

# Lithium-Ion Batteries

---

POWERED MOBILITY DEVICE FIRE SAFETY LEGISLATION



# 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
- Explosion risk
- Toxic fumes

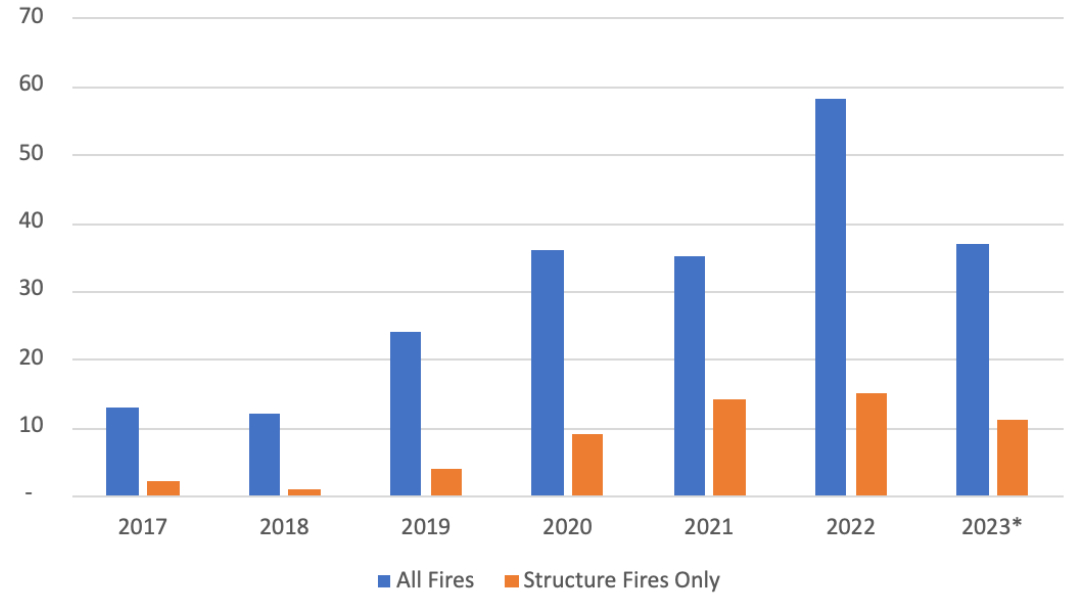
Difficulty of extinguishing lithium-ion battery fires



**LITHIUM BATTERY SPARKS APARTMENT FIRE**  
SAN FRANCISCO

Year	Total Fires	Structure Fires Only	Injuries	Fatalities
2017	13	2	-	-
2018	12	1	-	-
2019	24	4	-	-
2020	36	9	4	-
2021	35	14	1	-
2022	58	15	2	1
2023*	37	11	1	-

Rechargeable Batteries - Fire Incidents



# Lithium-Ion Battery Fires in San Francisco 2017-2023

# New SF 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 campaign



# Standards for the charging and storage of lithium-ion batteries

Limits up to three (3) powered mobility devices in homes (R-3) and dwelling units (R-2)

- All devices must be for personal use only

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 charging if the battery was dropped or is damaged

- Cracks
- Leaking
- Punctures

# Charging or storing more than three (3) batteries or powered mobility devices in your home or business?

## Room or area shall have:

- Sufficient natural or mechanical ventilation
- Electrical receptacles for each battery charger
- Fire extinguishers
- Sprinklers and fire alarm system, if charging six (6) or more batteries
- Prohibit the use of power-strips and extension cords for charging
- No storage of flammables or combustibles

## 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 NRTL or SFFD approved battery storage or charging cabinet

# 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!!!**

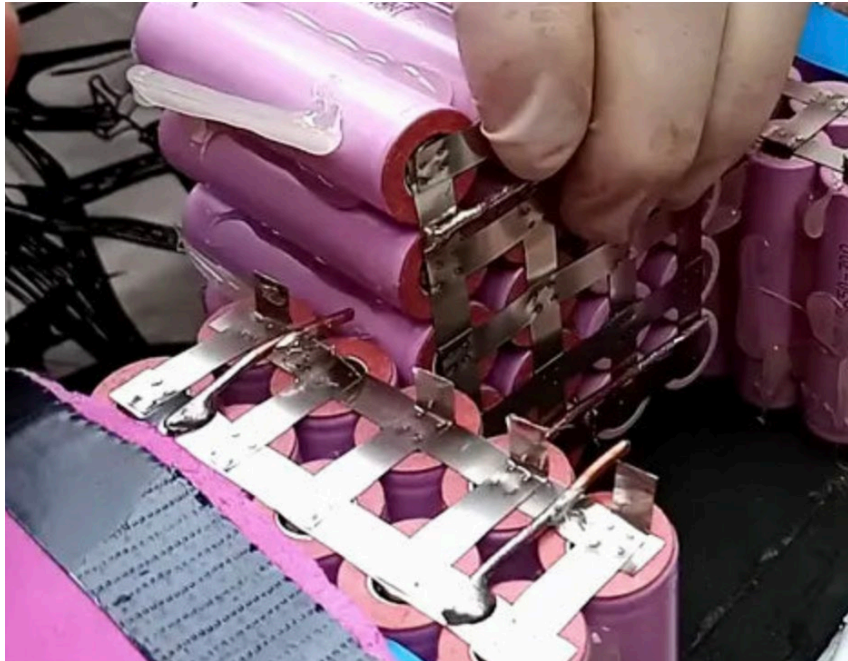






Prohibits the sale, use,  
or assembly of  
reconditioned lithium-  
ion batteries using  
cells from used  
batteries

---



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?