



The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces
through safety and health research



Maintenance Manager Dies in North Carolina

FACE 87-60

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. The purpose of the FACE program is to identify and rank factors that influence the risk of fatal injuries for selected employees.

On July 7, 1987, a maintenance manager was electrocuted while repairing an air conditioning unit at an apartment complex. The victim was trying to make an electrical connection inside the energized unit when his right index finger contacted a capacitor.

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. On August 7, 1987, a DSR safety specialist conducted a site visit, met with employer representatives and co-workers, and discussed the incident with the OSHA compliance officer. The next of kin interview was precluded in this case due to the emotional and physical state of the spouse.

Overview of Employer's Safety Program:

The victim was employed as the maintenance manager at a twenty (20) acre, 262 unit apartment complex. The employer had no written safety policy or safety program. The maintenance manager (the victim) was responsible for providing on-the-job training to new employees.

Synopsis of Events:

On the day of the incident the victim arrived at work and received his work orders from the apartment complex manager. The victim and a helper were to replace the compressor in a 240 volt air conditioning unit at one of the apartments. The air conditioning unit was located in a small service room (floor space four feet by six feet) adjoining the apartment. Removal of

a metal screen from an outside wall of the service room allowed access to the unit. A power switch (toggle switch) was located in the service room, directly above the access opening. The unit was de-energized and the compressor was replaced. The unit was then tested and found to be functioning improperly.

The victim inspected the internal connections of the unit and found a loose connection. The victim tried to make the connection without de-energizing the unit. As the victim's right hand entered the unit, his index finger contacted a capacitor, which allowed the current to flow through the victim to ground. The helper, realizing the victim was in trouble, tried to pull him away from the unit and received an electrical shock. The helper then entered the service room, de-energized the unit, and proceeded to the apartment complex office to summon help. The office secretary was a registered nurse and started cardiopulmonary resuscitation (CPR) immediately. The secretary was assisted by a second registered nurse that lived in the complex. The emergency medical service (EMS) arrived after twenty minutes and transported the victim to the hospital where he was pronounced dead on arrival.

Cause of Death:

The coroner listed the cause of death as electrocution.

Recommendations/Discussion

Recommendation #1: Employees who work with electrical conductors should de-energize the conductors prior to the start of any work on the conductors.

Discussion: The maintenance manager knew that the air conditioning unit was energized, yet decided to correct the improper connection without de-energizing the unit. The result was a fatality. The unit should have been de-energized before the wiring was attempted. The wiring could then have been performed safely. Since the incident, management has adopted the policy that working on energized conductors is a dischargeable offense.

Recommendation #2: A comprehensive safety program outlining proper safe work procedures for tasks being performed by workers should be developed and implemented.

Discussion: A comprehensive safety program that would clearly outline proper procedures and techniques to be used in the performance of tasks should be developed. The workers should then be instructed in the proper procedures and techniques to perform their everyday duties in the safest possible manner. Since the incident the employer has begun to develop a comprehensive safety program for maintenance activities. Once this safety program is developed, management should ensure that it is implemented!

Recommendation #3: Employers should ensure that all employees are aware of workplace hazards and safe operating procedures. This can be accomplished by a training program.

Discussion: At present the employer has neither formal training programs for new employees nor periodic retraining for all employees. Safety training should ensure knowledge of hazards and proper operating procedures.

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