

Loss Prevention Standards – Cross Classes

# 12 Top Tips for Electric Vehicle Chargers

Version: 1.2

Date: 20<sup>th</sup> November 2024

This document provides 12 top tips to help manage the risks associated with externally sited electric vehicle charging equipment.



# 12 Top Tips for Electric Vehicle Chargers



## Introduction

Electric and hybrid vehicles (EV), and the associated charging infrastructure, such as transformers, etc., are becoming increasingly common. Whilst generally considered safe, the risk of fire can increase when systems are poorly installed and/or maintained; a lack of appropriate impact protection can lead to damage caused by reversing and parking vehicles; and cables can be stolen for scrap value. Indeed, since November 2023, [Instavolt](#), the UK's largest operator of rapid chargers, has reported [174 cables stolen from 27 of its sites in Yorkshire and the Midlands](#), with each cable costing at least £1000 to replace.



This Loss Prevention Standard provides 12 top tips for external charging stations and the associated infrastructure.

Note: This standard does not address any Liability exposures. It only focusses on Property loss prevention and risk management guidance.

For more detailed risk management guidance relating to electric and hybrid vehicles and your property or for your motor fleet, please see the following Loss Prevention Standards:

- [Electric and Hybrid Vehicle Charging - Property Risk Management Guidance](#)
- [Implementing Electric Vehicles](#)
- [Electric and Hybrid Vehicle Awareness](#)

## 12 Top Tips to Prevent an Incident with Electric Vehicle Charging Equipment

1. Property Insurer. Please speak with your Property Insurer at the earliest opportunity to establish an agreed risk management strategy.
2. Risk Assessments. Ensure all relevant risk assessments, including the premises Fire Risk Assessment, are reviewed, and revised to take into account the provision of the EV charging equipment. Also consider:
  - a) Theft and Security. The increased theft exposure from the charging station and cables and what deterrents and/or mitigation measures are in place? Have you considered:
    - i. DNA forensic marking with accompanying signage? Please refer to Aviva's Specialist Partner [Selectamark](#).
    - ii. Appropriate lighting and security lighting?
    - iii. Fencing and access control?
    - iv. Monitored Video Surveillance Systems (VSS)?
  - b) Exposures. Consider the surrounding area. Are buildings or any yard storage, including waste bins etc., exposed by the provision of the charging equipment in the proposed location(s)?
    - i. Consider a charging station or vehicle on charge on fire and the associated smoke generation. What other assets are exposed, and where could the fire or smoke spread?
    - ii. Ideally there should be 10 metres between the charger and any buildings, valuable assets or combustible goods storage.
  - c) Flood & Weather. What would happen in the event of flooding, heavy rain/downpour etc. to any charging stations in the proposed location? Could they be located in an area outside of such events, or on raised ground to reduce this exposure?
3. Competency & Standards. Charging equipment should only be installed and maintained in accordance with **manufacturer's** recommendations, and by a competent electrical contractor, such as those with current NICEIC, ECA, NAPIT accreditation or SELECT (Scotland only).

- a) Is the installation being completed in accordance with the latest edition of the IET Code of Practice for EV Charging Equipment Installation, or other local territory recognised equivalent standard?
4. Electrical Circuit. All circuits supplying the EV charging equipment should be checked to ensure it has capacity for the additional electrical load.
    - a) Ideally, there should be provision of independent dedicated circuits, protected by Residual Current Devices (RCD) and these should be easily identifiable to isolate.
    - b) Aviva does not recommend the use of 13-amp sockets for the charging of EVs on commercial premises, only proprietary charging systems should be used.
  5. Original Installation. Upon installation, a thorough formal inspection and test should be completed of the newly installed chargers, and associated infrastructure, including cables. **Please refer to Aviva's Specialist Partner [Bureau Veritas](#).** This inspection and test should review:
    - a) The quality of the installation.
    - b) The electrical connections including isolators.
    - c) Earthing connections and ensuring the earth continuity is installed correctly.
    - d) Surge protection safety devices and installation of lightning protection.
    - e) Weather tightness of the charging units.
    - f) Protection against vehicular impact damage.
    - g) Lengths of charging cables provided. These should not be overstretched.
  6. Electrical Isolation. Emergency manual isolation switches should be provided in a safe, clear, clean, and readily accessible location.
    - a) There should not be any storage or combustible materials within 1 metre horizontally, and none below isolation switches. There have been incidents where isolation devices have ignited and burning materials have spread to combustible materials located below, spreading the fire.
    - b) Isolator switches should not be mounted onto combustible surfaces/combustible insulated panels. Where there is no alternative, fire resisting board with at least 60 minutes fire rating should be installed, extending at least 1 metre radially from the isolator switch.
    - c) Ensure isolator switches are clearly labelled and adequate signage provided.
    - d) Isolator switches should be maintained, routinely tested, and visually checked by site personnel at least monthly to ensure the above are being completed.
    - e) Isolation procedures should be included in the emergency response plan.
  7. Documentation. Ensure you are in possession of all the required documentation for the EV charging equipment e.g., certification, warranties, maintenance records etc.

8. Self-Inspections. Regular recorded self-inspections of the charging stations should be completed by site personnel at least monthly. This should include the charger itself, charging cables, cable connections etc. Checks should include:
- Signs of physical damage, corrosion/rust, impact or wear and tear of the equipment.
  - Ensuring the charging panel is secure and closed.
    - If safe access is possible, check inside the charging station to look for signs of water ingress.
  - Overstretched, worn or damaged charger cables (These should be removed from use immediately and replaced).
  - Housekeeping, specifically ensuring the area is maintained clean and tidy, free from waste and litter.
  - Ensuring combustible materials or storage are a suitable distance clear of charging equipment and bays.
  - Signs of vandalism or inappropriate use.
  - Ensuring signage and markings are still in place and conspicuous, etc.

Note: If signs of damage etc. are being found regularly, the frequency of self-inspections should be increased, and other measures may need to be introduced.

Note: Records should be maintained and kept for review by your property insurer.

9. Faults & Visible Damage. If any charging equipment, including associated infrastructure, develops a fault or shows any visible signs of damage or corrosion, it must be isolated and locked-off immediately. It should not be used with any faults or any signs of damage.
- Suitable warning signs should be provided.
  - The equipment should not be brought back into service until all fault conditions are resolved, and it has been tested and certificated by a competent electrical contractor as being safe.
10. Inspections, Testing and Maintenance. Follow Original Equipment Manufacturers (OEM) guidance for inspections, testing, servicing, and maintenance. This should only be completed by competent and qualified engineers and accurately recorded.

Note: Records should be maintained and kept for review by your property insurer.

- Initially. Complete a full hand over inspection as part of the installation project.
  - Annually. Thereafter, unless there are concerns around the status and condition of the equipment, an annual inspection/test should be completed. If there any concerns, then the frequency should be increased as appropriate.
  - Six-monthly. Formal check of RCD's is **generally advised** – Refer to OEM for guidance if necessary.
11. Thermographic Surveys. Thermographic surveys of the charging infrastructure, including whilst vehicles are on charge, should be completed at least annually.
- Further information can be found in the Aviva Loss Prevention Standard [Thermographic Surveys](#).
  - Please refer to Aviva's Specialist Partners:
    - For Electric Vehicle Charger Inspection and Thermographic Inspection Services: [Bureau Veritas](#)
    - For Thermographic Imaging equipment: [PASS](#)

12. Emergency Response Plans & Fire & Rescue Services. Ensure all site emergency response and evacuation plans are updated, including notifying, and liaising with the public Fire and Rescue Services.

For more information please visit:

[Aviva Risk Management Solutions – Specialist Partners](#)

## Sources and Useful Links

- RiscAuthority Guidance document [RC59 - Recommendations for Fire Safety When Charging Electric Vehicles](#)
- [Energy Saving Trust](#)
- [The Institution of Engineering and Technology \(IET\) Code of Practice for Electric Vehicle Charging Equipment Installation - 4th Edition](#)

## Additional Information

Relevant Loss Prevention Standards include:

- Electric and Hybrid Vehicle Charging - Property Risk Management Guidance
- Implementing Electric Vehicles
- Electric and Hybrid Vehicle Awareness
- Business Continuity Planning
- Contamination Following a Fire
- Control and Management of Combustible Waste Materials
- Electrical Installations - Inspection and Testing
- Emergency Response Teams - Loss Prevention Standards
- External and Internal Third-Party Exposures - Property Protection
- External Wall Insulation Systems
- Fire Compartmentation
- Fire Safety Inspections
- Fire Safety Legislation
- Housekeeping - Fire Prevention
- Managing Change - Property
- Managing Contractors
- Manual Fire Fighting Water Supplies
- Smoke Contamination
- Thermographic Surveys

To find out more, please visit [Aviva Risk Management Solutions](#) or speak to one of our advisors.

Email us at [riskadvice@aviva.com](mailto:riskadvice@aviva.com) or call 0345 366 6666.\*

\*The cost of calls to 03 prefixed numbers are charged at national call rates (charges may vary dependent on your network provider) and are usually included in inclusive minute plans from landlines and mobiles. For our joint protection telephone calls may be recorded and/or monitored.

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20<sup>th</sup> November 2024

Version 1.2

ARMSGI492024

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