ADMINISTRATIVE REPORT **DATE: November 25, 1996**
PUBLIC HEALTH SERVICE/CDC/NIOSH/DSR
FACE-96-20

TO: **Director, National Institute for Occupational Safety and Health**

FROM: **Division of Safety Research, NIOSH**

SUBJECT: **Painter Dies After Falling From Aerial Platform--Virginia**

SUMMARY

On May 24, 1996, a 43-year-old painter (the victim) died as a result of injuries sustained when he fell from an aerial platform while painting a ceiling in a newly constructed fitness center. The victim had positioned the scissors-type aerial platform near the wall of the building, mounted the platform, and raised it into position, apparently without securing the safety chains across the open end of the platform guard railing. The protective railing around the perimeter of the platform was in a lowered and unsecured position which made attachment of the safety chains difficult. Although the incident was unwitnessed, evidence indicates that the victim either stepped or fell off the platform from the open end of the railing, falling approximately 8 ½ feet to the concrete floor. Workers nearby heard the noise of the fall and went to the victim. A worker notified a local emergency medical service (EMS) which responded within 5 to 10 minutes. The EMS transported the victim to a local emergency room and where he died the following day in the intensive care unit.

NIOSH investigators determined that to prevent similar occurrences, employers should:

- ensure that railings around the decks of aerial platforms are correctly installed and openings closed off before work at elevations is performed
- ensure that work platforms are free of extraneous materials which could present a stumbling hazard.

In addition, manufacturers of aerial platforms should:

- consider equipping aerial work platforms with safety interlocks which would prevent elevation of the work platform unless safety chains or gates are secured across the entrance.

Introduction

On May 24, 1996, a 43-year-old male painter (the victim) fell from the deck of an elevated aerial platform while painting a ceiling inside a fitness center. On May 29, 1996, officials of the Virginia Occupational Safety and Health Administration (VAOSHA) notified the Division of Safety Research (DSR) of the incident and requested technical assistance. On June 27, 1996, two DSR safety engineers met with the victim's employer and visited the incident site. On June 28, 1996, the engineers reviewed the case with the VAOSHA compliance officer assigned to investigate the case. The platform was examined on July 2, 1996, at the equipment rental agency and measurements and photographs were taken.

The employer in this incident was a painting contractor which had been in business for 4 years and employed 20 workers. The firm had been contracted to paint the interior of a fitness center. A three man crew consisting of two painters and a helper had been on site for about 2 weeks. The victim had worked for the company for 2 years. The company did not have written safety procedures or policies. The company routinely rented aerial platforms for access to elevated work areas and the victim was familiar with the operation of the platform. Training was done on-the-job. This was the company's first fatality.

Investigation

The victim and two workers, (another painter and a helper) normally began work between 7 a.m. and 7:30 a.m. On the day of the incident, they were painting the ceiling of the fitness center. Access to the 16-foot-high ceiling was from electrically powered scissors-type aerial platforms. Two rented aerial platforms were on site, one for each painter. The painters were applying an alkyd dry fog paint using airless spray equipment. The tanks for the sprayers located on the concrete floor were serviced by the helper. Paint was transported from the tanks to the spray guns through 3/8" plastic lines 100 feet in length. On the day of the incident, the victim arrived at the work site at the normal time and began painting. The platform was located 22 inches from and parallel to the south-east wall of the building between a second story floor beam and a row of light fixtures. The light fixtures and beam were about 12 feet and 15 feet above the floor, respectively. The protective railing across two sides of the platform had been configured so that the rail nearest the wall was 35 inches above the deck and the rail nearest the light fixtures was 26 inches above the deck. Presumably, this had been done to allow the platform to be raised closer to the ceiling while the worker was painting under the

light fixtures. The incident was unwitnessed, however, at about 8 a.m. the jobsite foreman and the other painter heard the victim fall. Both went immediately to the victim and observed him lying on the floor adjacent to the open end of the platform. He was conscious but bleeding from his ears, nose, and mouth, and he was still holding the spray gun. The co-workers, fearing possible back injury, did not move him or attempt first aid other than to remove his respirator. The jobsite foreman immediately notified the EMS who responded within 5 to 10 minutes. The victim was transported to a local hospital emergency room. He died the following day while in the intensive care unit.

Cause of Death

The official cause of death was a closed head injury.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should ensure that railings around the decks of aerial platforms are correctly installed and openings closed off before work at elevations is performed.

Discussion: The platform involved in this incident was equipped with a standard top rail, midrail and toeboard supported by four vertical members which fitted into sockets around the edge of the platform. Each of these members was secured by a bolt at the proper 42-inch top-rail height. The railing had been designed and built so that it could be collapsed from the standard 42-inch height to 26 inches to facilitate transport through standard doorways. Prior to use, the railing was intended to be raised and secured in position. This railing design also allowed the railing to be used with one side lower than the other, although this was not the manufacturer's design intention. In this incident, the railing was used in a lowered position to allow clearance under ceiling light fixtures at the jobsite. After the incident, the top rail nearest the wall was found to be 35½ inches high and the rail on the room side was 26 inches high. Further, when the rails were used in this position, the midrail safety chain was not long enough to reach across the entrance to the platform. Further examination of the platform at the rental agency indicated that it was possible to configure the railings so that neither chain would reach across the opening. It should be noted that neither the manufacturer nor the rental agency recommends using the platform in this configuration. The platform manufacturer's operations and safety handbook warns that users should ensure all guardrails are properly installed and gates or openings are closed before elevating the platform. Although the incident was unwitnessed, evidence suggests that the victim may have stepped off the platform through the open entrance while painting the ceiling.

Recommendation #2: Employers should ensure that work platforms are free of extraneous materials which could present a stumbling hazard.

Discussion: After the incident, a piece of plywood sheeting was lying near the open end of the platform's working surface. Although it is unknown if this caused a stumbling hazard, the 2-foot width of the platform would have made it difficult for the victim to avoid stepping on the plywood during painting operations. According to safety procedures for aerial platforms published by the Equipment Manufacturers Institute, platforms should be kept free of debris and loose objects which might cause a slip hazard.

Recommendation #3: Manufacturers should consider equipping aerial work platforms with safety interlocks which would prevent elevation of the work platform unless safety chains or gates are secured across the entrance.

Discussion: It may be possible to equip the protective railings around aerial platforms with interlocked control systems which would prevent operation unless all openings were closed off with chains and bars. Alternately, alarm systems could be designed to sound a warning if the equipment is raised without first closing off the openings.

REFERENCE

Safety Manual. Aerial Platform, Equipment Manufacturers Institute, Chicago, Illinois, 1989.

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Fatality Assessment and Control Evaluation (FACE) Project

The National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR), performs Fatality Assessment and Control Evaluation (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.

States participating in this study: North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia.

Additional information regarding this report is available from:

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