

Toolbox Talks 2

098: Unsafe Conditions: Temporary Power and Light

Discussion leader duties for this session:

Review NEC Article 590.
Review the Article 100 definitions of grounding and bonding.

What this Safety Talk covers:

This Safety Talk addresses unsafe conditions on stairways.

Discussion notes:

Temporary power and light common problem

People often assume that the NEC requirements are relaxed or suspended when the installation is temporary. In general, the NEC rules for wiring in Chapters 1 through 4 also apply to temporary power. Because the temporary conductors are not as well protected as permanently installed ones, some *additional* safety rules apply.

Unsafe conditions with temporary power and light

- Site supply violates Article 230. The NEC requires temporary services to conform to the requirements for permanent ones.
- Bonding errors. A ground rod is a “ground” for the purposes of personnel protection or equipment “grounding.” You eliminate differences of potential only through bonding (creating a metallic path), not grounding (connecting to the earth). Don’t let the common misuse of the words “grounding” and “bonding” confuse you.
- Indoor generator lacks an exhaust means that keeps fumes from the work area. Shut it off and fix the ventilation problem.
- Generator fuel stored in unapproved containers. This violates federal law and presents hazards of both fire and explosion. Replace the containers.
- Cables not properly supported. Article 590 requires that cables and cords be supported to ensure they’re protected from physical damage. But what does this mean? If you already know how to support cable and raceway in permanent installations, use that knowledge for temporary cables.
- Cables supported by vegetation. This is unsafe. Don’t use trees or other plants to support cables.
- Cables not properly routed. Route them away from sharp edges, trafficways, ladderways, and other places in which they would be prone to damage or in which they create a tripping hazard.
- Cables not properly protected. Temporary cables are frequently exposed to foot traffic or other potential sources of insulation damage because you don’t have much choice. This is why cable guards and other devices exist. Use them.
- Light isn’t adequate for the work being performed. Temporary lighting doesn’t have to be poor lighting. If you need more light, add more lighting.
- Lighting not set up right. Having plenty of light doesn’t help if it’s aimed in people’s eyes or set up so it casts shadows. Don’t be afraid to reposition lights.
- Lamps not suitably guarded. No open lamps. Lamp guards ensure that a broken lamp doesn’t electrify ladders and other surfaces.
- Water puddles. Obviously, you don’t run portable cords through puddles. But also ensure there’s a proper support so a cord isn’t knocked into a puddle.

Review and discussion

1. Why is it not true that temporary installations don't need to follow the general requirements for electrical installations?

2. What NEC Article addresses temporary installations? Why is a violation of this Article especially dangerous to you? *[Note to Presenter: Many NEC requirements are for fire prevention. For example, you size conductors so that they don't melt in walls and cause a fire. But Article 590 addresses issues that have an immediate effect on your safety. Article 590 violations, therefore, need to be identified and corrected immediately.]*

3. How do you ensure metallic objects won't present a shock hazard? Why does a ground rod do nothing toward serving this purpose? *[Note to Presenter: Electricity is always trying to get back to its source, not to the earth (the notable exception being lightning, which does go to ground). The definitions of bonding and grounding in Article 100 are important to understand. You cannot use earth as a bonding jumper. The resistance is simply too high.]*

4. What should you do if a generator isn't adequately ventilated?

5. What does it mean to support cables properly? How do you know when you have it right? How can you tell if it's wrong?

6. What are some considerations in cable routing?

7. Why do cables need to be protected? What are some ways to protect them from mechanical damage?

8. If you don't have enough light, what should you do?

9. Is it possible to have enough light, but still have poor lighting? How do you correct the problem?

10. Why must lamps be guarded, and what does this mean? Why is a drop cord or trouble light with a “naked bulb” an electrocution hazard?

Participant's Signature and Date

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