FACE FATAL FACTS

Electrocution Hazard from Overhead Lighting Systems


Maintenance Worker Electrocuted Changing Light Bulb

On October 5, 2004, a maintenance worker at an assistedliving facility in Washington State was electrocuted while attempting to change a metal halide light bulb. The bulb broke off in the fixture when the victim first tried unscrewing the bulb. After this, he studied the “as built” facility wiring plans and shut off the electrical breaker to the lights in the area.

The victim turned the light switch off and placed tape over the switch. He then went up above the suspended ceiling where he removed the can-light housing containing the bulb. At this point the victim was likely electrocuted when he touched the energized bulb filament while grounding himself to the metal housing or ceiling grid. He was trying to remove the bulb stem with metal pliers. The broken light was wired to a separate emergency circuit designed to maintain lighting in the event of loss of electricity.

Metal halide and other high-intensity bulbs frequently used in commercial and high occupancy buildings use higher voltages and current than common household light fixtures. These systems present hazards that licensed electricians are trained to recognize, but others may not. These systems contain capacitors that store energy and generate high temperatures that can make it difficult to remove old bulbs. However, hanging a light bulb may normally be done safely by maintenance personnel if done with care. But other work, including removing a broken light bulb, should be performed by a licensed electrician familiar with the type of system installed.

How to Prevent Similar Incidents

The following recommendations could help prevent a similar incident:

• Only qualified electricians should work on electrical systems.
• Electrical circuits must be tested to assure they are de-energized before performing work.
• Make sure that appropriate testing devices are used and that personnel are knowledgeable and trained in their safe operation.
• One should not rely on “as built” electrical drawings to determine current electrical system design and operation.
• Proper lock-out/tag-out procedures should be used for any system that may contain electrical energy.

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