



The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces
through safety and health research



18-Year-Old Electrician's Apprentice Electrocuted in North Carolina

FACE 86-08

Introduction:

The National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR) is currently conducting the Fatal Accident Circumstances and Epidemiology (FACE) Project, which is focusing primarily upon selected electrical-related and confined space-related fatalities. By scientifically collecting data from a sample of fatal accidents, it will be possible to identify and rank factors that influence the risk of fatal injuries for selected employees.

On October 28, 1985, an 18-year-old electrician's apprentice was electrocuted when he attempted to work on an energized 277 volt lighting system at a newly constructed industrial park complex.

Contacts/Activities:

Officials of the Occupational Safety and Health Program for the State of North Carolina notified DSR concerning this fatality and requested technical assistance. This case has been included in the FACE Project. A safety specialist met with the state compliance officer, the company president, and co-workers of the victim. A next-of-kin interview was conducted.

Background/Overview of Employer's Safety Program:

The employer is an electrical contractor and employs 43 persons. The company was established in 1958, but has been operating for the last five years under the present management. The company has no safety program and its president is the only state certified electrician employed by the company. All other employees received their electrical training in high school vo-tech classes or through on-the-job training. It is a common company practice to perform electrical work on energized electrical systems.

Synopsis of Events:

On October 28, 1985, two employees of the company (the victim and his supervisor) were in the process of relocating overhead junction boxes for a lighting system in a newly constructed industrial park complex. The initial electrical work at the complex was not done by this company. The two men were working in the same room while another contractor was installing dry wall in an adjacent room.

At approximately 9:30 a.m. the victim was standing on a fiberglass ladder and had just completed the connection on a 277 volt energized system. He proceeded to secure the connection with wire nuts when he came in contact with the uninsulated wires. He descended the ladder, took three steps, and collapsed. The supervisor called for help and the dry wall workers from the adjacent room immediately responded and began performing CPR on the victim.

The victim could not be revived. A burn wound on the victim's index finger suggested point of entry.

Cause of Death:

The coroner's report is not available at this time.

Recommendations/Discussion:

Recommendation #1: Electrical work should not be performed on energized systems.

Discussion: Work was being performed on the electrical system while it was energized. Disconnecting the source of the power supply before working on the system would have prevented this fatality. Working on energized systems is not recommended even if working conditions appear to be ideal. This was not the case. The only source of working light in the room was the sunlight. Glare from the sun could have hampered the victim. The dry wall work also created a considerable amount of dust that limited visibility.

Recommendation #2: The employer should develop a written safety policy and a safety program.

Discussion: The company does not provide training in safe work procedures nor are there any rules or written policies governing safe electrical installations. None of the benefits that a safety program would provide (i.e., training, hazard identification, personal protective equipment, and safe operating procedures) were utilized. This is evident by the poor safety record for 1985 (290 lost work days excluding this fatality).

Recommendation #3: Employers should determine the capabilities of employees prior to job assignment and employees should be assigned tasks that they are qualified to perform.

Discussion: The victim had been employed by the company for approximately three months. He had received no previous electrical training and on-the-job training was very limited. In spite of his limited training, he was expected to perform the same work tasks as more experienced employees within this company. Employers should determine employee capabilities prior to job assignment and only tasks within those capabilities should be assigned.

[Return to In-house FACE reports](#)

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Very helpful