The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research NIOSH

Carpenter's Helper Dies After Falling Through Stairwell Opening–Virginia

FACE 9236

SUMMARY

A 35-year-old male carpenter's helper (the victim) died after falling into a stairwell opening. The victim was working with three carpenters to frame a one-story residence with a full basement. Work had progressed to the point that the men were installing 4-foot by 8-foot sheets of plywood on the roof. The victim was standing on the floor handing the plywood up to the men on the roof. A 3-foot-wide by 9-foot-long stairwell opening present in the immediate vicinity of the victim's work area was enclosed on three sides by studded walls and on the fourth side by a closed door. The three workers on the roof did not see the victim fall, but it is believed that, as the victim tried to step between two studs in the stairwell wall, he either tripped or lost his balance and fell toward the stairwell opening. The victim struck his head on the opposite edge of the opening then fell through the opening 8 feet to the concrete basement floor. NIOSH investigators concluded that, to prevent future similar occurrences, employers should:

- **ensure that all floor or roof openings that workers might be exposed to during the performance of their assigned tasks be guarded**
- **train workers to recognize and avoid hazards that they might encounter during the performance of their assigned tasks.**

INTRODUCTION

On September 4, 1992, a 35-year-old male carpenter's helper died from injuries sustained the previous day after falling through a stairwell opening 8 feet to a concrete basement floor. On September 14, 1992, officials of the Virginia Occupational Safety and Health Administration (VAOSHA) notified the National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR), of the fatality and requested technical assistance. On September 22, 1992, a DSR safety specialist traveled to the incident site to conduct an investigation. The incident was reviewed with company representatives and the OSHA compliance officer.

The employer in this incident was a construction contractor that specialized in residential, commercial, and multi-unit housing construction. The employer had been in operation for 6 years and employed five workers. The employer had written general safety rules. Each new employee had to read these rules and sign his name as proof that he understood them. New employees worked directly with the owner to demonstrate their proficiency at carpentry work before being allowed to work alone. New employees were not allowed to work above ground on framework until they had been employed for 2 weeks and were considered capable by the owner of performing the work. The victim had worked for the employer for 2 days.

INVESTIGATION

The employer had been subcontracted to frame up a one-story private residence with a full basement at a residential subdivision. The work consisted of laying the framework and :- inch plywood sheeting for the ground floor, installing the 2-inch by 4-inch wall studs as called for by the blueprints, and installing the roof trusses and the d-inch plywood sheeting for the roof. After 2 days at the site, the crew–three carpenters and a carpenter's helper (the victim)–had completed the installation of the floor, the wall studs, and the roof trusses. On the third and final day at the site, crew members were installing the plywood sheeting on top of the roof trusses.

As the crew prepared for work the victim asked the owner if he could work on the roof. The owner instructed the victim to stay on the floor and hand the plywood sheets to the men on the roof. Work progressed in this manner throughout the morning.

A 3-foot by 9-foot stairwell opening was located adjacent to the victim's work area. The opening was enclosed on three sides by the 2-inch by 4-inch stud walls and on the fourth side by a closed door. The studs had been installed on 16-inch centers (a distance of 16 inches from the center of one stud to the center of the next stud in line), leaving 14-inch openings between studs.

Just before noon the victim handed a sheet of plywood to the men on the roof. Shortly thereafter the men heard the victim falling through the stairwell opening. The victim struck his head on the opposite side of the opening, then fell to the concrete basement floor, landing face down. The emergency medical service was summoned by telephone from the construction trailer. The victim was transported to the hospital where he was placed on life support systems. Life support was disconnected the following morning and the victim was pronounced dead.

The men on the roof did not actually see the victim pass between the studs. The victim's size–6 feet, 5 inches tall; 235 pounds–prohibited him from inadvertently falling face forward or sideways through the 14-inch opening between the studs. It is believed that the victim stepped between two studs either to look into or to cross the stairwell opening. The victim then either tripped over the floorboard, or caught his hammer, which was hanging from his tool belt, on one of the studs, and lost his balance and fell into the opening.

CAUSE OF DEATH

The coroner listed the cause of death as accidental death.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should ensure that all floor or roof openings that workers might be exposed to during the performance of their assigned tasks be guarded.

Discussion: Floor openings should be guarded in accordance with 29 CFR 1926.500 (f)(1), which requires a top rail 42 inches high, an intermediate rail, and a toeboard. Although the stairwell opening in this incident was surrounded on three sides by studs and on the fourth side by a closed door, access to the opening was still possible between the studs. Guarding the opening in the prescribed manner would have prohibited access to the opening. Alternatively, the stud walls around the stairwell opening could have been finished with wallboard or some other material to totally enclose the opening.

Recommendation #2: Employers should train workers to recognize and avoid hazards that they might encounter during the performance of their assigned tasks.

Discussion: In accordance with 29 CFR 1926.21 (b)(2), employers should 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 should be made aware of the potential hazards presented by stairwell openings and of the control measures which can be used to prevent injuries.

REFERENCES

29 CFR 1926.500 (f)(1). Code of Federal Regulations, Washington, D.C.: U.S. Government Printing Office, Office of the Federal Register.

29 CFR 1926.21 (b)(2). Code of Federal Regulations, Washington, D.C.: U.S. Government Printing Office, Office of the Federal Register.

Return to In-house FACE reports

Last Reviewed: November 18, 2015