080: Temporary Power

Discussion leader duties for this session:

Review NEC Article 527 and be prepared to answer questions about it.

What this Safety Talk covers:

What the worker needs to know to prevent fire and shock when using temporary power.

Discussion notes :

Advantages

Temporary power is any power wiring supplied with the intention of removal in the near future, regardless of the wiring method used. Because this wiring is temporary:

- You don't need to put splices in junction boxes, provided you maintain equipment grounding continuity.
- You must route the wiring for safety, but you can disregard the appearance requirements of permanent wiring.

Limitations

NEC Article 527 provides the limitations. Some of them are:

- You can't install receptacles on temporary lighting circuits.
- You must have a suitable disconnecting means (switches or plug connectors) for each circuit.
- You must remove temporary wiring when you are done with the tasks that required having it in place.
- All lamps for general illumination must have protection from accidental contact or breakage. A suitable fixture or lampholder with a guard provides this protection.
- You must follow the same ampacity, overload protection, support, and mechanical protection rules as in the rest of the NEC. With portable cords, additional mechanical protection requirements apply.

NEC requirements for portable cords and cable assemblies

Avoid sharp corners and projections.

When routing through doorways or other pinch points, provide protection such as a portable cord guard.

If terminating (rather than plugging in) the cord at a device, use the appropriate fittings.

Use supports to prevent damage. These supports can be staples, cable ties, straps, or similar fittings installed in a way that doesn't pinch the cord. When running cord overhead, consider using a stand made for that purpose. Do not use vegetation to support overhead runs. Do not use steel wire (e.g. #9) to hang cords.

Other requirements for portable cords and cable assemblies

Use an industrial grade or contractor grade portable cord. Compared to "regular" cords, these have superior insulating ability and flexibility.

Ensure portable cords have the right jacket material for the environment. For example, only certain jacket materials are oil resistant. Read the cord jacket or product literature. This requirement is not spelled out in the NEC.

Never splice a portable cord or tape over an abrasion. Once the jacket integrity is lost, so is the safety of the cord.

Never remove the ground prong. Use an adapter and make the proper ground connection.

Review and Discussion

What is temporary wiring vs. permanent wiring?

What is the NEC Article governing temporary wiring?

When should you test a GFCI?

What are some requirements for portable cords?

What should you do if a given plug won't mate to a receptacle?

Observe the connector pattern. If a plug won't fit a receptacle, you are probably trying to mate incompatible systems. Don't force the connection or "wire around it." Find the right power supply.

If you can't find a free receptacle on a power box, don't just unplug something you think isn't in use. In addition to being rude, this action interrupts someone else's work and may cause unnecessary trips up and down ladders. Trace the cord to its point of use, and negotiate some time on that particular outlet.

GFCI

All temporary circuits that are 125V, single-phase up to 30A must be GFCI-protected, unless you have an assured grounding program. You can provide GFCI protection with a plug-in device rather than via the receptacle itself.

If you don't know whether the receptacle is GFCI-protected and you don't have an assured grounding program, use a plug-in device with GFCI protection.

Test each GFCI device prior to first use on each shift.

Assured grounding

An assured grounding program is an official program with a written policy and continuous enforcement. Don't assume it exists unless you see the policy.

Ensure equipment grounding conductors are continuous and each equipment grounding conductor is attached to its proper terminal.

Test each receptacle and attachment plug for correct attachment of the equipment grounding conductor. Record the results of these tests, and provide the results to your foreman or other company-designated person. In addition to the following schedule, the NEC requires tests at least every three months:

- Before first use on site.
- When there is evidence of damage.
- Before returning equipment to service.

Participant's Signature and Date