

Fatality Assessment & Control Evaluation

Prevention through comprehensive research and investigation

INVESTIGATION/RESEARCH

LOOK UP FOR OVERHEAD POWER LINES

Since 2001, there have been 64 work-related electrocutions in Michigan; 38 (59%) of these deaths involved contact with energized overhead power lines. The individual either had direct contact with the line or had secondary contact through energized equipment or other means (e.g. through re-rod, tree branch, grain auger, hand tool). Twenty (20) of the 38 deaths involved construction equipment. Aluminum ladders (7 incidents) contacting overhead lines were the primary piece of construction equipment involved. Some examples include:

- 16-year-old male church volunteer moving an aluminum extension ladder extended more than 29 feet contacted an overhead power line of unknown voltage.
- 53-year-old male roofer was raising an aluminum ladder to set it against a house when the ladder contacted a 7,200-volt overhead power line.

IN ORDER TO PREVENT SIMILAR INCIDENTS IN THE FUTURE

- **LOOK UP!** Note location of overhead lines prior to beginning work.
- **Assume overhead lines are energized.**
- **Maintain a minimum distance (clearance) of at least 10 feet from overhead lines having up to 50,000 volts (50 kV).** Most homes are supplied with a 220-volt service capable of about 200 amps. **Minimum clearances increase 4 inches for every 10 kV above 50 kV. Check height of load and power line before you travel under it.**
- **Use American National Standards Institute (ANSI) approved ladders** for work near energized, overhead power lines. **DO NOT use metal (including aluminum) ladders near overhead power lines.** Fiberglass ladders are preferred. Ensure all ladders, especially wood ladders, are clean and dry. Wood ladders should not be preserved with an oil finish as the finish can conduct electricity.
- **Lower ladder and carry horizontally** when moving it. **Ask for help** to set up and carry long ladders. **Place ladders** at an angle so they are one foot away from the wall for every four feet of working height.
- **Properly stow boom-mounted truck cranes** prior to movement of truck.
- **Don't touch a piece of equipment or a person in contact with a piece of equipment** when the equipment is in contact with the power line.

DID YOU KNOW?

- You can contact the electrical utility to de-energize, ground the line or install insulation prior to your work.
- Less than one ampere of electricity can burn, severely injure or cause death.
- Electricity can come down a piece of conductive equipment at the speed of light.
- Non-metallic materials, such as trees and ropes can conduct electricity depending upon moisture content and surface contamination.
- Wood ladders with metal reinforcement wire can conduct electricity.
- Not all overhead electrical lines are insulated. Coatings you may see on a power line may be intended only to protect metal wires from weather conditions, not to protect you from an electrocution.

MSU Occupational and Environmental Medicine: www.oem.msu.edu/
 MIOSHA Standards: www.michigan.gov/lara/
 CPSC Safety Alert: Ladders & Electricity Don't Mix:
www.cpsc.gov/cpsc/pub/pubs/5060.pdf
 NIOSH Workplace Solutions: Preventing Worker Deaths & Injuries from Contacting Overhead Power Lines with Metal Ladders
www.cdc.gov/niosh/docs/wp-solutions/2007-155/

HA #13

TO REPORT A NEW WORKPLACE FATALITY TO MIOSHA

1.800.858.0397

MICHIGAN FATALITY ASSESSMENT &
CONTROL EVALUATION

INFORMATION: 1.517.353.1846
 E-MAIL: debra.chester@ht.msu.edu