

Toolbox Talks 2

026: IT Rooms

Discussion leader duties for this session:

Review NEC Article 645 and your company's fire assembly policies.

What this Safety Talk covers:

Special safety considerations for working in IT rooms.

Discussion notes:

Background

Information Technology (IT) room hazards may include automatically locking doors, fire protection systems, Uninterrupted Power Supplies (UPS), and grounding errors.

Some IT room facts

- Automatically locking doors should prevent ingress (entering) and allow egress (exiting). But such doors may lock in both directions, potentially locking you in.
- IT rooms commonly have their own fire suppression systems. Sprinkler systems may pose an electrocution hazard. Gas or chemical fire suppression systems will suffocate you if you remain in the room after a system release.
- IT rooms nearly always have a battery power supply. Thus, even during a power outage, a lethal shock hazard is present. There should be a wall-mounted disconnect immediately outside the room, and at least one disconnecting means inside the room. These will only disconnect the batteries, not drain them.
- IT systems are notorious for grounding and bonding errors. Often, there is a difference in voltage potential between communications cabling shields and metal frames of equipment, in violation of NEC Articles 250 and 645.

IT room best practices

- Do not assume circuits are de-energized simply because you locked out and tagged out the supply breaker. Lethal energy can be present on the grounding system or via battery supply.
- Know the locations of all disconnects to UPS-supplied equipment.
- Verify that you can exit the room in an emergency. Note the location of emergency exits and emergency communications equipment.
- Note the location of sprinkler heads and other fire suppression equipment inside the IT room. Note the location of fire suppression alarms.
- Verify that there's a lighted exit path from the IT room. These rooms are typically crowded with equipment that makes a dark exit dangerous at best.
- Know the exit path from the IT room door to the outside.
- Before commencing work, bond any separate grounding systems, to eliminate differences in potential.
- Don't touch the shield of a network cable while in contact with another metallic object, unless you have verified these are bonded and thus at the same potential.
- In the event of a fire, open the disconnect after you exit the IT room. Confirm that others have made it safely outside.

Review and discussion

1. What are some hazards IT rooms present?
2. What is a potential danger presented by automatically locking doors, and how should you address this?
3. What should you do if the fire suppression alarm activates? Does the nature of your response depend on whether the alarm is a flashing light or a horn?
4. What danger does the presence of a UPS pose?
5. Why is there a wall-mounted disconnect on the outside of a UPS room? *[Note to presenter: The reason for this is addressed in Article 645, and it's basically to allow fire response teams to de-energize equipment before entering the room.]*
6. Why might it be dangerous to touch the shield wire on a printer cable?
7. What things should you verify before working in an IT room?
8. On your way into the IT room, you notice the disconnect is locked in the closed position, and it's not a breakaway lock. What should you do? *[Note to presenter: This is a serious violation that can lead to civil and criminal penalties for individuals as well as any involved companies. Any electrician encountering this should refuse to enter the room and should report the violation immediately to his or her supervisor. The client company will have to be made aware of this, as the Fire Marshall can order the facility shut down until the lock is removed.]*
9. While you're mounting a new 120V panel to the wall in an IT room, an amber light suddenly starts flashing. Earlier in the day, one of the IT workers had told you the red light was the fire annunciator. You have no idea what this amber light is. What should you do? *[Note to presenter: The IT worker may have been wrong, but we don't know. Any unknown alarm of any kind can't be ignored. The only safe thing to do is to exit the room immediately and wait for confirmation that it's safe to re-enter. Normally in a fire, a person exiting the room would also open the disconnect supplying the room. But in this case, we don't know there's a fire and opening the disconnect may cause an unnecessary and expensive disruption in operations. Your immediate concern here is your personal safety. Let the owner or first responders know you did not open the disconnect to shut down the IT room because you didn't know the nature of the alarm.]*
10. Per your company's policies, how can you verify that all of your crew has safely exited the IT room following a fire suppression system release or an actual fire? What are your duties in regard to other trades and to site personnel who may also have been in that room?

Participant's Signature and Date
