The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research NIOSH

Carpenter Dies in 14-Foot Fall from Roof

FACE 8843

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 August 17, 1988, a 38-year-old male carpenter died as the result of head injuries sustained in a 14-foot fall from a garage roof.

CONTACTS/ACTIVITIES

State officials notified DSR of the fatality and requested technical assistance. On September 8, 1988, a research safety specialist met with the company owner, photographed the incident site and discussed the incident with the Occupational Safety and Health Administration (OSHA) compliance officer and county coroner.

OVERVIEW OF EMPLOYER'S SAFETY PROGRAM

The victim was one of five carpenters employed by a general contractor who had been in operation for 11 months. The employer had no written safety policy or safety program and did not provide safety training to employees.

SYNOPSIS OF EVENTS

The company had been sub-contracted to frame and finish the exterior of single dwellings in a new housing development. The victim, four co-workers and the owner had been working for 2 weeks on the dwelling involved in the incident. On the day of the incident, the victim and a co-worker were applying the 4-foot-wide by 8-foot-long pieces of sheeting to the roof of the garage portion of the dwelling. The roof had a 10: 12 slope (i.e., it rose 10 inches for each foot in length). Short pieces of 2-inch-thick boards (i.e., toe boards) were nailed to the top surface of the sheeting to provide footholds for the workers. The front of the structure was open with no exterior siding in place. The cement floor of the garage had been finished.

When the victim and his co-worker finished applying the sheeting, the victim prepared to cut a 6-inch overhang off the front of the garage roof. The victim lowered a rope to the ground where a second co-worker attached a 7 1/4-inch circular saw. The victim pulled the saw up to the roof, then called to the second co-worker to throw him an extension cord. The victim caught the extension cord, but as he began to unwind and lower it back to the ground to be plugged in, he lost his balance. The victim fell off the roof but was able to grasp the toe board at the edge of the roof. The first co-worker tried to pull the victim back onto the roof but was unable to do so (because their hands and arms were slippery from perspiration).

The victim fell feet first through the open front of the dwelling, but as he fell, his feet struck a rafter. This caused his body to turn 180 degrees and he hit the concrete garage floor head first.

The emergency medical service, summoned by co-workers, arrived within 10 minutes and transported the victim to the local hospital. The victim was later transferred to a second hospital where surgery was performed. At 11: 30 a.m., August 18, 1988, the victim was pronounced brain dead by the attending physician. He died 4 hours later.

CAUSE OF DEATH

The medical examiner listed multiple cerebral contusions as the cause of death.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should strive to provide their workers with the safest possible work environment.

Discussion: Employers involved in roofing operations should provide employees with fall protection devices and ensure the use of these devices. This would provide the safest possible work environment for employees. The use of fall protection devices in this incident would have greatly reduced the possibility of a fatal fall.

Current OSHA regulations pertaining to fall protection during roofing operations do not address falls of under 16 feet. However, the United States Department of the Interior, Bureau of Reclamation's Construction Safety Standards contain Articles that do address these falls. These standards are developed with the cooperation of The Associated General Contractors of America, Inc. , and others. Although not usually required, these should be followed to ensure employee safety.

Article 13.221.1 of these standards requires that employees engaged in roofing activities where the roof edge to ground distance is greater than 6 feet shall be protected by one or a combination of the following types of fall protection:

a. Lifelines, safety belts, and landyards

b. Standard guardrails

c. Safety nets

d. Catch platform.

This requirement applies to all employees working within 10 feet of the roof perimeter or on a roof with a slope of 1:3 (a rise of 1 inch for every 3 inches in length). Although the roof involved in the incident had a slope that was more than twice the slope limit in the above-mentioned regulation, no type of fall protection was utilized.

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Last Reviewed: November 18, 2015