

Construction All Risks (CAR) - Lithium-ion Batteries

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Lithium-ion batteries are being increasingly used on construction sites to power tools, plant, and other devices. As with any battery equipment, fires can occur, and careful management is required to reduce the potential for such incidents.

This Loss Prevention Standards provides guidance to help identify, and mitigate the risks related to lithium-ion batteries and other rechargeable battery use, handling, and storage on construction sites.



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Introduction

Lithium-ion battery fires can generate significant heat and flammable/toxic gases. The following guidance can help reduce the risks of lithium-ion battery fires on construction sites.

General Considerations

- Ensure lithium-ion battery related hazards are reviewed under the site Fire Risk Assessment, and as prescribed in the CDM Regulations, by a suitably competent person.
- Implement site safety rules around condition of equipment, charging, storage, and emergency procedures. Share with stakeholders and include within site safety training/toolbox talks.
- Ensure site inspections include damage/condition of battery powered equipment; modifications (tools can be modified to accept non-conforming batteries), charging cables; and charging areas/charging cabinets/rooms against site rules. Use a thermographic camera to check equipment for hot spots, overheating etc.
- Prohibit overnight / unattended charging on site.
- Ensure charging areas are covered by any site fire detection systems/fire alarms.
- Prohibit damaged batteries, or devices to be discarded into general site waste receptacles.
- Ensure any plant and equipment arriving to site containing lithium-ion batteries is in good order with no signs of damage e.g., including odours, leaks, vibration, heat etc.
- Ensure fire management plans include an emergency response to lithium-ion battery related incidents.



Charging of Batteries, Tools, and other Devices

- Install charging lockers with a fire resistance rating of at least 60 minutes and overcharging protection, preferably at least 5 metres from the build, storage, and other combustible materials. The cabinets should be used **in accordance with manufacturer's instructions with doors closed whilst charging**. Note: An increased fire resistance period of 90 minutes is recommended where separation distances cannot be achieved.
- If non-fire resisting charging lockers are used, only site in designated areas at least 10 metres from the build, storage, or combustible materials.
- Where charging lockers are not provided, designate a covered charging area ensuring tools/batteries are charged on non-combustible surfaces, at least 150mm from the ground, and at least 10 metres clear of the build, storage, and other combustible materials.
- Ensure externally sited charging equipment is suitably rated for external use.
- Ensure adequate ventilation for all equipment under charge.
- Avoid the use of extension leads and multi-gang adaptors to charging lockers or charging bases and ensure fuses to power leads and charging bases are appropriate. Include charging equipment under portable appliance testing regime.
- Encourage battery damage/dropping incidents to be reported and the batteries removed/prohibited from site.
- Prohibit charging of E-Scooters, E-Bikes, or other personal transport devices.
- Prohibit storage of E-Scooters, E-Bikes etc wherever possible, or store at least 10 metres from buildings, storage, or combustible materials.

LOSS PREVENTION STANDARDS

Charging of Plant, Generators, Electric Vehicles (EV's) etc

- Store and charge larger items of lithium-ion battery powered plant e.g., generators, mobile plant etc. at least 10 metres from buildings, storage, or combustible materials.
- Where adequate separation distances cannot be achieved, the installation of a fire barrier providing a fire resistance rating of at least 60 minutes shall be considered between the charging area and the buildings or storage. Note: increased fire resistance periods are available.
- Ensure impact risks are considered when locating such equipment.
- Any weather resistant canopies or protective enclosures shall be of non-combustible materials and charging equipment mounted to avoid rainwater exposure/ingress.
- Ensure 'hot weather' safe temperature thresholds are not exceeded.
- Use only certificated EV charging infrastructure. Avoid using charging cables with 13amp plugs.
- Prohibit EV charging of any non-construction vehicles on site.
- Provide appropriate training on safe charging practices.

Specialist Partner Solutions

Aviva Risk Management Solutions can offer access to a wide range of risk management products and services at preferential rates via our network of Specialist Partners, including:

- Fire risk assessment: [Cardinus Risk Management](#).
- Charging cabinets: [Denios](#)
- Thermographic imaging and PAT testing: [PASS](#)

For more information please visit: [Aviva Risk Management Solutions – Specialist Partners](#)

Additional Information

Relevant Loss Prevention Standards include:

- [Lithium-ion Batteries – Portable Tools](#).
- [Rechargeable Batteries – Checklist](#).
- [Fire Prevention on Construction Sites Joint Code of Practice 10th Ed.](#)
- [Thermographic Surveys](#).
- [Managing Contractors](#).

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

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LOSS PREVENTION STANDARDS