



Tailgate/Toolbox Safety Training

Safety Services Company-Safety Meeting Division, PO Box 6408 Yuma, AZ 85366-6408 Toll Free (866) 204-4786



Company Name: _____ Job Site Location: _____

Date: _____ Start Time: _____ Finish Time: _____ Foreman/Supervisor: _____

Topic 651: Extension Cords

Introduction: Following are guidelines to help select the proper extension cord for the tools or equipment that are to be used on the job:

- Use the right extension cord. The size of wire in an extension cord must be compatible with the amount of current the cord will be expected to carry. The amount of current depends on the equipment plugged into the extension cord.
- **Current ratings** (how much current a device needs to operate) are often printed on the nameplate. If a power rating is given, it is necessary to divide the power rating in watts, by the voltage, to find the current rating. A 1,000-watt heater plugged into a 120-volt circuit will need almost 10 amps of current. A 1-horsepower electric motor uses electrical energy at the rate of almost 750 watts, so it will need a minimum of about 7 amps of current on a 120-volt circuit. Electric motors need additional current as they startup, or if they stall, requiring up to 200% of the nameplate current rating. Therefore, the motor would need 14 amps.
- **Choose** a wire size that can handle the total current. Add to find the total current needed to operate all the appliances supplied by the cord. The length of the extension cord needs to be considered when selecting the wire size. Voltage drops over the length of a cord.
- **When** a cord is too long, the voltage drop can be enough to damage the equipment. The larger the size of the wire, the longer a cord can be without causing a voltage drop that could damage tools and equipment. Grounding paths must be kept intact to keep you safe.

A typical extension cord grounding system has four components:

- A third wire in the cord, called a ground wire.
- A three-prong plug with a grounding prong on one end of the cord.
- A three-wire, grounding-type receptacle at the other end of the cord.
- A properly grounded outlet.

Extension cords should be inspected regularly using the following procedure:

- Remove the cord from the electrical power source before inspecting.
- Make sure the grounding prong is present in the plug.
- Make sure the plug and receptacle are not damaged.
- Wipe the cord clean with a diluted detergent and examine for cuts, breaks, abrasions, and defects in the insulation.
- Coil or hang the cord for storage. Do not use any other methods.
- Coiling or hanging is the best way to avoid tight kinks, cuts, and scrapes that can damage insulation or conductors.

American Wire Gauge (AWG)	
Wire Size	Handles Up To
#10 AWG	30 amps
#12 AWG	25 amps
#14 AWG	18 amps
#16 AWG	13 amps
<i>The larger the gauge #, the smaller the wire.</i>	

Test extension cords regularly for ground continuity using a continuity tester as follows:

- Connect one lead of the tester to the ground prong at one end of the cord.
- Connect the second lead to the ground wire hole at the other end of the cord.
- If the tester lights up or beeps, the cord's ground wire is okay. If not, the cord is damaged and should not be used.
- Do not pull on cords; always disconnect a cord by the plug.
- Use electrical plugs and receptacles that are right for your current and voltage needs. Connectors are designed for specific currents and voltages so that only matching plugs and receptacles will fit together. This safeguard prevents a piece of equipment, a cord, and a power source with different voltage and current requirements from being plugged together. Standard configurations for plugs and receptacles have been established by the National Electric Manufacturers Association (NEMA).
- Use locking-type attachment plugs, receptacles, and other connectors to prevent them from becoming unplugged.



Jacket Information: *S:* 600V Service Cord; *J:* 300V Junior Service; *T:* Thermoplastic; *E:* Thermoplastic Elastomer;

- *O:* Oil Resistant Outer Jacket; *OO:* Oil Resistant Outer Jacket and Oil Resistant Insulation; *W:* Approved for Indoor/Outdoor use (Weather/Water Resistant)

Conclusion: Ground fault circuit interrupter (GFCI) protection is required on construction sites. Remember, 1/10 of an ampere (amp) of electricity going through the body for just 2 seconds is enough to cause death. Select the proper extension cord for safety on the job.

Work Site Review

Work-Site Hazards and Safety Suggestions: _____

Personnel Safety Violations: _____

Employee Signatures:

(My signature attests and verifies my understanding of and agreement to comply with, all company safety policies and regulations, and that I have not suffered, experienced, or sustained any recent job-related injury or illness.)

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Foreman/Supervisor's Signature: _____

These guidelines do not supersede local, state, or federal regulations and must not be construed as a substitute for, or legal interpretation of, any OSHA regulations.