

Case 382. 40-year-old master electrician was electrocuted while working with 480-volt energized wires (3-3/0 AWG and ground wire) from a newly installed junction box near the floor.

A 40-year-old male master electrician was electrocuted while working with 480-volt energized wires (3-3/0 AWG and ground wire) from a newly installed junction box near the floor. A pump house for fire suppression system was under construction for a newly constructed warehouse. The owner and the decedent had pulled the wire into the pump house several weeks prior to the incident. The electrical wire was not completely terminated at the cabinet and left hanging on the wall because the concrete floor had not yet been poured. With the electrical service unterminated and hanging on the wall, the firm called the electrical inspector to approve the work. The electrical inspector approved the service work, and contacted the utility company to energize the service. Work by other contractors proceeded inside the building for approximately one week near the energized electrical service hanging on the wall. On the day of the incident, the company owner dropped off parts and materials to the decedent to complete the work. While pushing the energized wire into the conduit, he contacted the live electrical conductors and became immobilized. The two sprinkler fitters heard a noise and saw the decedent immobilized. They used a wooden pallet which was in the pump house to push the decedent away from the energized cabinet/conductors. An apprentice electrician used expired electrical-rated gloves from the decedent's work truck to drag him away from the electrical wire. Emergency response was summoned and the decedent transported to a nearby hospital where he was declared dead.

The MIOSHA Construction Safety and Health division issued the following Serious and Willful Serious citations to the employer at the conclusion of its investigation:

SERIOUS: PERSONAL PROTECTIVE EQUIPMENT, CS PART 6, RULE 408.40660(10):

Electrical protective equipment shall be subjected to periodic electrical tests. Test voltages and the maximum intervals between tests shall be pursuant to Table D and Table E.

Employer did not inspect or test rubber insulated gloves since April of 2003. Employee using outdated and potentially defective gloves was exposed to 480 volt hazard at the *warehouse location. (MIFACE removed the identifying warehouse location).*

SERIOUS: ELECTRICAL INSTALLATIONS, CS PART 17, RULE 408.41719(1):

Electrical wiring, apparatus, and equipment shall be manufactured, installed, and maintained as prescribed in the National Fire Protection Association (NFPA) standard, No. 70, 1975 edition, "National Electrical Code", which is adopted by reference.

Employer did not install electrical equipment according to the minimum requirements of the National Electrical Code (NEC).

Instance 1) Fire pump service conductors were not installed and terminated into an approved service disconnecting means as required by article 230 of the NEC.

Instance 2) Metal conduit, metal junction box, and metal cabinet were not bonded and grounded to prevent accidental contact of them by energized circuit conductors.

Employees of *decedent's employer* and other contractor's employees were exposed to 480 volt wiring for one week at the *warehouse location*. (*MIFACE removed the employer name and warehouse location*).

WILLFUL-SERIOUS: ELECTRICAL INSTALLATIONS, CS PART 17

- RULE 408.41723(2):

The employer shall insure that all live parts of electrical equipment operating at 50 volts or more are properly guarded against accidental contact.

Employer did not protect, guard or barricade energized 480 volt wiring from accidental contact by persons working in the vicinity. Fire pump service conductors were coiled and accessible from floor level.

(Employees of *decedent's employer* and other contractor's employees were exposed to 480 volt wiring for one week at the *warehouse location*.)

- RULE 408.41724(3):

An employee shall not be permitted to be in proximity to any part of an electric power circuit that he may contact unless the employee is protected against electric shock by de-energizing the circuit and locking out and tagging it, or unless the employee working on an energized circuit is guarded by insulation, insulated tools, or insulating matting or blankets sufficient to protect against the voltage involved.

Employer allowed an employee to install an energized 480 volt fire pump without insulated gloves, tools, insulated matting, or blankets. Service was not disconnected or locked out to prevent it from becoming energized.

(Employee exposed to 480 volt hazard while handling energized wiring at the *warehouse location*).

- RULE 408.41726:

Where the work requires exposure to, or handling of, energized conductors or switch gear of 440 volts or more between phases, 2 or more qualified employees shall work together.

Employer did not require two qualified employees to work together while handling 480 volt energized conductors.

(Employee exposed to 480 volt hazard at the *warehouse location*).