

TO: Director, National Institute for Occupational Safety and Health

FROM: California Fatality Assessment and Control Evaluation (FACE) Program

SUBJECT: Carpenter dies in a fall from a ladder when circular saw slashes his neck in California

SUMMARY
California FACE Report #96CA013

A 32-year old male carpenter (victim) died after being slashed across his neck by an unguarded circular saw. The victim was standing on the step below the top of an aluminum step ladder, cutting a 2 X 4 wood purlin (support for rafters). In order to complete the sawing, he placed his right foot on the edge of exposed ceiling drywall. The ceiling drywall broke causing the victim to fall. As he fell, the blade of the circular saw, which was still rotating, slashed his neck. The victim owned his own company and all of his employees were family members. Training records were not available. The CA/FACE investigator concluded that, in order to prevent future occurrences, employers should:

- Assure that the guards supplied with circular saws remain in place and are fully functional.
- Not allow employees to use a circular saw over their heads.
- Provide ladders which are appropriate for the job.
- Not allow employees to stand on the top two steps of a ladder.

INTRODUCTION

On September 26, 1996, at 9:40 a.m., a 32-year old male carpenter was slashed across his neck by a circular saw at a home remodeling site and was declared dead at 9:53 a.m. The decedent was on an aluminum ladder attempting to cut a 2 X 4 wood purlin to make room for a newly installed wood frame. He placed his right foot on exposed ceiling drywall which broke causing him to fall. The blade of the saw lacerated his neck. The CA/FACE investigator learned of the incident from a district office of the California Division of Occupational Safety and Health (Cal/OSHA) on September 26, 1996 and traveled to the site that afternoon. He met with the residence's housekeeper and took photographs of the site. He later interviewed a co-worker through an interpreter and the home's owner. A copy of the coroner's report, police report, paramedics report and the Cal/OSHA form 36 were obtained.

INVESTIGATION

The site of the incident is a large, single-story home. The project was a remodeling job which included removing walls and expanding rooms. The decedent had completed a 2 by 4 wood frame for a new outside wall. **(Exhibit 1)** The frame was approximately 9 to 10 feet tall and was constructed to replace an 8-foot wall that had been torn down. The new frame was placed on the east end of the now exposed existing room that had an 8-foot ceiling and an attic space between the ceiling and a pitched roof. The 2 by 4 rafters for the roof ran north and south and the roof's 1 by 4 sheathing and 2 by 4 purlins ran east and west. **(Exhibit 2)**.

In order to make room for the new frame and its connections, the roof's sheathing and purlins had to be trimmed. Most of the sheathing had been cut previous to this incident. One purlin near the peak of the roof needed to be trimmed to make room to connect the new wall. The ceiling drywall had been left in place, but exposed on the east end where the new wall had been constructed. **(Exhibit 3)**

The decedent borrowed the homeowner's 8-foot tall, household-duty aluminum step ladder. **(Exhibit 4)** He decided to use an electric circular saw to make the cut. He placed the ladder on somewhat uneven flooring next to the newly framed outside wall. He climbed the ladder with the circular saw in hand. According to a witness statement, he made several cuts successfully. One purlin near the peak of the roof (at approximately 10 feet from the flooring on which the ladder rested) was more difficult to access.

The decedent stood on the step just below the top support of the step ladder with his left foot and placed his right foot on some ceiling drywall which had been exposed when the former outside wall had been removed. He leaned over with the saw, which had its guard wedged back, to cut off the end of the purlin just above his head. As he did so the ceiling drywall broke and the decedent lost his balance. **(Exhibit 5)** He began to fall and as he did, the circular saw's rotating blade made contact with the right side of his neck causing an elliptical wound 5 1/2 inches long by 2 1/2 inches wide. The saw blade cut through the jugular vein and carotid artery.

Bleeding profusely, the decedent fell onto the flooring in a kneeling position. Another worker, his cousin, rushed to him. The decedent got up, looking dazed, and walked toward his cousin. His cousin tried to cover the wound. After a short period, the decedent fell to the floor. His cousin tried to stop the bleeding by covering the wound. The female homeowner heard the commotion and went to investigate. She immediately called 911 and reported that the decedent was already dead. The paramedics were dispatched at 9:45 a.m. and arrived at the scene at 9:48 a.m. They found the decedent to be cyanotic and without a pulse or spontaneous respirations. They pronounced him dead at 9:53 a.m.

CAUSE OF DEATH

The coroner's report stated the cause of death to be exsanguination due to the laceration of the right neck vessels.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should assure that the guards supplied with circular saws remain in place are fully functional.

Discussion: Electric-powered circular saws are provided with guards which cover the exposed

portion of the blade. The guards are spring-loaded and quickly cover the blade after the saw cut is made. The circular saw model in this instance was equipped with such a guard, but it had been intentionally wedged back prior to use. This allowed a portion of the blade to be dangerously exposed. When the decedent used the saw in this condition, he was cut across the right side of his neck by the exposed blade during his fall. If the guard was fully functional, the exposed portion of the rotating blade would have been covered and this fatality most likely would not have happened.

Recommendation #2: Employers should not allow employees to use a circular saw over their heads.

Discussion: The decedent was stretching out to use the circular saw over his head to cut a piece of 2 by 4 lumber. Using a heavy, powerful electric saw overhead while standing with arms fully extended is an inherently dangerous practice. It was an even more dangerous practice in this incident because the decedent was on an unstable work surface (ladder and ceiling drywall). Controlling the saw when using it in this situation would be very difficult. It appears that when the decedent cut through the purlin his right foot broke through the edge of the drywall ceiling and he could not control the saw. Loss of control caused him to fall and the blade cut into the right side of his neck. If the decedent had not used the saw in an overhead position, this incident may not have happened.

Recommendation #3: Employers should provide ladders which are appropriate for the job.

Discussion: The ladder used in this incident was a household duty ladder, typically called a Type III. It was borrowed by the decedent from the homeowner. Construction industry standards are that a Type I (250 lb. rating), or, optionally, a Type Ia (300 lb. rating) be used for this type of work. The household duty ladder used in this incident is not as rigid nor is it as capable of carrying loads as a Type I ladder. The aluminum ladder used in this case was 8 feet tall. Standard practice, if a household duty ladder is to be used in the workplace, is that it be no taller than 6 feet because of the stability problem. When the decedent lost his balance due to the power and weight of the circular saw, the ladder may have contributed to this incident because it was too unstable for the type of work being performed. Had the decedent used a proper ladder for the job, it may have provided enough stability so he could have regained his balance and this incident may not have happened.

Recommendation #4: Employers should not allow employees to stand on the top two steps of a ladder.

Discussion: The decedent was standing on the top step, just below the top support of the step ladder he was using. Cal/OSHA standards prohibit the practice of standing on the top two steps of a step ladder. To do so would put the employee in a very unstable position. In this incident, the problem was compounded by the use of less stable type of ladder. Had the decedent used a taller ladder that was a Type I, his body would have been in a more stable position and this incident may not have happened.

References:

A Consumer's Guide to Safe Ladder Selection, Care and Use, U.S. Consumer Product Safety Commission, Washington D.C., 1980

Barclays Official Code of Regulations, Vol. 9., Title 8, Industrial Relations. South San Francisco, CA, 1990.

Injuries Resulting From Falls From Elevations, U.S. Department of Labor, Bureau of Labor Statistics, 1984

Richard W. Tibben, CSP
FACE Investigator

Robert Harrison, MD, MPH
FACE Project Officer

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Judie Guerriero, RN, MPH
Research Scientist
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FATALITY ASSESSMENT AND CONTROL EVALUATION PROGRAM

The California Department of Health Services, in cooperation with the Public Health Institute and the National Institute for Occupational Safety and Health (NIOSH), conducts investigations of work-related fatalities. The goal of this program, known as the California Fatality Assessment and Control Evaluation (CA/FACE), is to prevent fatal work injuries in the future. CA/FACE aims to achieve this goal by studying the work 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. NIOSH-funded, state-based FACE programs include: Alaska, California, Iowa, Kentucky, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, Oklahoma, Oregon, Washington, West Virginia, and Wisconsin.

Additional information regarding the CA/FACE program is available from:

**California FACE Program
California Department of Health Services
Occupational Health Branch
850 Marina Bay Parkway, Building P, 3rd Floor
Richmond, CA 94804**