The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research NIOSH

Construction laborer Dies After Falling 61 Feet From Work Platform in Virginia

FACE 9106

SUMMARY

A 33-year-old male construction company laborer (victim) died after falling 61 feet from an elevated, electric-powered, mast climbing work platform. Brickmasons and other company employees (including the victim) were working from the platform to complete the brick-laying phase for the exterior of a six-story building. At the beginning of the work day, the work platform had been raised to the fifth floor level when the victim realized that the work he needed to do was on the fourth floor level. The victim notified one of the brickmasons (co-worker), who lowered the platform. When the platform walkway cleared the top of a window opening (measuring 4 feet wide by 5 feet high), the victim sat down on the walkway edge and attempted to step onto the window sill about 3 feet below. The victim's feet slipped off the sill, and he fell through the opening between the window and platform walkway to the ground 61 feet below. The victim died from injuries sustained in the fall. NIOSH investigators concluded that, in order to prevent future similar occurrences, employers should:

- **conduct jobsite surveys to identify potential hazards and implement appropriate control measures**
- **provide safety training that specifically addresses all identified jobsite hazards**
- **develop and implement safe work procedures for workers who are exposed to fall hazards**
- **provide appropriate fall protection equipment to all workers who may be exposed to a fall hazard.**

INTRODUCTION

On November 1, 1990, a 33-year-old male construction laborer died after falling 61 feet from a brick mason's motorized lift/work platform. On November 14, 1990, officials of the Virginia Occupational Safety and Health Administration (VOSHA) notified the Division of Safety Research (DSR) of the death and requested technical assistance. On December 6, 1990, a research industrial hygienist from DSR traveled to the incident site and conducted an investigation. The DSR investigator reviewed the incident with the company owner, the medical examiner, and the VOSHA compliance officer assigned to the case. Photographs of the incident site were obtained during the investigation.

The employer in this incident is a construction company that has been in business for 36 years. Most of the work performed by the company involves masonry construction for large buildings. The company employs 50 workers, most of whom are brickmasons and laborers. The victim had been employed by the company over the previous 4 years as a laborer. The company has a written safety program consisting of general construction safety requirements. Enforcement of the company

safety requirements is documented and had resulted in previous terminations of some employees. Construction safety is the responsibility of the jobsite foreman, who also conducts weekly “tailgate” safety meetings. The victim had attended numerous weekly safety meetings for this construction project. These safety meetings covered such subjects as general construction site safety, jobsite emergencies, and scaffolding. New employees receive on-the-job safety training from supervisors and co-workers.

INVESTIGATION

A general contractor subcontracted the employer to lay the exterior brick for a six-story building at a university. The employer assigned a construction crew consisting of a foreman, four brick- masons, and two laborers (one of whom was the victim) to do the job. The crew had been working at the jobsite for about 2 weeks. By this time they had completed laying the bricks up to the fifth floor on one side of the building.

The brick work was done from an electric-powered, mast-climbing work platform (Figure). The platform was supported by a steel-frame mast secured to the building with cross members. The base of the mast was supported on an I-beam frame trailer (26 feet by 5 feet) with outriggers. The center of the main platform rode up and down the mast on a rack and pinion carriage, and was powered by two, 4-horsepower electric gear motors. The platform was operated with a remote pendant controller located on the platform.

The work surface of the steel-frame platform measured 7 feet wide by 50 feet long. It consisted of a plywood-surfaced main platform for holding materials (bricks, mortar, etc.), 5.5 feet wide by 50 feet long, and a wood-planked walkway platform (“foot boards”) 20 inches wide by 50 feet long where workers stood to lay the brick. The walkway was positioned 18 inches below the surface of the main platform and extended along the working face of the building at about 4 inches clearance. The outboard side and ends of the entire work platform were surrounded by a 42-inch-high steel frame/wire mesh guardrail and fence. Under normal working conditions, a guardrail is not installed on the walkway side of the platform.

At 6:30 a.m. on the day of the incident, the victim, co-worker and other brickmasons arrived at the site and climbed on the work platform to begin their work for the day. Using the pendant controller, the co-worker raised the work platform to the fifth story of the building. After reaching this level, the victim realized that the work he needed to do was inside the building on the fourth floor. He mentioned this to the co-worker, who lowered the work platform back toward the fourth floor.

As the platform descended, the victim attempted to enter the building through a window opening (measuring 4 feet wide by 5 feet high) on the fourth floor (Figure). When the platform walkway cleared the top of a window opening, the victim sat down (facing the building) on the walkway edge and began to step onto the window sill frame. When he did this, the walkway was still about three feet above the sill. At this moment, the co-worker yelled to the victim, “Wait a minute ... Wait a minute.” The victim responded, “That’s okay Buddy, no problem.”

The victim supported himself with his elbows on the walkway foot boards. As he placed his feet on the sill and pushed off with his elbows, he slipped, falling forward. The victim struck his chin on the window sill, fell 61 feet, struck a horizontal I-beam on the trailer base, and landed 18 inches below the I-beam on the ground in the center of the trailer base.

The co-worker was the only one who witnessed the victim’s fall. He yelled to the other brickmasons that the victim had fallen. The foreman, who was on the ground near the trailer, ran to the victim. The co-worker lowered the platform to a few feet above the ground. The co-worker and other brickmasons administered cardiopulmonary resuscitation (CPR) while the foreman called the emergency medical service (EMS). Personnel from the local EMS and the university police arrived approximately five minutes after receiving the call. EMS personnel checked the victim’s vital signs, then called the local coroner, who pronounced the victim dead at the scene.

CAUSE OF DEATH

The medical examiner listed multiple severe injuries as the cause of death.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should conduct jobsite surveys to identify potential hazards and implement appropriate control measures.

Discussion: Employers should conduct jobsite and equipment surveys to identify potential worker hazards. Once potential hazards have been identified, appropriate control measures should be recommended and implemented prior to the start of work at any jobsite.

Workers on this type of work platform (or scaffolding) at positions in front of open areas (e.g., windows, cantilevered sections, etc.), are exposed to a fall hazard. Fall protection consisting of a guardrail or other appropriate fall protection equipment (e.g., safety belt and lifeline) should be provided in accordance with OSHA Standard 29 CFR 1926.451(a)(4), and ANSI Standard A.92.6-90, Self-Propelled Elevating Work Platforms.

Recommendation #2: Employers should provide safety training that specifically addresses all identified jobsite hazards.

Discussion: OSHA Standard 29 CFR 1926.21(b)(2) states, “The employer shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury.” Workers who use work platforms, scaffolds, etc., are exposed to fall hazards, and should be trained in specific safe work procedures and the use of fall protection equipment pertaining to their work.

Recommendation #3: Employers should develop and implement safe work procedures for workers who are exposed to fall hazards.

Discussion: The platform manufacturer had provided an operator’s manual for the work platform. There are safe work procedures in the manual, but none specifically address fall protection. Printed safe work procedures for all elevated work platforms should address fall protection, especially for situations when the platform is in front of open areas at locations more than 4 feet above the ground level, and/or when the platform is in motion. Workers should not be allowed to stand or sit on the walkway of this type platform while the platform is in motion.

Recommendation #4: Employers should provide appropriate fall protection equipment for all workers who may be exposed to a fall hazard.

Discussion: Employers should provide appropriate fall protection equipment for all workers exposed to fall hazards, and should provide worker training in the proper use of this equipment. Once this training is provided, employers should initiate measures to ensure the use of this fall protection equipment.

REFERENCES

1. Office of the Federal Register, Code of Federal Regulations, Labor, 29 CFR Part 1926.21(b)(2), and Part 1926.451(a)(4), U.S. Department of Labor, Occupational Safety and Health Administration, Washington, D.C., July 1989.

2. American National Standards Institute, Inc., A.92.6-90, Self-Propelled Elevating Work Platforms, October 1990.

Figure 1.

Figure 2.

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