ADMINISTRATIVE REPORT **DATE: February 1, 1999**
PUBLIC HEALTH SERVICE
FACE 98-16

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

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

SUBJECT: **Roofer Helper Dies After Falling 16½ Feet From Roof to Concrete Basement Way--Kansas**

SUMMARY

A 15-year-old male roofer helper (the victim) died after falling 16½ feet from a roof to a concrete basement way while trying to prevent a bundle of shingles from sliding off a roof edge. At the time of the incident, the victim and a 16-year-old co-worker were removing the shingles from the roof of the private residence of his employer. Prior to removing the shingles, the victim and his co-worker had been instructed to carry several bundles of shingles up a ladder and stack them at the roof's peak. When this had been accomplished, the workers began to remove the shingles from the roof with shovels. While removing the old shingles, the victim either struck a bundle of new shingles with his body or with the shovel handle, causing the bundle to slide toward the back edge of the roof. While attempting to stop the bundle of shingles, the victim lost his balance and fell off the back edge of the roof. The victim landed on his back and struck his head on the concrete basement way. NIOSH investigators concluded that, in order to prevent similar occurrences, employers should:

- *know and comply with child labor laws which include prohibitions against work by youth less than 18 years of age in occupations which are declared by the Secretary of Labor to be particularly hazardous (Hazardous Orders)*
- *ensure that appropriate fall protection equipment is available and correctly used when working where there is danger of falling*
- *develop, implement, and enforce a comprehensive written safety program that includes provisions for training workers in hazard identification, avoidance and abatement*
- *conduct scheduled and unscheduled workplace safety inspections*

- *encourage workers to actively participate in workplace safety.*

INTRODUCTION

On July 18, 1998, a 15-year-old male roofer helper (the victim) died after falling 16½ feet from a roof to a concrete basement way while trying to stop a bundle of shingles from sliding off a roof edge. On August 6, 1998, officials of the Wage and Hour Division of the Department of Labor notified the Division of Safety Research (DSR) of this fatality, and requested technical assistance. On August 20, 1998, a DSR occupational safety and health specialist conducted an investigation of the incident. The incident was reviewed with the employer, and the Wage and Hour and OSHA personnel assigned to the case.

The employer in this incident was a residential roofing company that had been in operation for 2½ years and employed two full-time workers, a father and his eldest son (owner and co-owner, respectively). The company had no written safety policy or safety program. Training of part-time employees was accomplished on the job. For this job, the father had instructed his youngest son (age 15) to get two of his friends, the victim (age 15) and a second friend (age 16), to help with the removal of the old shingles from the roof of the residence. The incident occurred on the victim's first day of work. This was the first fatality experienced by the company.

INVESTIGATION

The company owner had decided to replace the shingles on the roof of his residence and his adjacent garage. He and his eldest son, the company co-owner, had instructed his youngest son, 15 years of age, to ask two of his friends to help him remove the old fiberglass shingles from both structures. A 15-year-old (the victim) and a 16-year-old agreed to help with the job.

On the first day of the job, all five workers carried bundles of new shingles to the peak of the residence's 5.5:12 (5.5 inches of rise for every 12 inches of width) pitched roof. The bundles were stacked 3 or 4 high along the roof's peak. The 15- and 16-year-old workers then took shovels up the ladder to the residence's roof while the father and two sons climbed a ladder to the garage roof to determine what materials would be needed to complete the garage roof.

As the two boys began removing the shingles the victim contacted a stack of shingles with part of his body, or the shovel, and a

bundle began to slide down the back side of the roof. The victim began to chase the bundle in an attempt to retrieve it. None of the other workers saw the victim fall off the roof, but he apparently lost his balance and fell 16½ from the roof to a concrete basement way below, striking his head on the concrete. The other workers heard the victim fall, went to the victim and found him breathing but unconscious. The owner called the emergency medical squad (EMS) from the residence. EMS personnel transported the victim to the hospital where he died early the next morning.

During OSHA interviews, the co-owner stated that approximately ½-hour before the incident, he knocked a whole stack of shingles off the back side of the roof, damaging the eaves. He stated that at that time he instructed the boys to let the shingles go if they began to slide down the roof.

CAUSE OF DEATH

The attending physician listed the cause of death as closed head injury.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should know and comply with child labor laws which include prohibitions against work by youth less than 18 years of age in occupations which are declared by the Secretary of Labor to be particularly hazardous (Hazardous Orders).

Discussion: The Fair Labor Standards Act provides a minimum age of 18 years for work which the Secretary of Labor declares to be particularly hazardous (Hazardous Orders). One of the 17 Hazardous Orders prohibits minors from work in all occupations in roofing operations (Hazardous Order No. 16). This is defined "as all work performed in connection with the application of weatherproofing materials and substances (such as tar or pitch, asphalt prepared paper, tile, slate, metal, translucent materials, and shingles of asbestos, asphalt, or wood) to roofs of buildings or other structures. The term shall also include all work performed in connection with: (1) The installation of roofs, including related metal work such as flashing, and (2) alterations, additions, maintenance, and repair, including painting and coating, of existing roofs."

Recommendation #2: Employers should ensure that appropriate fall protection equipment is available and correctly used when working where there is danger of falling.

Discussion: 29 CFR 1926.501 (b) (1) states that "each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet (1.8m) or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems." In this instance, there was no fall protection equipment present on the roof.

Recommendation #3: Employers should develop, implement, and enforce a comprehensive written safety program that includes provisions for training workers in hazard identification, avoidance and abatement.

Discussion: The employer had no written safety program, safety policy, or safe-work procedures. The development, implementation, and enforcement of a comprehensive safety program should identify, and reduce or eliminate worker exposures to hazardous situations. The safety program should include, but not be limited to employing worksite hazard assessments to enable the recognition and avoidance of fall hazards; and providing and enforcing the use of appropriate safety equipment such as safety nets, or safety harnesses and lanyards. Prior to beginning any work, employers should instruct all workers in the identification and control of all hazards they might encounter in the performance of their tasks. Workers should also be trained in, and instructed to follow, safe work procedures that will provide them with the safest work environment.

Recommendation #4: Employers should routinely conduct scheduled and unscheduled workplace safety inspections.

Discussion: Employers should be aware of the hazardous conditions at jobsites and should take an active role to eliminate them. Scheduled and unscheduled safety inspections should be conducted by a competent person[1] to ensure that jobsites are free of hazardous conditions. In this incident, a safety inspection of the site may have identified the stacks of shingles at the peak of the roof as a potential problem. The bundles could then have been carried to the rooftop after the old shingles were removed. Even though these inspections do not guarantee the prevention of occupational injury, they may identify hazardous conditions and activities that should be rectified. Further, they demonstrate the employer's commitment to the enforcement of the safety program and to the prevention of occupational injury.

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[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 the authority to take prompt corrective measures to eliminate them.

Recommendation #5: Employers should encourage workers to actively participate in workplace safety.

Discussion: Employers should encourage all workers to actively participate in workplace safety and should ensure that all workers understand the role they play in the prevention of occupational injury. In this instance, the victim was chasing a bundle of shingles toward a roof edge, 16½ feet above ground level without any guarding or safety equipment. Workers and co-workers should look out for their personal safety and the safety of co-workers. When workers observe hazardous conditions or activities, they should, depending on the circumstances, notify management and/or remind co-workers of the proper way to perform their tasks and protect themselves. Employers must instruct workers of their responsibility to participate in making the workplace safer. Increased worker participation will aid in the prevention of occupational injury.

References

29 CFR 1926.501 (b) (1) Code of Federal Regulations, Washington, D.C.: U.S. Government Printing Office, Office of the Federal Register.

DOL (1990). Child labor requirements in nonagricultural occupations under the Fair Labor Standards Act. Washington, D.C.: U.S. Department of Labor, Employment Standards Administration, Wage and Hour Division, WH 1330.

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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, Pennsylvania, South Carolina, Tennessee, and Virginia.

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