The National Institute for Occupational Safety and Health (NIOSH)

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Roofer Dies in 16-Foot Fall From Residential Roof–Alaska

FACE 9208

SUMMARY

A 32-year-old male journeyman roofer (the victim) sustained severe head injuries and died as a result of a 16-foot fall from the roof of a two-story single family dwelling. The victim was correcting a cosmetic error in the alignment of the shingle tabs of roofing shingles installed 2 weeks earlier. He fell (unobserved) from the second-story roof of the residence onto a concrete patio. The roof pitch was 4:12 (4 feet vertical rise to 12 feet horizontal width). The victim had a documented history of grand mal epileptic seizures, and had received a prescription for a maintenance dose of Dilantin. Although he presented a medical clearance to his employer allowing him to work (flat roofs only), it remains unclear whether his pre-existing medical condition predisposed him to this incident or affected its outcome. NIOSH and Alaska Department of Health and Social Services (DHSS) investigators concluded that, in order to prevent future similar occurrences, employers should:

- **ensure that workers with medical conditions or physical limitations are not placed in work situations disallowed by medical certifications**
- **comply with existing State regulations regarding fall protection for workers exposed to fall hazards**
- **develop and implement formal safety programs designed to help workers recognize, understand, and control fall hazards and other work hazards.**

INTRODUCTION

On September 13, 1991, a 32-year-old journeyman roofer (the victim) died from severe head injuries sustained after falling 16 feet 3 inches from the pitched roof of a private residence on September 10, 1991. The National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR), Alaska Activity began monitoring this incident after it was initially reported in local newspapers on September 11, 1991. An investigation conducted by a safety specialist from the DSR Alaska Activity and an injury prevention specialist candidate from the State of Alaska, Division of Public Health, Epidemiology Section began on November 6, 1991. The incident was reviewed with the State of Alaska, Department of Occupational Safety and Health (AKOSH) compliance officer assigned to this case. An interview with the owner of the roofing company was delayed until November 20, 1991, because key company officials were working on a construction project in another state. The incident site was visited, and photographs and reports were subsequently obtained from the police and coroner.

The employer in this incident was a roofing contractor, specializing in residential and commercial roofing, that had been in operation for 30 years, with 16 years under the current management; there were five employees (roofers). The company had a written safety policy including basic rules and procedures with some application to the type of incident that occurred. The employer indicated that on-site safety meetings (tailgate meetings) were always conducted prior to the start of a new job.

The victim had a documented history of grand mal epileptic seizures, and had received a prescription for a maintenance dose of Dilantin. Although he presented a medical clearance to his employer allowing him to work (flat roofs only), it remains unclear whether his pre-existing medical condition predisposed him to this incident or affected its outcome.

INVESTIGATION

The company had been contracted to re-roof a private residence that was currently occupied. The main roofing work had been completed approximately 2 weeks prior to the incident. However, the homeowner complained about a section of the roofing which was misaligned.

The victim returned to the jobsite on September 10, 1991, to correct the cosmetic error in the alignment of shingle tabs observed by the homeowner.

The victim was working alone on the roof, which had a pitch of 4:12 (4 feet of vertical rise to 12 feet of horizontal width). He had realigned all but two shingles, when he fell from the edge of the roof to a concrete patio deck 16 feet, 3 inches below (Figures 1 and 2). The victim was not using any type of fall protection devices or systems.

Although no one saw the victim fall, the estimated time of occurrence was 6:42 p.m. The homeowner reported hearing an unusual sound and looked out a window. She saw the victim lying on the patio; he was unresponsive and bleeding from the back of the head. She called 911 and an emergency medical service (EMS) team arrived at the scene approximately 3 to 4 minutes later. They found the victim traumatized, unresponsive, and in cardiac arrest. The EMS team administered CPR, stabilized the victim, and transported him to a local hospital. He remained in a comatose condition and died 3 days later on September 13, 1991.

CAUSE OF DEATH

The medical examiner listed the cause of death as severe head injury.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should ensure that workers with medical conditions or physical limitations are not placed in work situations disallowed by medical certifications.

Discussion: The victim had a medical history of grand mal seizures and had been prescribed a daily dose of Dilantin (Phenytoin Sodium, 100 mg daily). He had received medical clearance for roofing work on flat roofs only. Employers should carefully follow any limitations on work imposed by medical certifications. In this case the employer believed the victim had a general medical clearance, yet limitations were clearly explained in the certification letter.

Recommendation #2: Employers should comply with existing State regulations regarding fall protection for workers exposed to fall hazards.

Discussion: The victim was working on a pitched roof with a ground-to-eave height of 16 feet, 3 inches. The Alaska Department of Labor, Occupational Safety and Health Standard for Construction, CC 05.240(d)(1) states that “during the performance of built-up roofing work on low-pitched roofs with a ground to eave height greater than 16 feet (4.9 meters), employees engaged in such work shall be protected from falling from all unprotected sides and edges of the roof.” The Standard requires the use of at least one of three types of fall protection for roofing work: 1) a motion-stopping safety

system (MSS System, which includes safety harness/lanyard systems, guardrails, catch platforms, safety nets, etc.); 2) a safety-monitoring system (a safety system in which a competent person monitors the safety of all employees in a roofing crew, and warns them when it appears that they are unaware of the hazard or are acting in an unsafe manner); or 3) a warning line system (a line of specified strength, height, and location, designed to warn workers when they are near a roof's edge) erected and maintained as specified in the Standard [paragraph (d)(3)]. The unprotected sides and edges of the roof were not fall-protected, and the victim was not wearing fall protection equipment (safety harness/lanyard system).

Recommendation #3: Employers should develop and implement formal safety programs designed to help workers recognize, understand, and control fall hazards and other work hazards.

Discussion: Although the employer indicated that training programs were in place, these were largely informal procedures, such as "tailgate meetings" at the start of new jobs. Written procedural protocols were available, but safety training was not regularly scheduled. Structured training sessions could provide a framework for systematic safety training for specific work procedures, and would also reduce the possibility that training becomes too informal with minimal discussion of actual safety techniques.

REFERENCES

Alaska Department of Labor, Division of Labor Standards and Safety, Occupational Safety and Health Standards for Construction, Section 05.240, Volume II, August 1990.

29 CFR 1926.500(g)(1), 1926.28(a), and 1926.105. Code of Federal Regulations, Washington, D.C.: U.S. Government Printing Office, Office of the Federal Register, July 1990.

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