

Lithium-Ion Batteries

POWERED MOBILITY DEVICE FIRE SAFETY LEGISLATION 2024





Powered Mobility Devices

A conveyance powered by a lithium-ion battery with the primary purpose of carrying and transporting people

Includes:

- Electric bicycles
- Electric skateboards
- Electric scooters
- Electric hoverboards
- Light electric vehicles



*** Does not include wheelchairs or other devices for use by persons with disabilities

Hazards of lithium-ion batteries in powered mobility devices

Overcharging can cause:

- Thermal runaway
- Fires
- Toxic fumes
- Explosion risk

Difficulty of extinguishing lithium-ion battery fires



LITHIUM BATTERY SPARKS APARTMENT FIRE
SAN FRANCISCO

San Francisco Fire Code Legislative Changes

- 1) Establishes standards for the charging and storage of lithium-ion batteries
- 2) Prohibits the use of damaged batteries
- 3) Prohibits the sale, use, or assembly of reconditioned lithium-ion batteries using cells from used batteries
- 4) Requires the SFFD to develop a public informational safety campaign

Standards for the charging and storage of lithium-ion batteries

No limit on the number of listed powered mobility devices in one- and two-family homes (R-3) for personal use

- UL Listed, European Standards (EN) or NRTL approved by SFFD

Allows up to four (4) powered mobility devices in each individual dwelling unit, garage, or storage area within multi-unit buildings (R-2)

- All mobility devices must be for personal use, and
- UL Listed, European Standards (EN) or NRTL approved by SFFD

Powered mobility device batteries shall be charged per manufacturer's instructions

- Original equipment or manufacturer supplied chargers
- Chargers shall be listed (e.g., UL 1564, UL1310, UL2272, UL2849)

Battery inspection required prior to each charge if the battery was dropped or is damaged

- Cracks, Leaks, or Punctures

Charging or storing listed e-powered mobility devices or batteries in multi-unit buildings

Five (5) or more listed**, the room or area shall have:

- Adequate natural or mechanical ventilation
- Electrical receptacle for each battery charger
- Fire extinguishers
- Prohibit the use of power-strips and extension cords for charging
- No storage of flammables or combustibles
- Fire sprinklers and fire alarm smoke detection system

Any quantity of unlisted devices or batteries shall comply with above requirements

** *Underwriters Laboratories (UL) Standards UL2849 or UL2272; European Standards (EN 15194 or 17128; or other safety standard of a Nationally Recognized Testing Laboratory approved by the SFFD*

Charging or storing listed e-powered mobility devices or batteries in your business?

Room or area shall have:

- Adequate natural or mechanical ventilation
- Electrical receptacle for each battery charger
- Fire extinguishers
- Prohibits the use of power-strips and extension cords for charging
- No storage of flammables or combustibles
 - If charging **five (5) or more**, requires
- Fire sprinklers and fire alarm smoke detection system, and
- One-hour fire barrier (B, F, S, or M occupancies), or
- Exception: 10 feet minimum separation may be permitted between areas where e-powered devices are charging from where devices are displayed for sale or where repairs or servicing are conducted in M occupancies

Sets minimum separation distance between batteries while charging

- 2-feet spacing for up to 20kWh max. aggregate*
- 3-feet spacing for up to 50kWh max. aggregate*
- *Unless using a SFFD approved battery cabinet approved for storage or charging

Spacing of powered mobility devices with attached or enclosed batteries while charging

Three (3) feet shall be maintained between each powered mobility device while charging.

Spacing may be reduced to a minimum of six (6) inches if the powered mobility device is UL2272 listed, and the battery is UL2271 listed.

- UL2272 devices include scooters, skateboards, hoverboards

Use of damaged batteries is prohibited

Requires lithium-ion batteries be removed from use if any of the following are found:

- Cracks
- Leaking fluids
- Punctures
- Bulging
- Overheating
- Odors or smoke

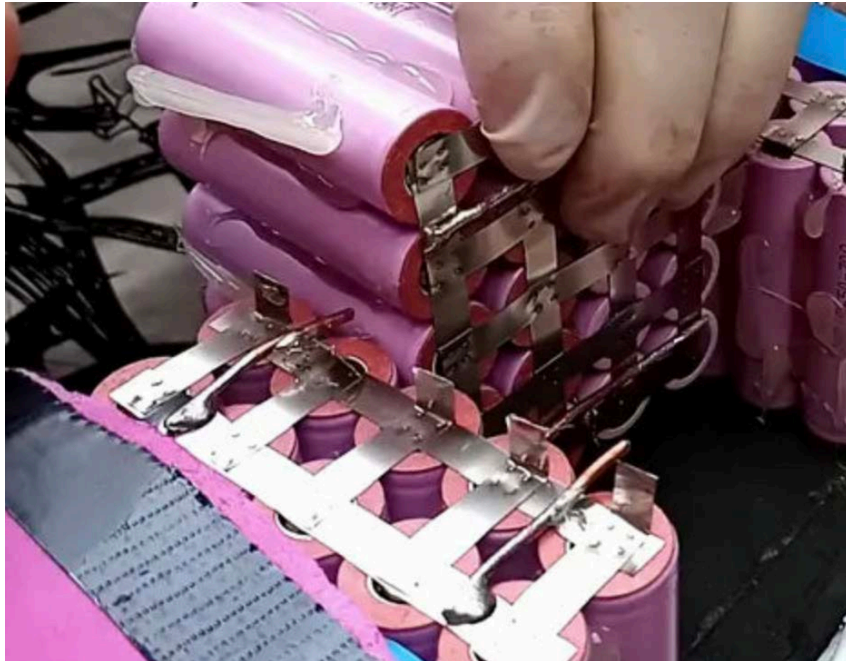
Lithium-ion batteries shall be recycled

DO NOT throw batteries in trash!!!





Prohibits the sale, use,
or assembly of
reconditioned lithium-
ion batteries using
cells from used
batteries



SFFD Fire Marshal's Office shall develop a public informational campaign on Lithium-ion battery fire risks and safety

- Battery equipment standards
- Maintenance and care of batteries
- Storage and charging precautions
- Prohibition of assembly, purchase, and/or sale of second-use or reconditioned batteries

Questions?