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Considerations for EV charging stations at dealerships

The electric vehicle (EV) market, while experiencing some fluctuations, is solidifying its presence and importance in the automotive landscape. S&P Global projects that by 2030, more than 25% of passenger vehicles sold will be an electric vehicle.[1] The number of charging points across the U.S. is expected to grow to over 35 million by that year.[2] However, this expansion will be gradual, and dealerships – especially those situated far from dedicated charging facilities – could benefit from having a charging station on-site.

Before installing a charging station at your dealership, however, there are a number of factors to take into account.

Readying your facility

"Quick Charge" stations will require additional high-voltage circuits and equipment. Dealership facilities will need to have the electrical capacity to handle multiple chargers. If you're at the starting point in planning for your own EV infrastructure, there are several important considerations:

- Where should EV chargers be located in your dealership?
- Who will perform the installations?
- What standards will be applied to assure safe installation?
- Will you provide customer access?
- How will you manage access after hours?
- Will a charge be free of cost, or will customers pay for the service?

QUICK CHECKLIST

To help get you started, below is a general checklist reviewing basic considerations for installing EV charging stations at your facility:

Information gathering:

- ☐ Request all information/insights available from the original equipment manufacturer (OEM).
- ☐ Only install UL-listed equipment.
  - UL Solutions - Electric Vehicle (EV) Charging Infrastructure Services
  - UL Solutions - EV and EVSE infographic

Location and installation:

- ☐ Avoid installing EV charging stations in non-sprinklered buildings, underground parking garages, mechanical, stacked, or automated parking garages where fire department access would be difficult or delayed. Whenever possible, locate EV charging stations outside of these parking structures.
- ☐ Outdoor EV charging stations should be located at least 33 feet from combustible exterior walls, ignitable liquids or gases, and 25 feet from any openings (windows) in non-combustible walls, and should be free of organic materials such as weeds and grasses.
- ☐ Identify potential hazards such as standing water, icing, potential for vehicle damage, flash floods, etc.
- ☐ Position equipment to allow easy access for public fire service should a fire occur and not to interfere with traffic flow, snow removal, or re-paving operations.
- ☐ Have snow removal preparation and planning in place.
- ☐ Ensure installation complies with manufacturer's recommendations, local requirements and ADA requirements.

Security and safety:

- ☐ Establish methods to prevent unauthorized access or use of the charging equipment.
- ☐ Charging stations should clearly be marked with sign and pavement markings.
- ☐ Ensure parts, components and completed unit are certified by an OSHA-recognized Nationally Recognized Testing Laboratory (NRTL).
- ☐ Ensure equipment meets the most current National Electrical Code standards (NEC Article 625).

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- ☐ Install barriers, bollards or guardrails to protect equipment from vehicular damage.
- ☐ Customer parking area should be well-lit for security.
- ☐ Use self-retracting power cables to reduce tripping hazards and prevent abrasion damage. If self-retracting power cables can't be used, include cord handles and position equipment to reduce trip hazards and minimize mechanical damage to the cables.
- ☐ Provide a dedicated emergency power off device (EPO) for the charging stations.
- ☐ Maintain sufficient distance between the charging stations and electric vehicle; a minimum clear distance of 3 ft (1 m) is recommended.

[1] "Electric Vehicle Trends: EV Production, Sales & Forecasts." S&P Global. Accessed 17 January 2025.

[2] "The US electric vehicle charging market could grow nearly tenfold by 2030: How will we get there?" PwC. Accessed 17 January 2025.

Electrical considerations:

- ☐ Retain a licensed electrical contractor with extensive experience with EV installations and knowledge of local regulations.
- ☐ Request the electrical contractor evaluate the available electrical service and the capacity to handle the demand of charging stations.
- ☐ Engage your insurance carrier early to assist with reviewing plans for EV installation.
- ☐ Listed or approved hose charging cable assemblies should be used and not exceed 5.5 m (18 ft) in length.
- ☐ Cables must be provided with designated cable holders (reels) near the charging station and should be retractable if possible.

Inspection and maintenance:

- ☐ Conduct monthly testing and maintenance in accordance with the manufacturer's specifications and local requirements.
- ☐ Implement a daily inspection program to ensure all equipment is maintained in safe operating condition.
- ☐ It is recommended to perform a visual inspection before each use and conduct comprehensive inspections of each charging station on a weekly basis.
- ☐ Immediately shut down and repair any damaged or deficient charging stations, including the station itself, cables, connectors, and any associated infrastructure that is mechanically damaged or electrically deficient.
- ☐ Conduct annual inspection, testing, and maintenance, including thermographic surveys, in accordance with local regulations and manufacturer's specifications, by a qualified contractor.

Emergency and monitoring:

- ☐ Install dedicated, accessible and highly visible emergency shutoff device or electrical disconnect (EPO) for the charging stations where they will be accessible during a fire. The EPO should not be less than 6 m (20 ft) or more than 30 m (100 ft) from the charger they serve in approved locations.
- ☐ Monitor charging stations with a Battery Management System (BMS) or similar system for alarm or trouble conditions.
- ☐ Prioritize monitoring vehicle telematics data and address faults.
- ☐ Develop an appropriate response plan for staff when abnormal conditions are reported by the charging system.
- ☐ Develop an emergency response plan to support fire services, including a pre-fire plan to access electric vehicle charging stations, conduct firefighting activities, and remove fire-damaged vehicles.

Coordination with fire services:

- ☐ Before installing electric vehicle charging stations, review the plans with the public fire service and insurers.
- ☐ Mark the location of charging stations, fire hydrants, and hose connections on the fire pre-plan.
- ☐ Where needed, provide additional fire hydrants or hose connections.
- ☐ Verify the availability of a water supply to support firefighting plans.
- ☐ Ensure the fire service has the necessary equipment for removing fire-damaged vehicles.

Looking for help?

The first source of guidance and advice should be from the OEM. By now, they've likely talked with you about the newest EV products and how to support them. Below you will find other resources available to offer advice and guidance. Some of these are published by the federal government and others come from state and local authorities.

EV Planning Resources: Implementation, Installation, and Maintenance | U.S. Department of Transportation

Fire Safety for Electric Vehicles and Other Modern Vehicles in Parking Structures | National Fire Protection Association

Powering the future of global transportation: Electric vehicle charging | UL Solutions

Call in the experts

Finally, don't hesitate to contact and work with experts in the field of EV installations. Due diligence interviewing these specialists will be critical to the overall success of your project.

Zurich works with an experienced vendor who can assist customers with a turnkey solution for their dealership, from planning to installation of EV charging stations.



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