



The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces
through safety and health research



Construction Worker Dies in 36-foot Fall at Construction site.

FACE 8920

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 18, 1989, a 37-year-old male construction worker died when he fell 36 feet after a gust of wind caught a piece of metal decking material he was moving and blew him from the roof of a structure.

CONTACTS/ACTIVITIES

State officials notified DSR of this fatality and requested technical assistance. On February 21, 1989, a research safety specialist met with the employer and local emergency services personnel, and photographed the incident site.

OVERVIEW OF EMPLOYER'S SAFETY PROGRAM

The victim was employed by a steel erection firm which has been in operation for 22 years. The company has approximately 200 employees. The victim was one of approximately 40 workers—known as “sheeters”—who install metal sheeting for siding and roofing. The victim had 18 years’ previous experience in sheet metal work, but had been employed by this company for only 2 weeks at the time of the incident. Although the company has written safety rules and procedures, it has no designated safety officer. The responsibility for safety is delegated to the foreman at each individual jobsite. Weekly tailgate meetings are held to discuss safety and conditions at each individual jobsite. No formal safety training program exists. The company had experienced a fatal fall at the same site 3 months prior to this incident.

SYNOPSIS OF EVENTS

At the time of the incident the victim was working as a part of a crew on the construction of a new steel mill. One portion of this mill consists of a 440-foot-long by 96-foot-wide tunnel which connects two of the main buildings at the mill. The height from the ground to the eave of the tunnel is 36 feet. The roof of the tunnel has a 1:12 pitch (one foot of rise for every

12 feet of width). A 2-foot-wide opening at the ridge of the tunnel roof runs the entire 440-foot length of the tunnel. Upon completion of the mill, a roof vent was to be installed in this opening.

On the day of the incident, the victim had been at work for approximately 1 hour when he and a co-worker were instructed to go to the roof of the tunnel and place a temporary cover over the 2-foot-wide opening at the ridge. They were to use 3-foot-wide by 36-foot-long sections of 24-gauge decking to cover the tunnel. Each of these sections weighed approximately 120 pounds.

To reach the roofed area of the tunnel, the victim and his co-worker crawled across an unroofed area of the tunnel on steel "I" beams. Although the beams were more than 36 feet above a concrete floor, neither employee used fall protection equipment.

When they reached the roofed section of the tunnel, the two men proceeded to the first section of decking material they were going to use to cover the ridge vent opening. This section of decking was lying diagonally on the roof of the tunnel. At the time of the incident, the roof surface was dry; however, the wind had been gusting intermittently.

As the co-worker lifted the high (ridge) side of the decking section to move it into position, the victim lifted the low side. The victim was 12 to 14 feet away from the edge of the roof. As the men lifted the decking material, a gust of wind caught it and lifted it upwards. The co-worker immediately released his hold on the section of decking, and the wind carried the decking, with the victim still holding on, over the edge of the roof. The victim was observed holding onto the decking even after he had cleared the roof.

The victim fell 36 feet, landing headfirst on a pile of metal scrap material. The local emergency medical service (EMS) was immediately summoned by telephone and arrived on the scene approximately 10 minutes later. Cardiopulmonary resuscitation was begun by EMS personnel and continued while the victim was transported to the local hospital. The victim was pronounced dead at the hospital approximately 1 hour after the incident.

CAUSE OF DEATH

The medical examiner gave the cause of death as cerebral hemorrhage due to massive head 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 more than 36 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: Management must actively support employee safety and ensure that workers understand hazards related to their job.

Discussion: This same company had experienced a fatal fall of a worker at this site just 3 months prior to this incident. In that incident, as in this one, no personal protective equipment was being used. Management's responsibility in regard to the use of personal protective equipment is clearly stated in 29 CFR 1926.28(a). The continued failure to enforce the use of fall protection indicates a lack of management concern for employee safety. Unless management stresses the need for work safety in both written policy and on the jobsite, deaths such as this will continue to occur.

Recommendation#3: Hazards posed by the weather should be addressed in all construction operations.

Discussion: Written company policy called for work to cease if the wind velocity exceeded 15 miles per hour; however, this was usually at the discretion of the site foreman. No consideration was given to the effect of sudden gusts of wind upon a large sheet of material such as was involved in this incident. If wind conditions had been considered and this work postponed until gusting had subsided, this incident might have been prevented.

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