers had completed ripping up a section of the roof and removed one of the skylights, which had been subsequently covered with a thin sheet of fiberboard. The victim and a co-worker were walking across the roof when the victim stepped on the skylight opening, breaking through the fiberboard and falling into the school's gymnasium 23 feet below. NJDHSS FACE investigators concluded that, to prevent similar incidents in the future, these safety guidelines should be followed:

- 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*.
- Employers should develop, implement, and enforce a comprehensive employee safety program.
- Employers and employees should be aware of the dangers of drugs and other substances that may impair judgement or alertness.
- Employers should become familiar with available resources on safety standards and safe work practices.

INTRODUCTION

On September 24, 1997, the county medical examiner's office notified FACE personnel of the death of a worker who fell through a skylight on September 18, 1997 and died the following day. FACE investigators contacted the company and conducted a site visit on September 29, during which investigators interviewed a company 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 small construction company that specialized in general building construction and commercial roofing. Beginning as a self-employed construction worker, the owner had operated the company for 30 years and employed 22 workers. The company did not have any written safety policies and procedures but did provide weekly employee toolbox talks on topics supplied by their insurance carrier. One person was assigned to be the company safety representative following the incident.

The victim was a 22-year-old male roofing “mechanic” who had worked for the company for more than two years, starting as an apprentice and working his way up to roofing mechanic and carpenter. He was returning to work after being in rehabilitation for leg injuries suffered in a motorcycle accident eight weeks before the incident. The employer described the victim as a good, conscientious worker who was going to school for computer-aided drafting/design and was engaged to be married.

INVESTIGATION

The incident site was the roof of a large high school built in the early 1960's. In July of 1997, the school board accepted a bid from the company to replace 19,000 square feet of roof and repair the other sections of roof that would not be replaced. Work started two weeks later after the company secured the proper permits and materials for the job. Replacing the roof required ripping up and replacing the old tar paper and underlying fiberglass insulation on large areas of the school roof. New sheets of insulation were to be placed, covered with tarpaper, and sealed with hot asphalt. The finished roof would be coated with a light colored paint. A company representative stated that they could replace about 3,000 square feet of roof a day and had estimated that the job would take about a week to complete.

A light fog covered the school as the workers arrived at 6:00 a.m. for their first day of work. The company foreman had arrived two hours earlier to start the asphalt kettle and look over the job before the remaining crew of 15 roofers came on site. Work began by replacing the roof over the school's gymnasium. The 100 foot long by 80 foot wide roof was constructed of concrete covering a base of 22 gauge steel decking plates. Four plastic domed skylights were built into the roof, each placed about 24 feet diagonally from the roof corners. The skylights measured 43 inches long by 34 inches wide and were built on an eight inch high raised curb. Access to the gym roof was through a vertical steel ladder on an adjoining lower level roof.

School was in session and the gym was closed to students due to potential safety hazards from the construction. Following the usual company protocol, the roof was to be done in sections over the next two days. The company owner was supervising the work as the crew started to rip one half the roof (lengthwise) and remove the plastic domes from the skylights. Demolition of the roof went quickly and was completed in two hours. The victim helped to remove one of the skylights, which was immediately covered with a thin sheet of fiberboard to keep dust from being drawn into the gym. The fiberboard was to be in place only a few minutes until the opening could be covered with stronger plywood. Shortly before 8:00 a.m., the victim and two other workers were talking and walking across the roof. They walked around one of the

skylights, which was being removed by another crew, and towards the skylight with the fiberboard cover. As he approached the skylight, the victim stepped eight inches up onto the fiberboard, which broke under his weight. His co-worker reportedly saw him fall straight through the skylight, landing on his feet on the gym floor and striking his head as he fell into a fetal position.

The workers immediately called for help and the victim was attended to by two other co-workers; a nurse and an EMT. The victim was unconscious when the EMS arrived, a med-evac helicopter was requested but cancelled due to fog. An ambulance transported him to the regional trauma center where he was placed on life support. Further treatment was unsuccessful and the victim was taken off life support the following day. He was pronounced dead at 9:19 a.m. on September 19, 1997.

CAUSE OF DEATH

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

RECOMMENDATIONS & DISCUSSIONS

Recommendation #1: 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: After studying a number of fatalities involving falls through skylights, NIOSH published an alert with case studies and recommendations for preventing future incidents. These recommendations closely relate to this incident and include:

- * Guarding skylights and other roof openings with railings or screens before starting work, or providing fall protection devices such as lifelines and lanyards.
- * Training employees to recognize the dangers of sitting or stepping on skylights.
- * Affixing decals on skylights warning against sitting or stepping on them.
- * Redesigning skylights to support the weight of a person who falls on it.

Recommendation #2: Employers should develop, implement, and enforce a comprehensive employee safety program.

Discussion:FACE recommends that employers develop, implement, and enforce a written 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. Following this incident, the employer assigned a worker to act as a site safety person.

Recommendation #3: Employers and employees should be aware of the dangers of drugs and other substances that may impair judgement or alertness.

Discussion: The medical examiner’s report noted a positive toxicology for drugs in the victim’s blood. Employers and employees must be made aware of the dangers that alcohol and drugs (including prescription, non-prescription, and illegal drugs) may present in the workplace. Training should include strong warnings about the use of drugs that may impair a worker's judgement, alertness, and physical abilities. The FACE project strongly recommends a “no tolerance” policy towards alcohol and illegal drugs. Employees found to have problems should be referred to the company’s employee assistance program or an outside consulting service.

Recommendation #4: Employers should become familiar with available resources on safety standards and safe work practices.

Discussion: It is extremely important that contractors obtain accurate information on working safely and following all OSHA standards. The following sources of information may be helpful:

U.S. Department of Labor, OSHA

On request, OSHA will provide information on safety and health standards. OSHA has several offices in New Jersey that cover the following areas:

- 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 Public Employees Occupational Safety and Health (PEOSH) Program

The PEOSH act covers all NJ state, county, and municipal employees. The act is administered by two departments; the NJ Department of Labor (NJDOL) which investigates safety hazards, and the NJ Department of Health and Senior Services (NJDHSS) which investigates health hazards. Their telephone numbers are:

- NJDOL, Office of Public Employees Safety(609) 633-3896
- NJDHSS, PEOSH Program..... (609) 984-1863

NJDOL Occupational Safety and Health On-Site Consultative Program

Located in the NJ Department of Labor, this program provides free advice to private businesses on improving safety and health in the workplace and complying with OSHA standards. For information regarding a safety consultation, call (609) 292-0404, for a health consultation call (609) 984-0785. Requests may also be faxed to (609) 292-4409.

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. Their address and telephone number is: NJ State Safety Council, 6 Commerce Drive, Cranford, NJ 07016. Telephone (908) 272-7712

Internet Resources

Information and publications on safety and health standards can be easily obtained over the internet. Some useful sites include:

www.osha.gov -The US Department of Labor OSHA website.

www.state.nj.us/health/eoh/peoshweb/peoshome.htm -The NJDHSS PEOSH website.

www.dol.gov/elaws -USDOL Employment Laws Assistance for Workers and Small Businesses.

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.

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NIOSH
Employer
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NJ State Medical Examiner
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NJDHSS Census of Fatal Occupational Injuries (CFOI) Project

General Distribution

USDOL-OSHA New Jersey Area Offices (4)
NJDOL Office of Public Employees Safety
NJDHSS Public Employees OSHA
NJDOL Occupational Safety and Health On-Site Consultative Program
NJ State Safety Council
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