Extension Cords

5-Minute Talk

Overview of topic

Extension cords are common on jobsites. They are also one of most misused pieces of electrical equipment.

A large majority of the citations under this standard are issued because ground prongs are missing from cord and plug connected equipment or extension cords. Sometimes ground prongs are intentionally removed from tools and extension cords because, "it makes them easier and quicker to plug into and remove."

When the third prong is removed from a 3-prong connector the cord is in violation of 29 CFR 1926.404(f)(6), which indicates that "The path to ground from circuits, equipment, and enclosures shall be permanent and continuous."

Using electrical tape to repair extension cords

OSHA allows the use of electrical tape to cover "superficial damage" to cord jackets. There no prohibition against putting electrical tape over these kinds of abrasions and nicks when there is (1) no damage beyond the jacket, (2) the conductors have not been scraped or exposed, and (3) the insulation inside the jacket has not been displaced or compressed.

While taping these incidental abrasions and cuts does not violate any OSHA standard, OSHA does not recommend it for two reasons:

- Applying electrical tape that is too thick or applying too much of it could change the cord's original flexibility and lead to internal damage.
- The depth of the abrasions and cuts cannot be monitored to see if they get worse without removing the tape.

Hard or extra hard extension cords

Extension cords are rated for use and only Hard or Extra Hard Service extension cords can be used on construction jobsites. Examples of Hard Service types include: S, ST, SO, STO, SJ, SJO, SJT, and SJTO. Extension cords must be durably marked with one of the Hard or Extra Hard Service designation letters, size, and number of conductors.

Strain relief for extension cords

29 CFR 1926.405(g)(2)(iv) requires extension cords to have "devices or fittings so that strain relief is provided which will prevent pull from being transmitted to joints or terminal screws."

One of the weak points of cord assembly is the plug area. When devices or fittings designed to relieve cord strain are not used, insulation tends to pull back and expose conductors.

Employee training

Instruct your employees to:

- Visually inspect all electrical equipment prior to use. Any defects such as frayed cords, missing ground prongs, etc., should be corrected by taking the tool out-of-service.
- Frequently inspect electrical systems to insure the path to ground is continuous.
- Continually audit extension cords at your jobsite. Any cords found not to be Hard or Extra Hard must be taken out-of-service immediately.
- Use only cords that are equipped with strain relief.
- Remove cords from receptacles by pulling on the plug, not the cord.

Training tips

Have a supply of extension cords that include Hard and Extra Hard Service designations. Explain where the strain relief device is located.

Where to go for more information

Regulatory text: 29 CFR 1926.405

National Electric Code, National Fire Protection Association

Regulatory text: 29 CFR 1926.21(b)(2)—Safety training and education, employer responsibility