

Safe Storage and Charging Guidelines for E-Bikes & E-Scooters

The following recommendations and considerations are for building owners and operators, property management groups, universities, and other institutions, who have authority over how micromobility vehicles are managed inside and outside of buildings. These recommendations and considerations are critical to mitigating fire risks associated with high-energy lithium-ion batteries for e-bikes, e-scooters, and other micromobility vehicles - in accordance with local and national building codes.



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To learn about how SustainMobility can help you implement e-bike and e-scooter regulations in your building, facility, campus, or community, email info@sustainmobility.co

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ZERO EMISSION TRANSPORTATION CONSULTING

Outdoor Bike Parking Facilities

Where possible, prioritize outdoor, covered locations for e-bike and e-scooter parking and charging. This reduces fire risk compared to indoor charging, while still protecting devices and electrical outlets from weather exposure. Ideal locations include parking garages, building overhangs, transit stops, and dedicated bike sheds, maximizing both safety and convenience for users.



Indoor Bike Rooms

Room Fire Rating

- Fire resistance rated room (~1 hour or greater depending on code)
- Fire and/or smoke dampers as necessary.
- **Good (garage specs):** NFPA 13-2022 specifications classify a garage as Ordinary Hazard Group 2. Consider supplying sprinklers for Ordinary Hazard Group 2.
- **Best (NFPA 855 Energy Storage Systems):** Consider Extra Hazard Group 1 for dense battery storage rooms.



Sprinkler Systems

- Wet pipe in conditioned areas.
- Dry pipe in unconditioned areas, especially if the temperature tends to fall below freezing point.

Fire Suppression Equipment

- Lithium fire suppression blanket
- Fire extinguisher - Class ABC



Electrical

- 110v 15a GFCI-protected outlets wired to NEC standards along the wall.
- Outlets accessible to users but not placed in areas easily knocked around.
- All power outlets are placed on a room level timer so that the outlets are shut off during non-business hours.

Recommended Building Policies

The US Consumer Product Safety Commission (CPSC) mandates that all e-Bike manufacturers and distributors must ensure that their products are evaluated, tested, and certified before being sold. Certified equipment dramatically reduces the risk of battery fires and electrical hazards.

Electric Micromobility Vehicle Standards

- UL 2849 Standard for Safety Electrical Systems or equivalent standards
- UL 2849 requires an electric bike's drive train, battery, and charger system to undergo rigorous testing. Within a UL 2849 certification, electric bikes can also meet the UL 2271* standard for battery safety and UL 62368-1* standard for battery charger safety, among other component standardizations.

Battery Storage & Charging

- Require the use of UL-certified chargers and batteries (UL 2271)
- Batteries must be charged on the bike or removed and charged in an approved fire-resistant charging cabinet.

- Storing and charging batteries in hallways, stairwells, or other areas outside of the bike room or designated storage and charging area is strictly prohibited.
- Fire-Resistant Cabinets should have flame-arresting vents, ideally vented to the outside, and should be placed in areas free from flammable materials.
- Bikes and bike batteries may not be charged after hours or overnight.
- Chargers may only be run on timers during hours when staff is present.
- Outlets should shut off during off-hours.
- Chargers must match the manufacturer and voltage of the battery.
- Chargers should only be from the original equipment manufacturer.
- Extension cords and power strips are not allowed.
- For any damaged battery, contact the local fire department for safe disposal.

Tenant/Resident Instructions & Staff Training

- Facility should have clear signage about where charging is permitted, the risks of unauthorized charging, and 'In case of fire' instruction signs.
- Establish a communication channel for reporting improperly stored or malfunctioning devices, with prompt response protocols.
- Building employees should be trained in the use of available safety equipment.
- Implement routine inspections of charging capabilities - for stations, outlets, and bike racks with built-in outlets.
- Provide this guideline document to staff to include in training and have available onsite as needed.



In Case of Battery Fire

WARNING: Lithium-ion battery fires are not easily extinguishable due to their high temperatures, hence it is recommended to evacuate the premises and call 911. The following precautions may help to slow the fire.

- Prioritize personal safety and consider evacuating the building immediately.
- Call 911 to notify the fire department.
- Never attempt to handle a burning or smoking lithium-ion battery.
- If possible, allow the battery fire to burn out on its own.
- If available and safe, cover the battery with a lithium fire blanket.
- Completely submerging the battery in water will extinguish the fire, however, the water will be contaminated.

References

- UL Certification
- National Fire Protection Association
- Call2Recycle.org
- 2024 International Fire Code

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