The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research NIOSH

Roofer/Carpenter Dies After 26-Foot Fall From Roof

FACE 8922

INTRODUCTION

The National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR), performs Fatal Accident Circumstances and Epidemiology (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.

On January 3, 1989, a 28-year-old male roofer fell 26 feet, 6 inches from the roof of a newly constructed six-unit condominium complex. He died as a result of his injuries four days later.

CONTACTS/ACTIVITIES

State officials notified DSR of this fatality and requested technical assistance. On February 15, 1989, a safety engineer and two safety specialists from DSR met with the employer and discussed the incident with OSHA representatives and the state medical examiner.

OVERVIEW OF EMPLOYER'S SAFETY PROGRAM

The victim was one of four employees (including the owner) of a roofing/aluminum siding company that has been in operation for 13 years. The company has no written safety policy or program. Training is provided on the job. New employees work directly with the owner until they demonstrate that they understand the proper way to perform the job. All employees are provided with safety belts and lifelines to be used as fall protection. The owner requires that all employees wear work boots that are in good condition with substantial tread on the soles. Jobsite tailgate safety meetings are held at the beginning of each job to detail the specific procedures to be followed for that job.

SYNOPSIS OF EVENTS

The company had been sub-contracted to install felt paper and asbestos shingles to the roof of a newly constructed six-unit condominium complex. The roof had a pitch of 6:12 (i.e., the roof rose 6 inches for every 12 inches in length). The structure was 120 feet long and 26 feet wide, and the edge of the roof was 26 feet, 6 inches above ground. On the day of

the incident (the first day of work on the structure), the crew arrived at the site at 8:00 a.m. The crew consisted of the owner, his son, the victim, and one other worker (hereinafter referred to as the "co-worker"). All were carpenters experienced in roofing and siding work. Standard operating procedure called for the owner to inspect the roof of a new structure to see if it was properly prepared before his crew accessed the roof. On this day the entire crew climbed the ladders to the roof. Since the roof was wet from dew, the owner instructed the crew to sit on the bundles of shingles placed on the roof by the contractor and wait until the roof dried. The crew's safety equipment and tools were still in the owner's truck.

At 8:45 a.m. the owner felt that the roof had dried sufficiently and told the crew that he was going to inspect the roof. The owner and his son were on one side of the roof; the victim and the co-worker were on the opposite side. Both pairs of men, who were near the ridge (top) of the roof, began to walk toward the opposite end of the structure. As the victim stepped around a bundle of shingles on the ridge of the roof, he fell to his hip and began to roll to the edge of the roof. The co-worker stepped toward the victim to grab him but was unsuccessful. The victim rolled off the roof and fell to the packed dirt surface below. The co-worker stated that the victim did not appear to slip, cry out, or attempt to halt his fall. Workers on the ground said that the victim fell in a prone position and made no visible effort to land on his feet.

A worker on the ground immediately summoned the emergency medical service (EMS), fire department, and police. The owner went to the road to show the rescue squad the way to the scene. The fire department arrived within 5 minutes . As the owner was speaking to fire department personnel, a worker yelled that the victim had stopped breathing. A member of the fire department crew administered cardiopulmonary resuscitation (CPR) and the victim began breathing on his own again. The EMS squad arrived and transported the victim to the local hospital. The victim was later transferred to a hospital with a shock-trauma unit. On January 4, 1989, the victim was placed on life-support systems. The victim was pronounced brain dead on January 6, 1989, the life-support systems were removed, and he died the following morning.

CAUSE OF DEATH

The medical examiner's report gave the cause of death as multiple injuries.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Worker exposure to identified hazards should be limited and controlled.

Discussion: The company's standard procedure, whereby the owner inspects the worksite prior to allowing the crew to access the roof, limits the crew's exposure to fall hazards. In this instance, the crew did not follow the standard operating procedure, and climbed onto the roof before the owner inspected it. The owner unnecessarily exposed the crew to the fall hazard by permitting them to wait on the roof prior to and during roof inspection. Although this inspection procedure does not eliminate the initial exposure of the owner (during inspection) or the initial exposure of the workers when they access the roof prior to hooking their lifelines, it does reduce the duration of exposure without fall protection. The risk of falls from elevation in the roofing industry should always be minimized to the extent possible.

Recommendation #2: Existing OSHA standards related to fall protection need to be re-evaluated. Increased effort must be placed on developing new methods of fall protection which provide protection during all phases of the job, and promulgating new and revised standards where appropriate.

Discussion: Existing methods of fall protection such as perimeter netting, catch platforms, and air bags or other shock-absorbing materials should be evaluated for feasibility, cost effectiveness, and mechanical effectiveness to determine if they can be successfully used to prevent falls. Additionally, existing safety standards regarding falls must be re-evaluated to determine if they sufficiently address the safety hazards inherent in methods of construction that have been developed since the promulgation of OSHA Standards. Some jobs that expose workers to fall hazards, but are not adequately addressed by current OSHA standards include roofing, skylight installation, and pre-fabricated steel building construction. Increased efforts must be undertaken to develop new methods and safety standards to protect workers from falling. However, during standards development, employers must take the initiative to protect workers by using existing standards and new fall protection techniques and equipment.

Return to In-house FACE reports

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