Carpenter Dies After Falling 22 Feet From a Ladder When Aluminum Siding Section Contacts an Overhead Power Line

DATE: January 7, 1992

SUMMARY

On September 24, 1991, a 49 year-old male carpenter was fatally injured after falling 22 feet from an aluminum ladder when a section of aluminum siding he was holding contacted a 110 volt overhead power line. The incident occurred at a two story townhouse while the victim was attempting to install a 12 foot section of j-channel. While moving the section, it contacted the power line, shocking the victim and causing him to fall from the ladder. NJDOH FACE investigators concluded that, in order to prevent similar incidents in the future, the following safety guidelines should be followed:

- ***Employers should conduct a daily job hazard analysis with the participation of the workers.***
- ***Employers should contact local utility companies and request that they de-energize or insulate all power lines in proximity to the work area.***
- ***Employers should provide ladders made of non-conductive materials such as wood or fiberglass when working near electrical conductors.***

INTRODUCTION

On September 26, 1991, NJDOH FACE personnel were notified by an OSHA compliance officer of a fatal work-related fall that occurred two days earlier. On October 3, 1991, FACE investigators visited the site with the compliance officer to view and photograph the scene. Other information on the incident was obtained from the OSHA compliance officer, the police report, and the medical examiners report.

The victim was the owner of a small construction company that specialized in installing aluminum siding, gutters, and trim. He had operated the company for 12 years and employed two other workers. Although the company did not have a formal written safety program, the victim did discuss safety practices with his workers.

INVESTIGATION

The company had been contracted to install aluminum siding above the first floor of a two story townhouse located in an urban residential area. The townhouse was an end unit surrounded by small yards on three sides and was attached on the fourth side to the neighboring house. A series of overhead power and service lines ran parallel to house, about 7.5 feet from the side of the house and 22.5 feet

from the ground. The victim and two employees had started work on the house in the morning and anticipated finishing the job that same day.

The weather was sunny and clear on the day of the incident. At about 11 a.m., the victim was installing the soffit (the horizontal underside of the eave) from a ladder raised against the side of the building. He was working from the third or fourth rung from the top of a new 28 foot aluminum extension ladder raised approximately 22 feet above the ground. Employee #1, also on an aluminum ladder at about the same height, was installing a piece of fascia on the same wall about 25 feet from the victim. Employee #2 was on the ground in back of the building, out of sight of the other workers. Employee #1 stated that he was working on the ladder when he heard the victim scream and turned around to see him face down on the ground. Employee #1 then yelled for employee #2 to get help and went to assist the victim, who was still breathing. The police arrived a few minutes later and began CPR when they found the victim in cardiac and respiratory arrest. The paramedics and local rescue squad arrived soon after and transported the victim to the local hospital where he was pronounced dead.

No one witnessed the contact with the power line. Lying near the victim was a 12' 2" piece of aluminum j-channel with burn marks approximately 8' 4" from one end. The victim was found to have electrical burns on both of his hands and an electrical burn on his left le above the knee. Also found lying nearby was a pair of metal snips. The evidence suggests that the victim was trying to maneuver the 12 foot long j-channel into position to either nail it to the soffit or trim it with the metal snips. As he was moving the j-channel, the long end of it swung around and contacted the uninsulated 110 volt power line 7.5 feet behind him, shocking him and causing him to fall from the ladder (see diagram). The current apparently passed through the aluminum channel, into his hands, through his body, and grounded through his leg into the aluminum ladder.

CAUSE OF DEATH

The cause of death was attributed to multiple injuries of the chest. Electrothermal burns were noted on the left leg and both hands.

RECOMMENDATIONS AND DISCUSSION

Recommendation #1: Employers should conduct a daily job hazard analysis with the participation of the workers.

Discussion: In this case, the employer was apparently unaware of the hazard created by the nearby power lines. It is recommended that employers conduct daily job hazard analysis of the work area with the employees. This can be done while planning the day's work, and should include an examination of the work area for electrical hazards, ladder placement, loose debris, and other physical hazards the workers may encounter. After identifying the hazards, the crew should be instructed on how to avoid them.

Recommendation #2: Employers should contact local utility companies and request that they de-energize or insulate all power lines in proximity to the work area.

Discussion: Once employers identify the hazards associated with power lines, they should contact the local utility and request that the power lines in the proximity of the work area be de-energized or insulated with line hoses until the work is completed. Most utility companies provide this service when requested.

Recommendation #3: Employers should provide ladders made of non-conductive materials such as wood or fiberglass when working near electrical conductors.

Discussion: The victim was standing on a metal surface (the aluminum ladder) that was in contact with the ground. When the j-channel contacted the power line, the victim's body provided a path to ground for the current. The use of non-conductive ladders helps to reduce the possibility of electric shocks should a worker contact an energized conductor. It should be noted that the federal OSHA standard 29 CFR 1926.1053(b)(12) requires the use of ladders with non-conductive siderails where the employee or ladder may contact exposed electrical equipment.

REFERENCES

Code of Federal Regulations 29 CFR 1926, 1989 edition. U.S. Government Printing Office, Office of the Federal Register, Washington DC. pp 286

To contact New Jersey State FACE program personnel regarding State-based FACE reports, please use information listed on the Contact Sheet on the NIOSH FACE web site. Please contact In-house FACE program personnel regarding In-house FACE reports and to gain assistance when State-FACE program personnel cannot be reached.