A roofer's helper, working for a roofing contractor in Texas, died when he fell through a three-foot square opening in a roof and struck a concrete floor.

Investigation # 98TX12801
Release Date: November 13, 1998

SUMMARY:

On March 13, 1998, a 28-year-old roofer's helper (the victim) died when he fell through a three-foot square opening in a roof. The victim was in the process of removing roofing material from a one-story building by throwing debris over the side of the building or down one of the numerous openings left on the roof. The openings were left when equipment, such as heating and air conditioning, were removed as part of the building renovation. Plywood sheets were laid on top of the openings. The victim proceeded to one of the smaller openings, which measured about three foot square. He lifted the sheet of plywood covering the opening and pushed it forward. When he did, he took an additional step and fell through the opening. He struck the cement floor sixteen feet below. Emergency medical services (EMS) personnel were notified. They transported the victim to a local hospital where he was pronounced dead on arrival.

The TX FACE Investigator concluded that to reduce the likelihood of similar occurrences, employers should:

**** Protect employees from falling into or through holes which are six feet or more above lower levels by employing a fall arrest system as part of required personal protective equipment (PPE).***

** **Obtain information about workplace hazards to which their employees may be exposed and take appropriate action to protect affected employees from any such hazards.***

**** Provide a training program for each employee who might be exposed to fall hazards**.*

INTRODUCTION

On March 13, 1998, a 28-year-old roofer's helper (the victim) died when he fell through a three-foot square opening in a roof and struck a concrete floor. The TX FACE program officer was notified of the fatality by the OSHA area office on March 25, 1998. On April 29, 1998, the TX FACE program officer visited the job site. The police and fire incident reports were obtained, and the justice of the peace who pronounce the victim dead was interviewed.

The employer is a roofing contractor who has been in business for 16 years and employs 15 workers, 11 of whom are roofer's helpers. The safety program was managed by the company owner. A written safety program which included safety rules, tools and equipment, vehicles and materials was in place. The safety rules, however, did not address the specific task the victim

was performing. New hire training was conducted and consisted of a basic orientation to the employees' manual. Safety meetings ("tailgate talks") were conducted 2-3 times per week. Monthly training was sometimes conducted in a classroom setting. Specific task training was conducted at the job site when necessary.

The employer stated that the victim had experience as a roofer's helper. For this reason, specific task training was not conducted. The victim had been working for the employer 2-3 weeks. This was the first fatality experienced by the employer.

INVESTIGATION

On the day of the incident a roofer's helper (the victim) and ten other workers were in the process of removing the old roofing material from a one story, flat-roof building. The building was previously used as a retail establishment and was now being converted to an educational facility. As part of the conversion process, all of the old equipment that was installed on the roof had to be removed. After the equipment was removed by another subcontractor, a piece of plywood was placed over the holes. There were thirty holes left in the roof. They ranged in size from six feet by twelve feet to smaller ones averaging about three foot square.

The roofing material had been detached from the roof's surface. The material was then thrown over the side or swept down one of the holes. The victim was working on a part of the roof that was away from the edge. He was going to push material down through a hole. The victim lifted up the plywood covering one of the smaller holes and pushed the plywood forward with both hands. When he did, he took one step forward and fell through the hole striking the concrete floor 16 feet below.

The local EMS were notified at 1013 a.m. The time of arrival is unknown. CPR was performed at the scene by EMS personnel. EMS transported the victim and arrived at the hospital at 11:00 a.m. The justice of the peace stated the victim was DOA.

CAUSE OF DEATH

The justice of the peace stated the cause of death was from skull fracture and massive brain injury.

RECOMMENDATIONS/DISCUSSION

***Recommendation #1* - Employers should protect employees from falling into or through holes which are six feet or more above lower levels by employing a fall arrest system as part of required personal protective equipment (PPE).**

Discussion: Prior to removing covers over holes, workers should be connected to a fall arrest system. A fall arrest system is part of the required PPE for this type of work. (See CFR 1910.132 (c)&(d). In this case the victim was able to pick up and remove a cover in one

continuous motion. The victim's forward momentum, along with the possibility that he thought there was a surface under his foot, may be the reason he continued to step forward. Also, the victim may have been looking where he was pushing the cover, rather than to where his feet were being placed. Also this type of body movement (continuous motion) could be interrupted if covers are secured by a method that prevents them from being simply "scooped up" and removed.

Employers can refer to the final rule for 29 CFR 1926, Safety Standards for Fall Protection in the Construction Industry for guidance on fall protection. The standard technically does not apply to this incident, however, useful information on providing fall protection as part of the overall PPE requirements can be found.

Recommendation #2 - Employers should obtain information about workplace hazards to which their employees may be exposed and take appropriate action to protect affected employees from any such hazards.

Discussion: OSHA has consistently maintained an employer must make a reasonable effort to anticipate the particular hazards to which their employees may be exposed in the course of their scheduled work. Focusing on fall protection in the planning stages of a construction or renovation project will enable an employer to develop measures that protect affected employees from fall hazards. Specifically, an employer should inspect the area to determine what hazards exist or may arise during the work to be performed before permitting employees to work in that area, and then give specific and appropriate instructions to prevent exposure to unsafe conditions. Since different jobs present different hazards, a job safety analysis (JSA) is one method to use. The employer can then determine how to protect their employees from hazards specific to that job.

Recommendation #3 - Employers should provide a training program for each employee who might be exposed to fall hazards.

Discussion: The program should enable each employee to recognize the hazards of falling. The employer should insure that each employee has been trained, as necessary in the following areas:

- nature of fall hazards in the work area;
- correct procedures for erecting, maintaining, disassembling and inspecting the fall protection systems to be used;
- use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and/or other protection to be used;
- the role of each employee in safety monitoring system when this system is used;
- limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs; and

- correct procedures for the handling and storage of equipment and materials.

REFERENCES

29 CFR 1910.132 (c)&(d) Code of Federal Regulations, Washington, D.C.: U.S. Government Printing Office, Office of the Federal Register.

29 CFR 1910.500, 501 & 503, Code of Federal Regulations, Washington, D.C.: U.S. Government Printing Office, Office of the Federal Register.