MARYLAND DIVISION OF LABOR AND INDUSTRY
CASE: 94MD041
DATE: September 2, 2005

TO: Project Officer, State FACE Project, Division of Safety Research, NIOSH, CDC

FROM: Maryland FACE Program, Division Labor & Industry

SUBJECT: Carpenter dies following 30-foot fall through deteriorated roof while estimating job.

SUMMARY

A 70-year-old carpenter (the victim) fell through a barn roof while taking measurements in preparation to replace the roof of the building. The victim had arrived at the site during a heavy rain storm, exited the vehicle, and accessed the roof from a low hanging eave. The barn was built against a slope so the eave of the roof on the uphill side of the barn was about 2 1/2 feet above ground level. The victim began to walk up the slope of the roof with a measuring tape trailing behind and a notebook and pencil in hand. As he reached an area about 16 feet above the eave the roof gave way and he fell through the roof landing on the concrete floor thirty feet below. A witness went immediately to his aid, but was unable to find a pulse. The witness went to the farm house and called 911 to notify the local emergency medical services unit (EMS) which responded a short time later and pronounced the victim dead at the scene.

The Maryland FACE investigator suggests that, to prevent similar occurrences employers should:

perform a hazard assessment prior to employees performing any work activities at elevations above six feet to identify the safest feasible means to assure task completion.

develop, implement, and enforce a safety and health program that addresses safe work procedures and hazard recognition.

INTRODUCTION

On May 4, 1994 a 70-year-old male carpenter died from multiple injuries sustained when he fell thirty feet through a barn roof to the concrete floor below. The Maryland FACE investigator learned of the death through a death certificate obtained from the Department of Health and Mental Hygiene, Division of Vital Statistics on August 4, 1994. On August 24, 1994 interviews were conducted with the witness to the incident, the sheriff's deputy who responded, and the forensic investigator who handled the case. The forensic investigator's report, sheriff's report, and evidentiary file photos were reviewed.

The victim was the crew leader of a family carpentry business which employed

himself, a brother, and two grandsons. The victim was a craftsmen who had been involved in the erection, remodeling and repair of agricultural and residential buildings.

INVESTIGATION

The thirteen year-old post and beam barn had been built against a hillside. When the barn was built, the roof had been covered with sheets of asphalt impregnated organic fiber roofing which had been attached directly to the purlins according to the manufacturer's installation guidelines. On the day of the incident, the victim and the property owner's son arrived at the job site to measure the uphill side of the barn roof in order to estimate the quantity of materials needed to replace the roof. The downhill side of the barn roof had been replaced the previous year.

The uphill eave of the roof was only 2 1/2 feet above ground level. The access road on the level above the barn allowed a clear view of the roof deterioration which included: holes in the roofing along the ridge; roofing sheets sagging between purlins; and other defects randomly dispersed about the roof surface.

At approximately 10:30 A.M. the victim and the property owner's son arrived at the barn. The victim exited the passenger side of the vehicle. The weather was cool and a steady rain was falling. The property owner's son was walking around the truck as the victim climbed onto the uphill eave of the roof and began walking toward the ridge. The property owner's son turned toward the barn and saw the victim's hat fly up into the air beside a hole in the roof. He immediately went into the barn to render assistance and found the victim lying on his back below the hole in the roof. The victim had no pulse and did not appear to be breathing. The property owner's son summoned the EMS who responded a short time later and confirmed the victim had died.

Although the victim was unobserved when he fell through the roof, statements from the only other person at the site at the time of the incident, along with reports regarding the physical evidence found at the site, suggest two possible incident scenarios. The victim may have been stepping from purlin to purlin as he walked toward the roof ridge and slipped or misstepped onto the roofing material between the supports. Another possibility is that he was walking up without regard to his footing and broke through the roof when he stepped on a deteriorated section of roof.

CAUSE OF DEATH

The deputy medical examiner and the forensic investigator determined the cause of death to be the result of multiple injuries. An autopsy was not performed, but the determination of cause of death was supported by the findings of the funeral director based upon the embalming procedures required.

RECOMMENDATIONS/DISCUSSION

Recommendation #1 Employers should perform a hazard assessment prior to employees performing any work activities at elevations above six feet to identify the safest feasible means to assure task completion.

Discussion: A careful assessment of the roofing material could have alerted the victim that a hazardous situation existed. The placement of the barn on the side of the hill allowed an excellent view of the roof and the condition of the roofing material. A hazard assessment would have indicated the necessity of implementing measures to protect against falls, or indicated that alternative methods of measurement may be required. In this case a ladder or chicken board placed against the roof material and the purlins would, most likely, have provided adequate support to anyone venturing onto the roof surface. Measurement of the roof could have been estimated from the ground with good accuracy.

Recommendation #2Employers should develop, implement, and enforce a safety and health program that addresses safe work procedures and hazard recognition.

Discussion: A safety and health program as required by 29 CFR 1926.20(b) provides for the regular inspection of the job-site, materials, and equipment by a competent person[1]. The presence of such programs can prevent injuries through heightened sensitivity to hazard recognition and the establishment of safe work procedures.

[1] Competent person - one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authority to take prompt corrective measures to eliminate them.

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Fatality Assessment and Control Evaluation

The Maryland Division of Labor and Industry administers the Fatality Assessment and Control Evaluation (FACE) Program under a cooperative agreement with the National Institute for Occupational Safety and Health, Division of Safety Research (NIOSH/DSR). The Maryland FACE Program performs investigations of selected occupational fatalities, prepares summary reports, and engages in prevention activities. The goal of our program is to prevent fatal work injuries in the future by studying the the working environment, the worker, the task being performed, the tools employed, the energy exchange resulting in fatal injury, and the role of management in controlling how these factors interact.

NIOSH/DSR developed the FACE research protocol in the early 1980s and continues to perform FACE investigations. To increase the research and prevention activities of NIOSH/DSR, states across the nation have been invited to participate in the State FACE Project. Maryland and the fourteen states listed below currently participate in the State Based FACE Project: Alaska, California, Colorado, Georgia, Iowa, Indiana, Kentucky, Massachusetts, Minnesota, Missouri, Nebraska, New Jersey, Wisconsin, and Wyoming.

Additional information regarding this report or the Maryland FACE Program is available from:

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