



The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces  
through safety and health research



# Carpenter's Helper Dies in 24-Foot Fall from Building Under Construction

FACE 8914

## Introduction

The National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR), performs Fatal Accident Circumstances and Epidemiology (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.

On January 6, 1989, a 26-year-old carpenter's helper died as the result of head and neck injuries sustained in a 24-foot fall from the second floor of a building under construction.

## Contacts/Activities

State Officials notified DSR of this fatality and requested technical assistance. On January 26, 1989, a research safety specialist met and discussed the incident with one of the two company owners and the Occupational Safety and Health Administration (OSHA) compliance officer assigned to the case. Photographs of the incident site were taken.

## Overview of Employer's Safety Program

The victim had been employed for 3 days as a carpenter's helper by a small construction company that has been in operation for 6 years. The company employs 12 workers, including 6 carpenter's helpers. The employer has neither a written safety policy nor a safety program, and does not provide safety training to employees.

## Synopsis of Events

The construction company was hired to renovate and erect an addition to an existing building. The 30-foot-wide by 50-foot-long by 40-foot-high addition was to be used for a clothing store and business offices.

On the day of the incident the victim was working on the addition as a member of a six-person crew. The victim and a carpenter/foreman were on the second floor installing 2-inch by 6-inch gable studs of various lengths. The victim was using a pneumatic round head nailer to secure the bottom of the gable studs to the frame with 3-inch nails. The

carpenter/foreman, working off an extension ladder, was securing the tops of the studs to the frame using a conventional claw hammer. Neither the victim nor the foreman was using fall protection and none was required by the company.

At the time of the incident the victim was kneeling on the floor, nailing the outside bottom of a stud to the frame. After the stud had been nailed the victim began to reposition the pneumatic nailer to the side of the stud when he unintentionally hit his left leg above the knee with the nose (i.e., the cylinder that discharges nails) of the nailer. The nailer discharged a 3-inch nail into the victim's leg. The victim called to the foreman and told him what had happened. The foreman descended the ladder, went to the victim, and tried to remove the nail from the victim's leg using the claw hammer. The foreman could not extract the nail with the hammer, so he decided to go to the floor below and borrow a pair of pliers from an electrician. When the foreman returned to the area of the incident he noticed the victim still kneeling but slumping over toward the open end of the building. Before the foreman could reach him, the victim fell head first out of the opening onto an 8-foot-high stack of lumber that had been piled next to the addition, and then fell the remaining distance to a sand-covered asphalt road. (See [Figure](#)).

Emergency medical service (EMS) personnel were called and arrived at the scene in approximately 3 minutes (according to the employer). Advanced life support was provided at the scene and while the victim was being transported to a nearby hospital. Cardiopulmonary arrest occurred enroute to the hospital, and the victim was pronounced dead on arrival.

## Cause of Death

The Medical Examiner listed multiple traumatic injuries as the cause of death.

## Recommendations/Discussion

**Recommendation #1: When the potential for a serious or fatal fall exists, the employer should provide fall protection equipment and ensure that it is used by all employees working at elevations.**

Discussion: The victim was working 24 feet above ground level in an area where the potential for a fall existed. According to 29 CFR 1926.28 (a), "the employer is responsible for requiring the wearing of appropriate personal protective equipment (PPE) in all operations where there is an exposure to hazardous conditions." If the employer had provided and required the use of fall protection (i.e., safety belt, lanyard, and lifeline) this incident may have been prevented.

**Recommendation #2: The employer should design, develop, and implement a comprehensive safety program.**

Discussion: A comprehensive safety program should address all aspects of safety, especially those related to specific tasks. These rules and procedures should include, but not be limited to, the recognition and elimination of fall hazards. The employer should comply with 1926-21(b)(2), by instructing each employee to recognize and avoid hazardous conditions and follow the regulations applying to the specific environment to control or eliminate any hazards.

**Recommendation #3: Worker safety should be considered and addressed in the planning phase of construction projects.**

Discussion: Safety concerns should be discussed and incorporated into all construction projects during planning and throughout the entire project. In this instance, there was no planning of safety procedures because employees were allowed to work in an area where the potential for a fall existed without any adequate fall protection.

**Recommendation #4: The employer should design, develop, and implement procedures to be followed in the event of a medical emergency.**

Discussion: Preceding the fall, the victim had embedded a 3-inch nail into his left leg above the knee. The foreman, after trying unsuccessfully to extract the nail from the victim's leg, left the victim alone in the area where the potential for a fall existed. When the foreman returned he witnessed the victim slump over and fall out of the opening to his death. 29 CFR 1926.50(b) and (c) state that, "Provisions shall be made prior to commencement of the project for prompt medical attention

in case of serious injury. Also, in the absence of an infirmary, clinic, hospital, or physician that is reasonably accessible in terms of time and distance to the worksite, which is available for the treatment of injured employees, a person who has a valid certification in first-aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid." The employer should develop and implement medical emergency procedures to be followed by all employees prior to beginning any project. These procedures should include, but not be limited to, providing for the victim's immediate safety following an incident (in this case moving the victim to a safe area, providing first-aid, and summoning trained paramedics).

**Recommendation #5: The pneumatic round head nailer should be evaluated to determine whether the human factors engineering design is adequate.**

Discussion: Although the pneumatic nailer was not directly responsible for the victim's death, it may have been a contributing factor. The pneumatic nailer weighs 9 pounds, 7 ounces, and has only a pistol-grip handle for the operator to hold. Also, the nailer is equipped with an automatic fastener feed, approximately 2 feet long, which makes it even more cumbersome to handle and work with, especially over a long period of time. (At the time of the incident, the nailer was being operated with 120 pounds per square inch of pressure.) Human factors engineers should evaluate this type of round head nailer to determine whether modifications can be made to improve its design. Even if this worker had not fallen, he still would have received a potentially serious injury from the nailer.

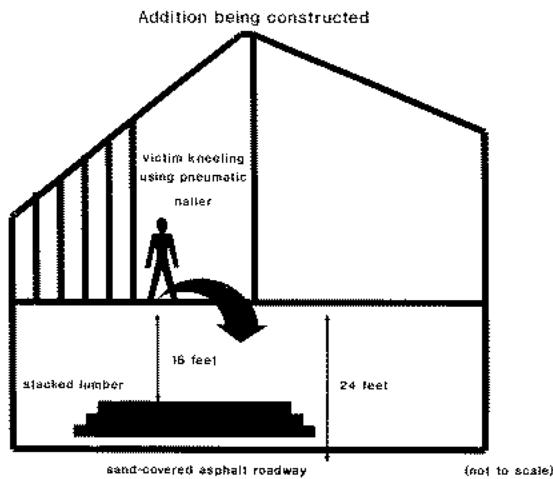


Figure.

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