Attachment 1: Safer storing and charging of lithium-ion battery powered electric rideable devices

Checklist for facilities managers

Background

This document is an attachment to the Electric Rideable Device Storing and Charging: A Guide for Government Tenancies, which offers guidance to state government agencies about a consistent, risk mitigation-based approach to safer storage and charging of Lithium-ion (Li-ion) battery powered electric rideable devices (ERDs).

The guidelines include controls to:

1. Facilitate safer storage and charging of ERDs in end-of-trip facilities (EoTFs) and buildings.
2. Mitigate the risk to the safety of people within buildings where devices and batteries are stored and charged.
3. Mitigate the risk of battery fires occurring.
4. Mitigate the risk to property and people in the event of a fire occurring.

How to use the checklist

This checklist provides a summary of the measures set out in the guidelines, including distinguishing 'recommended' from 'higher level' controls. The higher level controls are labelled.

Facilities managers should use the checklist to select measures that are appropriate and suitable for the physical limitations and characteristics of their facilities, plus other considerations, such as available budgets, that may apply. It remains the responsibility of each facilities manager to conduct an appropriate, thorough, risk assessment.

Checklist for safer storing and charging of Li-ion battery ERDs

Provide a designated area that is a suitable environment for the storage and charging of ERDs

1. Establish a single designated area for the parking and charging of ERDs.

- [ ] Designated area is all or part of an EoTF bicycle parking area.
- [ ] Designated area is in a separate area not under the main roof of the building (higher level control).
- [ ] Engage with the Government Office Accommodation.

2. Provide signage and directions for ERDs to only park in the designated area.

- [ ] Signage and markings, such as floor markings, to identify where parking or charging can occur.
- [ ] Provide signage prohibiting ERDs in places that may be used for informal parking such as stairwells.
- [ ] Include guidance of where to park and charge in safety and induction materials.
- [ ] Advise that batteries are not removed from the designated area and taken into workspace.

3. Ensure the designated area is in a cool, dry area away from direct heat and water sources.

- [ ] Provide protection from the weather (e.g. rain and direct sun).
- [ ] Ensure designated area is not next to high heat generating equipment such as air-conditioning compressors or furnaces.

4. Ensure the designated area is separated from workspace/office space or other sensitive areas of the building such as server rooms, archives or laboratories.

- [ ] Provide designated area on a separate floor where feasible.
- [ ] Provide solid, fireproof walls (such as concrete or brick) between workspace and designated area.
- [ ] Avoid designated area doors from opening directly into workspace. Instead ensure that doors open to outside or shared spaces such as garage, locker rooms or passageways.
- [ ] Where there is proximity to employee workspace, engage a fire engineer to consider additional measures such as sprinklers, fire safety doors, smoke detectors if not already provided (higher level control).

5. Ensure the designated area is ventilated to reduce toxic smoke and gases accumulating.

- [ ] Avoid the designated area being a sealed confined space.
- [ ] Allow air flow with other (non-office) area such as car park or storage areas.
- [ ] Avoid venting directly to internal workspaces such as windows venting through to offices.
- [ ] Provide for natural airflow via permeable walls with the outside (higher level control).
- [ ] If confined, consider installing an Automatically Openable Vent linked to the fire and smoke detection systems and consider venting outlets, air-conditioning intakes and direction of smoke travel (higher level control).

6. Ensure the designated area is and will be free of flammable materials.

- [ ] Locate towel storage or drying lines in a separate room or at a distance from charging points such as the other end of the room.
- [ ] Provide storage of cleaning supplies in a separate area.
- [ ] Provide storage of other flammable materials such as fuel supplies in a separate area.
- [ ] Provide hard surface non-slip flooring and walls (for example, no carpet).

7. Have fire detection, suppression and isolation systems installed.

- [ ] Install fire (heat) and smoke sensors connected to alarms.
- [ ] Provide a sprinkler system in the designated area and adjacent areas.
- [ ] Where sprinkler system is provided, the triggering of alarms must provide automatic power isolation (cut-out) to the ERD charging points before the sprinklers come on to avoid electrocution.
- [ ] Provide access to a hydrant or water supply.
- [ ] Install gas-detection alarms (higher level control).
- [ ] Provide extinguishers appropriate for Li-ion fires (for example F-500 EA) as per expert advice (higher level control).

8. Ensure the parking of ERDs in the designated area does not block exits/access.

- [ ] Ensure sufficient distance around designated charging bays to enable emergency access.
- [ ] Provide signage, education and compliance monitoring to ensure that parking of ERDs does not occur outside the designated area.

9. Provide directional wayfinding and signage for the designated area for emergency personnel to quickly locate and respond to fires.

- [ ] Provide directional wayfinding signage to guide emergency services to the designated area.
- [ ] Provide other important information such as identifying a charging cabinet or emergency power isolation switch.

Manage the electrical charging system

10. Establish a charging environment that can restrict the amount of time on charge.

- [ ] Install charging points that have an automatic cut-out outside office hours.
- [ ] Use the timer system to delay the power coming on in the morning until commuters have arrived and their batteries have had time to cool, for example, not come on until 10 am.
- [ ] Install timers that cut-out after a defined period, for example, three hours (higher level control).
- [ ] Establish a delay functionality on the timer, such as 30 minutes, to allow a battery to cool (higher level control).

11. Provide electrical isolation of the area where charging points are provided so that in case of an incident, power points will not continue to contribute to heat generation.

- [ ] Ensure each general power outlet has a switch so they can be turned off.
- [ ] Provide an emergency isolation switch that deactivates all general power outlets (higher level control).
- [ ] Provide for automatic isolation of power in the designated area if a general fire alarm is activated (higher level control).

12. Use only the power points provided.

- [ ] Ensure power points are provided to avoid using extension cords (i.e. don't have a single bank of power points).
- [ ] Prohibit the use of extension cords and power boards.

Promote safer ERDs and charging practices

13. Undertake awareness raising of ERD Li-ion fire risks and safety information for riders and buildings tenants.

- [ ] Provide a safety brochure or factsheet with simple, easy to read safety and risk mitigation information (higher level control). Refer to Attachment 2 for a model safety factsheet.
- [ ] Provide advice (in signage or other promotional materials or induction) that batteries are not removed from the designated area and taken into workspace for charging or storing.
- [ ] Implement a broader awareness raising regime based on the safety factsheet information such as intranet news or posters (higher level control).
- [ ] Provide an induction to safe charging practices and the EoTF (higher level control).

14. Support chargers being of a suitable standard.

- [ ] Promote the suitable charger standards and conditions via awareness raising campaign (as per above) (higher level control).
- [ ] Implement a corporate policy consistent with the guidelines that employees are expected to comply with (higher level control).
- [ ] Maintain a database of riders who have undertaken induction and provide tags for their ERDs (higher level control).
- [ ] Undertake testing and tagging by a qualified technician for authorisation to charge at the EoTF (one-off initial, or regular testing) (higher level control).

Maintain the safer charging environment

15. Include the EoTF in cleaning schedules.

- [ ] Include the EoTF in cleaning schedules to keep the area clear of potentially flammable materials.

16. Include the EoTF in maintenance schedules.

- [ ] Ensure the fire detection and suppressions systems maintenance schedules include all equipment.
- [ ] Undertake testing of the electrical system including isolation switches.

17. Establish processes for monitoring compliance and non-compliance.

- [ ] Include regular checks of the EoTF in the facilities management role for non-compliance such as use of power boards, parking outside the designated area and flammable materials.
- [ ] Determine rectification actions for non-compliance including removal processes for serious breaches.

18. Include a section for battery fires in the building's Emergency Response Plan.

- [ ] The building's Emergency Response Plan should be updated to include any information specific to the designated area and charging facilities.

Facilitate appropriate disposal of Li-ion batteries

19. Prohibit the disposal of Li-ion batteries in the building's waste disposal system.

- [ ] Provide disposal information in the awareness raising materials.
- [ ] Provide suitable information, including prohibition signage at the central waste collection point or bins near the designated area.