The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research

Carpenter Electrocuted in Pennsylvania when Aluminum Edging Contacts Powerline

FACE 90-10

SUMMARY

A carpenter was electrocuted when a strip of aluminum drip edging he was installing contacted a 7,200-volt powerline located behind and above him. The victim was working on replacing the roofing on a 45-year-old house. The power lines were located 6 feet away from the house and 5 feet above the edge of the roof. The victim was working from an aluminum ladder jack scaffold when a segment of edging he was apparently placing in position contacted the powerline, allowing the current to pass through his body to ground. The NIOSH investigator concluded that, in order to prevent future similar occurrences, employers should:

- **contact the local utility company to insulate the powerlines in proximity to any work area prior to the initiation of work**
- **use non-conductive ladders when working near powerlines**
- **require employees to wear fall protection.**

INTRODUCTION

On October 28, 1990, a 31-year-old carpenter was electrocuted when a strip of aluminum drip edge he was positioning contacted a 7200-volt powerline. On November 2, 1989, officials of a county coroner's office in Pennsylvania notified the Division of Safety Research (DSR), of this fatality, and requested technical assistance. On November 15, 1989, a DSR safety engineer conducted an investigation, reviewed the case with a company official, discussed the incident with personnel familiar with the incident site and photographed the site.

The employer is a general contractor with 3 employees who has been in business for 9 years. The company has no safety officer and no written safety policy or program. Each job is reviewed for potential hazards by the owner. Specific hazards such as the location of power lines are discussed with employees at the jobsite. For this particular job, the powerline location was discussed with the workers. Training is done on-the-job. The victim worked for the employer for 4 months and had 10 years' experience as a carpenter.

INVESTIGATION

The victim was involved in replacing the roofing on a 45-year-old private dwelling. A three-phase 7,200-volt powerline was located parallel to the front of the house and 5 feet above the edge of the roof. The nearest of these lines was 6 feet horizontally away from the house. The victim was installing fascia and aluminum drip edge from an aluminum ladder jack scaffold about 12 feet above the ground. (Drip edge is a "T"-shaped metal strip that fits on the edge of the roof covering the joint between the fascia and the roof board to prevent water from entering that joint.) The victim had been handed two pieces of 12-foot long drip edge by a co-worker. He installed one piece of long drip edge and then finished installing the fascia board. At this time someone pulled up in a car at the house and started talking with the co-worker. Although the incident was not witnessed, it appears that the victim took the other strip of drip edge and was maneuvering it into position when it contacted the powerline behind and above him. The victim fell from the scaffold to the ground. The emergency rescue squad was summoned while the co-worker initiated cardiopulmonary resuscitation. The victim was pronounced dead at the scene by an assistant county coroner.

CAUSE OF DEATH

The medical examiner's report listed the cause of death as electrocution. The victim had entry wounds on his hands and exit wounds on his toes.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should contact local utility companies and request that they insulate all power lines in proximity to a work area.

Discussion: Once employers identify the hazards associated with powerlines they should contact the local utility and request that the powerlines in proximity to the work area be insulated with line hoses until work is completed. Most utility companies provide this service when requested.

Recommendation #2: Employers should consider replacing the conductive components of a work platform with components made of a non-conductive material, such as fiberglass, for use around electrical conductors.

Discussion: The victim was standing on a metal surface (i.e., an aluminum ladder jack scaffold) that was connected to metal ladders in contact with the ground. When the drip edge made contact with the powerline, the victim's body provided a path to ground for the current. The use of non-conductive work platforms helps to reduce the possibility of electrocutions should a worker contact an energized conductor.

Recommendation #3: Workers should wear fall protection equipment when working at elevations.

Discussion: Employers should ensure that workers who are exposed to falls from elevations wear a safety belt and lanyard fastened to a life line which is secured to an anchor point.

Return to In-house FACE reports

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