CIRSA HAZARD ALERT

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Hazard Alert - EV Charging Stations

The widespread use of electrical vehicles (EVs) comes with an increased demand for EV charging stations that are efficient and reliable for public users within our cities and towns. These stations can pose significant liability issues when not appropriately maintained. This hazard alert highlights basic safety and health concerns and outlines installation, maintenance, and inspection considerations for EV charging stations.

EV Charging Station Categories/Types

- EV chargers are classified as Level 1, 2, and direct current (DC) fast chargers.
  - ***Level 1 & 2 charging (120 - 220/240 Volts)*** – This AC (alternate current) charging system is an intermediate solution for residential and some commercial settings.
  - ***Direct current charging (480 Volts)*** – This fast-charging station uses (direct current) (DC). This type will require a 480-volt and possibly additional power bank connection and is generally utilized for businesses, short-term parking, and large fleets.

Installation Considerations

- An onsite evaluation is needed to determine electrical requirements, drainage away from chargers, signage, lighting, parking spaces (accessible spaces in compliance with the Americans with Disabilities Act), and cellular signals.
- Make sure the EV charging stations have been tested according to the International Electrotechnical Commission (IEC) and UL.
- Consider current and future EV charging needs as EV adoption grows.
- Always refer to the manufacturer's specifications and guidelines for installing and maintaining EV charging stations.
- Only use licensed professionals to install, service, or repair your EV station and follow all national and local building codes.

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EV Charging Stations (cont.)

- The EV station should have proper grounds, temperature control, and an in-cable control box. It must be on a stable surface and comply with the manufacturer's guidelines on adequate space around the equipment for ventilation.
- Never store or use flammable, explosive, or combustible vapors or gases near the stations.
- Install bollards to protect the EV stations.
- Never use extender cables to increase the length of the EV charging cables. The maximum length is limited to 25 feet by the National Fire Protection Agency (NFPA).

Maintenance and Inspection Considerations

- Develop a maintenance and inspection plan to ensure optimal performance year-round.
- A licensed electrician or contractor should install and regularly inspect your EV charging station to ensure it is in peak condition. (Review the manufacturer specifications for specific timeframes)
- Depending on the location and seasonal weather conditions, more frequent inspections and maintenance may be needed.
- Check all wiring and connection points for damage, overheating, and missing or loosened parts.
- Make sure the area around the charging station is clear from debris, snow, etc.
- Inspect the station itself for any damage.
- Test ground fault protection (GFI) and emergency stops.
- Check the EV cable and connector for cracks, broken pieces, and exposed wires.
- Make sure all safety and parking signs are legible and installed correctly.

Potential Hazards and Risks

- Fire and toxic fumes involving lithium-ion batteries.
- Electrical shock/burns and arc flash.
- Environmental Concerns (Lithium-Ion Batteries)
- Incorrect installation of the equipment.
- Cyberattacks
- Trips and falls involving the EV charging cable and weather conditions.
- Vehicle-related incidents
- Station security and protection from property damage and vandalism.

Risk Considerations

- Who is responsible if an EV charging station malfunctions and damages a vehicle?
- What happens if someone gets injured using a public charging station?
- Who is liable if an EV suffers damage due to an electrical fault at the charging station?
- Who is responsible for the maintenance and inspection of the EV charging stations?

Resources

https://www.access-board.gov/tad/ev/
https://www.chargepoint.com/businesses/dc-stations
https://calevip.org/electric-vehicle-charging-101
https://www.statx.com/whitepaper/addressing-fire-suppression-needs-for-electric-vehicle-charging-stations/
https://qmerit.com/blog/how-often-does-my-ev-charger-need-maintenance/
https://branding.evbox.com/web/448f729385ab7a79/na-evbox-iqon-product-manual/?mediaId=43C3B6D6-F20D-4359-9B7ED30077E420FB
https://chargepoint.ent.box.com/v/cp6000-sdg-NA
https://blinkcharging.com/wp-content/uploads/2023/09/Blink_IQ_200_InstructionManual_20191009a.pdf

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