Office of Compliance

fast facts

advancing safety, health, and workplace rights in the legislative branch

Exposed, Energized Wiring and Electrical Components

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Poorly maintained or exposed electrical wiring increases the likelihood of fires and electrical shocks in the workplace. Employee safety is particularly at risk if wiring is prone to accidental contact. Both the Occupational Safety and Health Administration (OSHA) and the National Fire Protection Association (NFPA) require the insulation and protection of wiring energized at 50 volts or higher if the wiring is equal to or below eight feet off the ground. Both OSHA and NFPA also prohibit direct contact between wires and conductive materials, such as metal or water.

Figure 1: Potentially hazardous electrical junction box without cover

Junction Boxes with Missing Covers

Junction boxes without covers are the most common places to find exposed and hazardous wires. Electricians use junction boxes to connect new installations or extend existing installations. When energized junction boxes are uncovered, the wiring is vulnerable to damage and accidental contact. If easily combustible materials, such as paper or cardboard, are stored near unprotected energized wiring, a spark or electrical arc could easily start a fire. Figures 1 and 2 are examples of junction boxes with exposed wiring.

Figure 2: Potentially hazardous wall switch or outlet box without cover

Outlets and Switches Missing Covers

Figure 3: Potentially hazardous burnt outlet with displaced cover

Electrical outlets and light switches with broken, displaced, or missing covers may also expose wiring which endangers any employee plugging in an appliance or turning on a light. Both OSHA and NFPA require that outlets and switches remain covered. Figure 3 shows an outlet with a displaced cover and a burn mark, and Figure 4 shows a completely uncovered outlet next to a light switch. This is an especially dangerous hazard for anyone trying to find the switch in the dark.

Figure 4: Potentially hazardous outlet with no cover next to switch

Light Fixtures: Missing Covers or Improperly Mounted

Electrical hazards may also be found in light fixtures. Uncovered fluorescent lights, incandescent light fixtures without bulbs, or light fixtures hanging by wiring are all dangerous. Fluorescent lights have energized wiring, starters, and ballasts under their protective covers. If the light's cover is not properly replaced, these hazards are exposed. When an incandescent bulb is removed and not replaced, the open socket presents a hazard if it remains energized; and therefore, it is best to leave the burnt bulb in the socket to cover the electrical contact until the bulb is replaced. The fluorescent light fixture without a cover in Figure 5 shows exposed wiring. Figure 6 shows an improperly mounted light fixture with an open socket and exposed wiring.

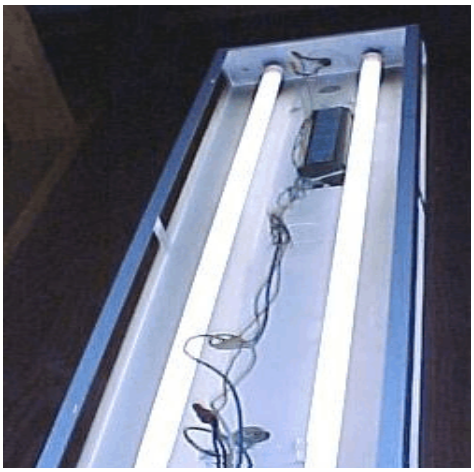

Figure 5: Missing cover on fluorescent light fixture exposes wiring

Figure 6: Light fixture not properly secured to mounting with open socket and exposed wiring

Modular Furniture with Exposed Wiring

Modular furniture provides electrical power and must protect occupants from shock hazards. Because the furniture has live electrical wiring running through it, it is important to enclose and protect the wiring within each module. Corner and baseboard wiring covers are needed to prevent accidental shock hazard contact and damage to wiring. Figures 7 and 8 are examples of unprotected wiring in modular furniture that people could contact accidentally.

Figure 7: Exposed power wiring at corner unprotected from impact and damage

Figure 8: Exposed baseboard electrical supply outlet and service without its cover

Fast Stats

- A recent report from electrical engineers at the National Institute of Occupational Safety and Health found that from 1992 through 2002, there were 3,378 fatal electrical workplace injuries in the United States. Machines, tools, appliances, and light fixtures accounted for 16% of the fatalities; wiring, transformers, and other electrical components accounted for over 26%. The report was based on data collected by the Bureau of Labor Statistics.

For more information, see:

- OSHA Standard 29 C.F.R. § 1910.303(g)(2), available at www.OSHA.gov;
- NFPA 70, National Electrical Code section 110-27 (2005), available for purchase at www.NFPA.org; and
- Cawley, James C. and Homce, Gerald T., *Trends in Electrical Injury in the U.S., 1992-2002*, available at: www.cdc.gov/niosh/mining/pubs/pdfs/tieii.pdf.

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