The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research

Sheet Metal Mechanic Dies Following a 22-Foot Fall Through a Roof Opening

FACE 8925

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 December 20, 1988, a 26-year-old male sheet metal mechanic died as a result of injuries that occurred when he was knocked through a roof opening and fell 22 feet to a concrete floor below.

Contacts/Activities

State officials notified DSR of this fatality and requested technical assistance. On February 16, 1989, a DSR safety specialist met with an owner of the company involved in the incident, discussed the incident with the OSHA compliance officer, and visited and photographed the incident site.

Overview of Employer's Safety Program

The employer is a plumbing and heating contractor which has been in business for 22 years. The company employs 15 individuals, including 6 sheet metal mechanics. The employer has no written safety policy or safety program and does not provide safety equipment or safety training to the employees.

Synopsis of Events

The company had been contracted to fabricate and install a sheet metal cap over an opening on the flat roof of a large fiberglass manufacturing plant. The 50-inch-square opening was created when an air conditioning duct was removed. The 54-inch-square cap was fabricated from galvanized steel with angle-iron reinforcement. This cap weighed approximately 75 pounds.

On the day of the incident the victim and a co-worker were preparing to install the cap. The victim and the co-worker leaned the cap against a 30-inch-high by 48-inch-wide metal frame that had been previously used to support the air conditioning unit. The frame, located approximately 34 inches from the roof opening, is constructed of 3-inch angle iron. The victim positioned himself between the leaning cap and the roof opening, while the co-worker positioned himself on the other side of the opening. Neither worker was wearing any type of fall protection equipment. The co-worker was kneeling and the victim was stooped over applying caulking to the 6-inch raised curb bordering the opening. A gust of wind blew the cap over. The cap struck the victim, causing him to fall headfirst through the roof opening, to a concrete floor 22 feet below (see Figure).

Workers inside the plant saw the victim fall and immediately summoned help from personnel within the plant. A plant nurse arrived within 3 minutes and initiated cardiopulmonary resuscitation. When the local emergency medical service was called, a local doctor heated the emergency call over the radio and responded. He pronounced the victim dead at the scene.

Cause of Death

The medical examiner's report stated that death resulted from multiple traumatic injuries.

Recommendations/Discussion

Recommendation #1: Whenever any work is performed at an elevation where the potential for a serious or fatal fall exists, the employer should ensure that fall protection equipment is provided and used by all employees.

Discussion: The victim was working 22 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 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, including job hazard analyses. A job hazard analysis should be performed by all employers, prior to the commencement of work, to identify and control all hazards likely to be encountered by all employees. Environmental conditions may also create or contribute to hazardous working conditions, and appropriate precautions should be addressed in the initial job hazard analysis. The employer should have performed a job hazard analysis at the worksite prior to the commencement of work. Such an analysis might have enabled the employed to identify the hazards (i.e., potential for fall, placement of fabricated cap, and gusting wind conditions) and take precautionary measures to protect the employees from injury. If a job hazard analysis had been performed this incident may have been prevented.

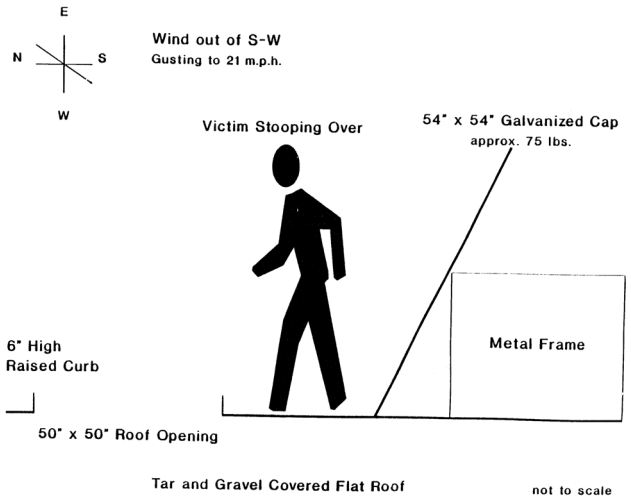

Figure.

Return to In-house FACE reports

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