NJ FACE

INVESTIGATION REPORT

Fatality Assessment & Control Evaluation Project

FACE 99-NJ-041-01 **January 24, 2000**

Iron Worker Dies in 42 Foot Fall After Stepping Through Roof Insulation

SUMMARY

On May 18, 1999, a 37-year-old iron worker was killed after falling through the roof of a building under construction. The incident occurred while the victim and his co-workers were laying fiberglass insulation panels and steel roof decking sheets at the site of a new refrigerated warehouse. At around noontime the crew had stopped for lunch and was trying to get off of the roof on a personnel lift that had just broken down. Fearing that the catering truck would leave, the victim went to the roof edge and yelled to the driver to wait. He stepped off the steel roof onto a fiberglass panel that broke under his weigh, causing him to fall 42 feet to the concrete floor below. NJDHSS FACE investigators concluded that, to prevent similar incidents in the future, these safety guidelines should be followed:

- **Employers must require fall protection when employees are constructing or working near leading edges.**
- **Employers should develop, implement, and enforce a comprehensive employee safety program.**
- **Employers should regularly inspect and maintain personnel lifts and other powered equipment.**

INTRODUCTION

On May 20, 1999, an OSHA compliance officer notified NJ FACE of a work-related fatal fall that occurred on May 18, 1999. FACE investigators joined the OSHA lead compliance officer on their investigation on May 24 and 25, 1999. During the visits investigators spoke with company representatives, observed the incident site, and photographed the scene. Additional information was obtained from the OSHA compliance officer and the police and medical examiners' reports.

The employer was a small construction company that specialized in constructing prefabricated buildings. The company had been in business since 1983 and employed 16 non-union workers at the time of the incident. New employees were trained by a company supervisor who monitored them for a few weeks until they showed proficiency with the job and equipment. Safety meetings were conducted weekly and a daily safety check was done by the site supervisor. The victim was a 37-year-old iron worker who had worked for the company for a month. He was a California resident who had come to work with the company on the recommendation of a friend.

INVESTIGATION

This incident occurred outdoors at the construction site of a new refrigerated warehouse. The 109,600 square foot building was made of prefabricated framing and panels assembled on site. Excavation of the site began in October 1998 and actual construction of the building started in January 1999. The victim's employer had been subcontracted to assemble the building's steel frame, walls, and truss-supported roof. Assembly of the exterior was expected to be completed in June 1999, when other contractors would complete the interior and electrical work. The completed building was to measure about 400 feet long by 300 feet wide by 42 feet high with a 2.5 acre flat roof.

At the time of the incident the construction company had finished erecting the steel framework and had moved on to building the roof. This was a flat roof made of fiberglass insulating panels and steel roofing sheets on steel truss supports. Construction required laying the stiff fiberglass panels on the roof trusses and then attaching sheets of steel roof decking over the insulation. The steel decking had been previously set on the roof with a crane, while the insulation and other materials were brought up on a personnel lift as needed. Workers placed the insulation sheets (each measuring 12' by 4' by 2.5 inches thick) lengthwise in a row. Each sheet was separated from the next by a thin plastic spline. Once a row of insulation was down, the crew placed a row of long narrow steel roof decking over top of it. These sheets measured 45' long by 2' wide and were attached to the trusses with metal clips and heavy screws. To aid in building the roof, the company used a long platform that moved along the roof trusses. This allowed the workers to

place insulation ahead of the leading edge while remaining securely tied off to the platform. By using this method the company could build eight to ten 190-foot long rows of roofing per day.

The weather was good the day of the incident. The project had been delayed due to poor and windy weather, which often forced the workers off the roof. However, this day was clear and a work crew of seven men was on the roof. They had started at 7:00 a.m. and were scheduled to work until 7:00 p.m. After being raised to the roof with a personnel lift used exclusively for transporting the workers, the victim and a co-worker went to work on building the leading edge; the remaining crew moved materials. The day went normally until around noontime when the food catering truck arrived on site. Breaking for lunch, the workers wanted to descend to the ground but found that they could not start the personnel lift. The victim, apparently afraid that the truck might leave before they could get off the roof, walked to the roof edge and yelled down to the driver. The driver saw him and gestured that he could not hear him. The victim then moved forward, stepping off the steel decking and onto the insulation. His supervisor saw this and shouted for him to stop. However, it was too late and the insulation broke under the victim's weight. He tried to grab a roof truss as he went through the insulation but missed and fell 41 feet 10 inches to the concrete floor. His co-workers went to help him and found that he had suffered serious head injuries. Someone called 911 with a mobile phone and the police and EMS arrived to find the victim unresponsive. He was pronounced dead at the scene.

RECOMMENDATIONS & DISCUSSIONS

Recommendation #1: Employers must require fall protection when employees are constructing or working near leading edges.

Discussion: The victim was not using fall protection when he was working near the edge of the roof. The OSHA standard 1926.501(b)(2) requires that the employer must provide fall protection where workers are constructing leading edges that are six feet or more above the next level. Possible systems include safety nets, harness and lifelines, or guardrails. If these systems are not feasible then the employer must develop an appropriate fall protection plan. More information on fall protection is provided in the attached OSHA publication, *Fall Protection in Construction*.

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

Discussion: FACE recommends that employers emphasize worker safety by developing, implementing, and enforcing a comprehensive safety program to eliminate or reduce 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

Federal OSHA will provide information on safety and health standards on request. Information for employers in Pennsylvania can be obtained at the following area office:
Philadelphia PA.....(215) 597-4955

OSHA also 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.....(856) 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 on how to get 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.cdc.gov/niosh/ - The CDC/NIOSH 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.

Recommendation #3: Employers should regularly inspect and maintain personnel lifts and other powered equipment.

Discussion: One factor in this incident was the breakdown of the personnel lift, which forced a delay in the workers leaving the roof. FACE recommends regularly inspecting and maintaining all powered equipment to ensure that it operates properly at all times. If the application is critical (such as where the workers might be stranded on the roof), a second lift should be available to cover the failure of the primary lift.

ATTACHMENTS

Fall Protection in Construction. OSHA Publication 3146, US Department of Labor, OSHA/ OICA Publications, P.O. Box 37535, Washington DC. 1998 revised edition.

DISTRIBUTION LIST

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NJDHSS Census of Fatal Occupational Injuries (CFOI) Project

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