ADMINISTRATIVE REPORT **DATE: January 12, 1999**
PUBLIC HEALTH SERVICE/CDC/NIOSH/DSR
FACE-98-17

TO: **Director, National Institute for Occupational Safety and Health**

FROM: **Division of Safety Research, NIOSH**

SUBJECT: **Laborer Dies After 41-Foot Fall From Roof Under Construction--North Carolina**

SUMMARY

A 22-year-old male laborer (the victim) died of injuries he received after falling 41 feet from an unprotected roof edge. The victim was working with a crew comprised of a crew leader, himself, and two co-workers. The crew normally performed floor, truss, and deck work, but on the day of the incident, the crew was asked by their supervisor to roof a building because the regular roofing crew had been sent to another job. Early in the morning, they began installing 4-feet by 8-feet sheets of plywood on roof trusses on the 8:12 pitched roof of an apartment building. Each member of the crew was working on a separate area on the roof. Late in the afternoon, someone yelled that a worker had fallen off the roof. The crew came down off the roof to assist the victim. While a worker from another crew called 911, co-workers cut and removed the victim's tool belt and shoes, and used a sheet of plywood to shield his body from the hot sun. A police officer arrived on the scene at 3:58 p.m., within 3 minutes of receiving the call. A fire fighter, who arrived shortly after the police officer, checked the victim for a pulse, but found none. EMS arrived at the scene 8 minutes later and pronounced the victim dead at 4:08 p.m. NIOSH investigators concluded that, to prevent similar occurrences, employers should:

- ***provide adequate fall protection to employees who are exposed to fall hazards***
- ***develop, implement, and enforce a comprehensive written safety program***
- ***provide training to workers in the recognition and avoidance of unsafe conditions and the required safe work practices that apply to their normal and any new work environments***

- ***ensure that workers who are part of a multilingual workforce comprehend instructions in safe work procedures for the tasks to which they are assigned.***

INTRODUCTION

On July 28, 1998, a 22-year-old male laborer (the victim) died of injuries he received after falling 41 feet from an unprotected roof edge. July 29, 1998, officials of the North Carolina Occupational Safety and Health Administration (NCOSHA) notified the Division of Safety Research (DSR) of this fatality, and requested technical assistance. On August 18, 1998, a safety specialist from DSR investigated the incident and reviewed the circumstances with the employer, the general contractor, and officials of NCOSHA. Witness statements taken from the crew by the police were reviewed. These statements had been obtained with the assistance of an interpreter, as the crew spoke fluent Spanish but little English. The medical examiner was interviewed by telephone. Photographs of the incident scene were obtained.

The employer in this incident was a framing and roofing contractor that had been in business for 25 years and had 10 employees. The employer did not have a written safety and health program onsite and neither the vice president nor the site superintendent were aware of a company safety and health program. During the course of NCOSHA's investigation, the company's home office located a "Guide for Employees" and sent a copy to investigators. This guide listed 19 safety-related guidelines for employees of the company, which included the guidelines "no one is allowed on a roof without OSHA approved safety equipment." The accompanying Safety Rules did not provide any information about how fall protection on roofs was to be addressed nor did it provide any information about safety equipment. The company did not offer safety training or hold safety meetings with employees. The general contractor on the site offered weekly safety meetings in English for subcontractors but no one from the company regularly attended these meetings. Workers learned skills on the job from other workers. The company's site superintendent was responsible for day-to-day operations and had worked for the employer for 2 weeks. The crew leader had worked for the company for 15 years. It was the victim's second day on the job. This was the first fatality experienced by the employer.

INVESTIGATION

The employer had been subcontracted to install decks, trusses, floors and roofs on 22 three-story apartment buildings on a 30-acre site. The week before the incident, the general contractor had been

told that roofing materials would not be delivered as scheduled, therefore the roofing crew had been sent to another location in a nearby state. In the meantime roofing materials were delivered to the site. When the truss, floor and deck crew, which included the victim, crew leader, and two co-workers arrived on the site, the employer's site superintendent told the crew leader that there was no available work other than installing a roof on building number 13. The crew, none of whom had ever done roofing work before, went on the roof to install plywood sheeting. They were not provided with fall-protection systems, with personal fall-arrest systems, or given training in the recognition and avoidance of fall hazards prior to beginning the roof work.

At approximately 7:00 a.m., the crew started work on the roof. They began cutting sheets of plywood at a designated site on the roof. Then each member of the 4-man crew worked alone carrying, laying, and nailing the sheets of plywood on separate areas of the roof (see Figure 1). Late in the afternoon, the crew leader came down off the roof to retrieve supplies. The victim and two co-workers continued work on the roof without incident until approximately 3:54 p.m., when an unidentified worker, who was not working on the roof, yelled that a worker had fallen off the roof. The crew came down off the roof to investigate and were joined by the crew leader who had returned from getting supplies. They found the victim laying face down, with a pool of blood on the ground around his body. A plywood board and the victim's hammer were found nearby. While a worker called 911, co-workers cut and removed the victim's tool belt, removed his shoes, and used a sheet of plywood to shield his body from the hot sun. According to the police report, a police officer arrived on the scene at 3:58 p.m., within 3 minutes of receiving the call. After observing the condition of the victim, he waited for Emergency Medical Services (EMS) to tend to the victim, or pronounce him dead. Given the pool of blood and the victim's motionless body, his impression was that the victim was already dead. A fire fighter, who arrived shortly after the police officer, checked the victim for a pulse and found none. EMS arrived at the scene 8 minutes later and pronounced the victim dead at 4:08 p.m.

CAUSE OF DEATH

The coroner listed the cause of death as blunt trauma injury to the head and chest.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should provide adequate fall protection to employees who are exposed to fall hazards.

Discussion: According to 29 CFR 1926.501 (b)(1), each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet (1.8m) or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems. In this incident, personal fall arrest systems or fall protection systems were required; however, none were provided or available at the site.

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

Discussion: According to 29 CFR 1926 (20)(b)(1),(2), employers are responsible for developing safety programs for the construction site that are designed to prevent worker injury. These safety programs are to provide for frequent and regular inspections of the jobsites, materials, and equipment. They are to be done by a competent[1] person designated by the employer.

The evaluation of tasks to be performed at the worksite forms the basis for development, implementation, and enforcement of a safety program. Key elements of such a program should include, at a minimum, frequent and regular inspections by a competent person and should include provisions for training employees in hazard identification, avoidance, and abatement.

When companies develop, implement and enforce a comprehensive safety program, they demonstrate to workers their commitment to worker safety and help workers recognize unsafe situations.

Recommendation #3: Employers should provide training to workers in the recognition and avoidance of unsafe conditions and the required safe work practices that apply to their normal and to any new work environments.

Discussion: According to 29 CFR 1926 (21)(b)(2), employers are required to instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to the work environment to control or eliminate any hazards or other exposure to injury or illness. Whenever employees are asked to perform new tasks, employers should provide them with the training they need to

[1]Competent person means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

perform the job safely. In this incident, the victim and his crew members were assigned to new tasks, roofing work, without the benefit of training in how to recognize and avoid fall hazards. Employers should refer to OSHA regulation CFR 1926.503 (a) for specific training requirements. If training cannot be provided prior to the start of work, the work should be delayed until the training can be provided or until a trained crew is available.

Recommendation #4: Employers should ensure that workers who are part of a multilingual workforce comprehend instructions in safe work procedures for the tasks to which they are assigned.

Discussion: Companies that employ workers who do not understand English should identify the languages spoken by their employees, and design, implement, and enforce a multi-language safety program. The program, in addition to being multi-language, should include a competent interpreter to explain worker rights to protection in the workplace, safe work practices workers are expected to adhere to, specific safety protection for all tasks assigned, ways to identify and avoid hazards, and who they should contact when safety and health issues arise. Also, the employer should develop, and post in conspicuous places, safety posters/signs in that/those languages.

REFERENCES

29 CFR 1926.501 (b)(1), Code of Federal Regulations, Washington D.C.: U.S. Government Printing Office, Office of the Federal Register, July 1, 1997

29 CFR 1926.20 (b)(1)(2) Code of Federal Regulations, Washington D.C.: U.S. Government Printing Office, Office of the Federal Register, July 1, 1997

29 CFR 1926.21 (b)(2) Code of Federal Regulations, Washington D.C.: U.S. Government Printing Office, Office of the Federal Register, July 1, 1997

29 CFR 1926.503 (a) training program, Code of Federal Regulations, Washington D.C.: U.S. Government Printing Office, Office of the Federal Register, July 1, 1997

FIGURE 1. Leading Edge Work on Building Number 13
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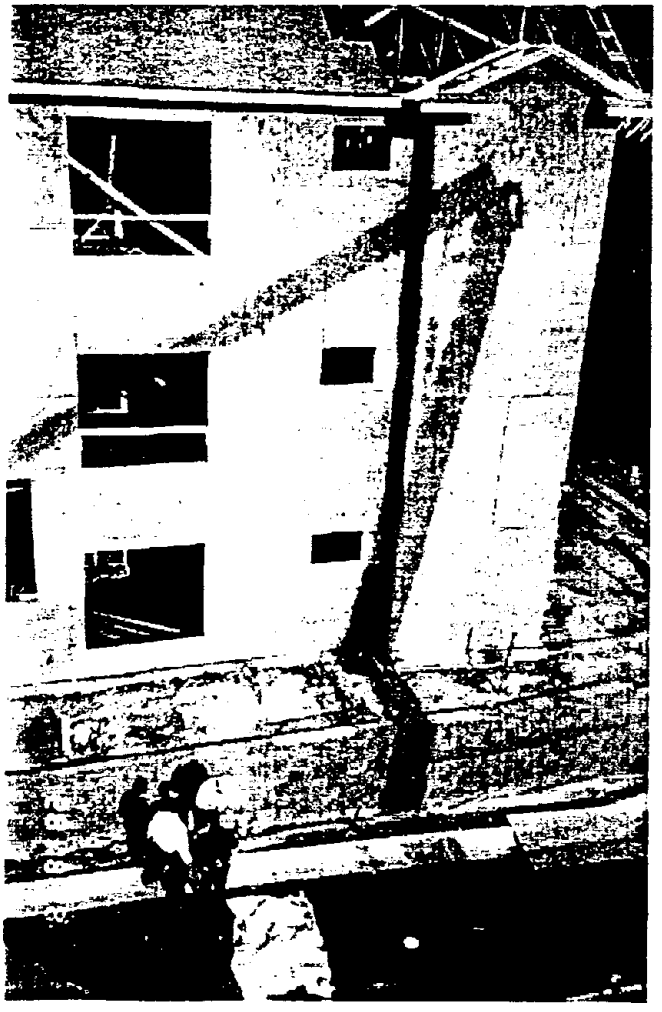
At the time of the incident, employees were not protected from falling from the roof by a personal fall arrest system or by fall protection (safety nets/guardrail systems).



Doloris N. Higgins
Safety & Occupational Health
Specialist
Trauma Investigations Section
Surveillance and Field
Investigations Branch
Division of Safety Research

Virgil J. Casini
Project Officer
Trauma Investigations Section
Surveillance and Field
Investigations Branch
Division of Safety Research

Ted A. Pettit, M.S., R.E.H.S.
Chief
Trauma Investigations Section
Surveillance and Field
Investigations Branch
Division of Safety Research

Dawn N. Castillo, M.P.H.
Chief
Surveillance and Field
Investigations Branch
Division of Safety Research

Fatality Assessment and Control Evaluation (FACE) Project

The National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR), performs Fatality Assessment and Control Evaluation (FACE) investigations when a participating State reports an occupational fatality and requests technical assistance. The goal of these evaluations is to prevent fatal work injuries in the future by studying the working environment, the worker, the task the worker was performing, the tools the worker was using, the energy exchange resulting in fatal injury, and the role of management in controlling how these factors interact.

States participating in this study: North Carolina, Pennsylvania, South Carolina, Tennessee, and Virginia.

Division of Safety Research
National Institute for Occupational
Safety and Health (NIOSH)
1095 Willowdale Road
Morgantown, West Virginia 26505-2888
Phone: (304) 285-5916
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