

Five Simple Extension Cord Rules to Improve Work Site Safety

Identifying GFCI use with extension cords is one of the best and easiest steps when inspecting a job site for safety.

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Any construction work site is full of potentially dangerous situations. OSHA regulations have been put in place to make construction sites as safe as possible. “Out of 4,251 worker fatalities in private industry in the calendar year 2014, 874 of them, or 20.5%, were in construction—that is, one in five worker deaths last year were in construction.”¹

Out of a variety of possible injuries, electrical-related injuries have one of the largest associated costs. They are the second-leading reason for death² after falls. So it is no surprise that electrical safety, specifically electrocution, is a hot topic to any person involved in working at construction sites.

There are many possible reasons for electrocution and although all of the accidents could be prevented, some can be avoided much more easily than others. The topic we want discuss here is best practices for using extension cords to make job sites much safer. Specifically, we want to mention simple rules that can make a difference with very little effort and without requiring any special tools.

Rule 1

There are two ways a construction site can meet OSHA requirements in regard to extension cords. An Assured Equipment Grounding Conductor Program (AE-GCP) is one of the ways. This approach requires multi-point cord inspection every work day. It is very time consuming and is often ignored by users. Even if followed, there is no protection if some dangerous situation happens when in use.

The other option is using GFCIs. GFCIs, or Ground Fault Circuit Interrupters, disconnect power if a potentially



This photo shows an in-line GFCI with one outlet and a 25-foot cord.

In general, extension cords should not exceed 100 feet in length. If the job requires more than a 100-foot distance, a temporary power distribution box is required.

dangerous situation occurs. A GFCI compares current on the way out of and on the way back to a plug and disconnects the power if there is a “leak” or difference of 4-6 mA. Not only does this approach save a lot of time otherwise spent on cord inspections, but also a GFCI will respond right away if a dangerous situation happens, preventing possible electrocution-related accidents.

Every extension cord on a job site has to have a GFCI to protect users. GFCIs are not expensive but can be a real life saver. Identifying GFCI use with extension cords is one of the best and easiest

steps when inspecting a job site for safety.

However, if there is no visible GFCI protection on the extension cord, it does not mean an automatic violation; there is a possibility that the extension cord is plugged into a GFCI-protected outlet. The outlet can be GFCI protected in one of two ways: The outlet itself can be GFCI protected similar to the ones you find in bathrooms and kitchens. Alternatively, the circuit itself can be protected with a GFCI circuit breaker.

Although alternative ways of protecting against electrocution are just as good as having a portable GFCI, the fact

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is that users unplug cords and move them to another location without regard to circuit breakers or outlets. In most cases, there is a likelihood that extension cords are not protected, resulting in real danger to users. To avoid this danger, we highly recommend extension cords with built-in GFCIs that come in 25-, 50-, and 100-foot lengths.

Rule 2

Another important and easy to spot violation to look for is when users plug one extension cord into another one. This is a violation of the OSHA standards because it can potentially lead to a fire, equipment failure, or electrocution.

Power cord ratings are determined by length. If you plug two identical cords into each other, that reduces their current capacity in half and can possibly result in voltage drop and overheating. In general, extension cords should not exceed 100 feet in length. However, by plugging one extension cord into another, the maximum cord length can be easily exceeded. If the job requires more than a 100-foot distance, a temporary power distribution box is required.

Rule 3

Electrical or duct tape on power cords is an indicator that the

power cord is damaged. Although the power cord can still work, the damaged power cord is a violation of the OSHA regulations, and this power cord should be discarded.

It does not take much to damage even a new extension cord: dropped tools, as well as rolling over or pinching the cord, can create a potential safety hazard.

It is only natural to want to keep an extension cord that looks new and just patch it. Although it might be done with good intent, this is one of the most common extension cords violations of the OSHA rules and one of the easiest to spot.

Rule 4

Electric extension cords cannot be affixed to walls or ceilings using metal nails or staples because of the possibility of damage to the jacket of the extension cord.

Extension cords are manufactured with a soft jacket to offer flexibility to the power cord, which makes them susceptible to the damage. The damage can happen during initial installation or during use. During initial installation, the jacket might be damaged when the nail or staple runs too deep and pinches the wire. Even if the extension cord is not damaged during the installation, the soft jacket can be worn through if someone pulls on the cable intentionally or by accident at a later date.

Rule 5

Extension cords cannot run through doorways. This is a self-explanatory rule that might seem to be counterintuitive until you start thinking of one of the main causes of injury—trips and falls. The combination of an extension cord and a high-traffic area such as a doorway is a perfect set-up for a trip-and-fall injury.

So what can you do about it? Plug your extension cord into the outlet of the room you are working in and avoid laying cord across the room to minimize trip hazards. Don't forget to use GFCI outlet or GFCI circuit breaker-protected branch . . . or just have a portable or built-in GFCI available.

Additional Rules for Safe Work

To summarize the five simple rules for extension cords:

1. Use a GFCI on all extension cords.
2. Do not plug multiple extension cords into each other.
3. Do not use damaged cords. Watch out for electrical tape on extension cords.
4. Do not use nails or staples to affix or attach extension cords to walls or ceilings.
5. Do not run extension cords through doorways.

Although all the rules above are important, the rule of having GFCI protection will safeguard from injuries if rules number

three and four are violated, and that is why it is one of the most important rules for extension cords.

Following OSHA regulations for extension cords will make the job site much safer. We have just reviewed some basic but important rules on extension cords. There are a lot of additional rules that talk about proper sizing of the cords to equipment power draw and indoor/outdoor type of wire to ensure appropriate protection, just to name some of them. These rules are more advanced and will require a lot of knowledge about the specific job environment.

The five rules we mentioned are applicable everywhere all of the time and take very little effort to spot, thus making them one of the best "return on investment" type of safety rules. **OHS**

This article was co-authored by Paul Piekarski and Vlad Kono-pelko, who work for Tower Manufacturing Corp. The company is a leading international manufacturer of wiring devices and electromechanical products and is based in Providence, R.I. Visit www.towermfg.com for information.

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