

Case 528. 19-year-old apprentice was installing 277-volt LED lighting assemblies in an office when he contacted a live conductor and was electrocuted.

A 19-year-old apprentice was installing 277-volt LED lighting assemblies in an office when he contacted a live conductor and was electrocuted. The work crew had been at the site for two weeks replacing the firm's old fluorescent lighting fixtures with the new LED fixtures. The journeyman electrician held a meeting that morning to explain the job tasks to be completed. Each crewmember was also informed that they would be installing the fixtures "hot" or energized because they were working in the main office and the people working in the office needed lights. The journeyman told them to "Be Careful". The decedent had worked with the person in charge, a journeyman electrician for the past five days changing fixtures; on the day prior to the incident, the decedent had changed out "hot" fixtures. The decedent was standing on one of the firm's four-foot portable fiberglass ladders attempting to install the LED "hot" fixture inside a dropped ceiling. The journeyman electrician indicated to MIOSHA that the ground wire and neutral wire were both connected to the LED fixture. The decedent's non-insulated wire snips were found fused to the one live 277-volt 12-gauge wire in the location where he was trying to strip insulation. When contact was made with the live 277-volt wire, the circuit breaker did not detect a fault condition and open the contacts immediately, perhaps because there was a poor path to ground since the decedent was standing on the fiberglass ladder and touching the metal ceiling tile grid with his body. A coworker working with the decedent in the same room approximately 15 feet away heard a strange noise and then falling ceiling tiles. As the decedent fell, he took part of the ceiling with him, the circuit opened, and all lights went dark. The decedent was found on the floor with the ceiling tiles on him. CPR was initiated by his coworkers while awaiting emergency responders. He was declared dead at the scene. Subsequent investigation did not find a system deficiency or failure.

MIOSHA General Industry Safety and Health Division issued the following Serious citations at the conclusion of its investigation.

Serious: GI PART 40, SAFETY-RELATED WORK PRACTICES [REF 408.14001]

- 1910.332(b)(1): Employees shall be trained in and familiar with the safety-related work practices required by 1910.331 through 1910.335 that pertain to their respective job assignments.

There was inadequate training provided to employees engaged in electrical maintenance duties. Employees were not knowledgeable in lockout practices, personal protective equipment requirements, insulated tools, or working near exposed energized parts. An employee was fatally injured on *Date*, 2019, when he contacted exposed 277-volt energized parts. *(MIFACE removed the date of incident)*

- 1910.333(a)(1): Live parts to which an employee may be exposed shall be deenergized before the employee works on or near them, unless the employer can demonstrate that deenergizing introduces additional or increased hazards or is infeasible due to equipment design or operational limitations. Live parts that operate at less than 50 volts to ground need not be deenergized if there will be no increased exposure to electrical burns or to explosion due to electric arcs.

Note 1: Examples of increased or additional hazards include interruption of life support equipment, deactivation of emergency alarm systems, shutdown of hazardous location ventilation equipment, or removal of illumination for an area.

Note 2: Examples of work that may be performed on or near energized circuit parts because of infeasibility due to equipment design or operational limitations include testing of electric circuits that can only be performed with the circuit energized and work on circuits that form an integral part of a continuous industrial process in a chemical plant that would otherwise need to be completely shut down in order to permit work on one circuit or piece of equipment.

Note 3: Work on or near deenergized parts is covered by paragraph (b) of this section.

Live 277-volt parts were not deenergized before an employee attempted to strip insulation from one 12-gauge wire to connect it to a new LED lighting assembly. An employee was fatally injured on *Date*, 2019, when he contacted exposed energized parts. (*MIFACE removed the date of incident*)

- 1910.335(a)(2)(i): When working near exposed energized conductors or circuit parts, each employee shall use insulated tools or handling equipment if the tools or handling equipment might make contact with such conductors or parts. If the insulating capability of insulated tools or handling equipment is subject to damage, the insulating material shall be protected.

Non-insulated screwdriver and wire strippers were used near and on a 277-volt live conductor while changing a fluorescent light fixture with a new LED fixture.

Serious: 1910.147(f)(2)(i): GI PART 85, THE CONTROL OF HAZARDOUS ENERGY SOURCES (LOCKOUT/TAGOUT) [REF 408.18502] - Whenever outside servicing personnel are to be engaged in activities covered by the scope and application of this standard, the on-site employer and the outside employer shall inform each other of their respective lockout or tagout procedures.

The employer and onsite customer did not inform one another of their respective lockout programs before employees engaged in work that would require energy isolation.