The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research

Female Cement Finisher Dies in 165-Foot Fall at Construction Site

FACE 8842

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 25, 1988, a 29-year-old female cement finisher died when she fell 165 feet from a high-rise office complex under construction.

CONTACTS/ACTIVITIES

State officials notified DSR of this fatality and requested technical assistance. On September 7, 1988, a research safety specialist met with company officials and photographed the incident site.

OVERVIEW OF EMPLOYER'S SAFETY PROGRAM

The employer is a multi-state, multi-divisional corporation that employs 14,000 workers in its construction division. The employer has a written safety policy and a comprehensive written safety program that provides new employee orientation and periodic training for all employees. Daily tailgate meetings are held by crews at the worksite. The victim had been employed for only 4 days; however, she had previous experience in high-rise construction.

SYNOPSIS OF EVENTS

Construction work on the office complex, begun in December 1987, had progressed to the l7th level by August 1988. An electric hoist was used to reach every floor of the complex. A 6-foot-high by 6-foot-wide chain link gate was present across the entrance of the hoist at every floor. The U-shaped latch on each gate was padlocked to prevent unintentional opening and the hoist operator had the only key. the 6-foot-high chain link fence extended 10 feet from the gate in both directions on each floor. Two lengths of 1/2-inch wire rope, at heights of 24 inches and 42 inches from floor level, provided fall protection for the remaining perimeter of each floor.

On the day of the incident the victim and a co-worker were taken by hoist to the 12th floor with orders to patch any holes or rub out any rough spots on the 12th and 13th floors. By lunch time the victim and her co-worker had started work on the 13th floor. The victim and co-worker decided to return to the ground floor to eat lunch and pushed the call button for the hoist. The hoist operator stated during interviews that he had not previously stopped the hoist on floor 13 that day.

The victim then placed her hands in her pants pockets and leaned back against the gate. The gate opened and the victim fell backward 165 feet to the ground. What caused the gate to open could not be determined. It is possible that the clamp attaching the U-shaped latch to the body of the gate may have been loose. This would have allowed the latch to turn and the gate to open. This could not be determined due to the extensive damage done to the gate. (The hoist, which was above the 13th floor when the victim pushed the call button, had severely damaged the gate as it descended.) However, all witnesses stated that the padlock was locked in place on the U-shaped latch.

The emergency medical service was summoned and arrived within 10 minutes. The paramedics determined that the victim was dead and summoned the county coroner, who pronounced the victim dead at the scene.

CAUSE OF DEATH

The coroner ruled multiple trauma as the cause of death.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should stress the necessity of safe work habits to all employees.

Discussion: During new employee orientation, tailgate safety meetings, and periodic safety training, employers should stress the need to follow safe working habits. Although the victim had been employed for only 4 days, she did have prior high-rise construction experience. To lean against an outer perimeter barrier is a poor safety practice and, in this instance, resulted in her death.

Recommendation #2: The employer should routinely inspect all protective devices to ensure they operate properly. Although the gate was padlocked, it was a mechanical device and a malfunction was possible.

Discussion: Since the incident, the employer has performed random stress tests on the padlocked gates. None of the tested gates opened when pulled to the outside with 250 pounds of pressure. The employer has also welded the latch clamps to the body of all the gates and the gate hinges to their vertical poles to prevent any movement.

Periodically, the hoist operator could stop at each floor to inspect the gates, clamps, and padlocks to ensure that every component of this critical fall protection system remains intact. Just prior to the end of each shift might be an advantageous time to conduct such a floor-by-floor inspection. Had the hoist stopped at floor 13 prior to the fatal incident, the discrepancy which caused the gate latch to fail might have been discovered.

Since the incident, the employer has installed safety bars on all gates that will prevent the doors from opening to the outside. One additional measure the employer might take would be to install signs in clear view on each gate warning workers to stand back until the gate is opened by the hoist operator.

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