AMENDED IN COMMITTEE
1/29/2024

FILE NO. 231165 ORDINANCE NO.

[Fire Code - Lithium-Ion Batteries in Powered Mobility Devices]

Ordinance amending the Fire Code to provide fire protection standards for the charging and storage of lithium-ion batteries used in powered mobility devices (such as electric bikes, scooters, skateboards, and hoverboards), prohibit use of damaged lithium-ion batteries in such devices, prohibit use of lithium-ion batteries assembled or reconditioned using cells removed from used batteries in such devices, and require the Fire Department to conduct an informational campaign; affirming the Planning Department's determination under the California Environmental Quality Act; and directing the Clerk of the Board of Supervisors to forward this ordinance to the California Building Standards Commission upon final passage.

NOTE: **Unchanged Code text and uncodified text** are in plain Arial font.
Additions to Codes are in *single-underline italics Times New Roman font*.
Deletions to Codes are in ~~*strikethrough italics Times New Roman font*~~.
Board amendment additions are in double-underlined Arial font.
Board amendment deletions are in ~~strikethrough Arial font~~.
Asterisks (* * * *) indicate the omission of unchanged Code subsections or parts of tables.

Be it ordained by the People of the City and County of San Francisco:

Section 1. Environmental Findings. The Planning Department has determined that the actions contemplated in this ordinance comply with the California Environmental Quality Act (California Public Resources Code Sections 21000 et seq.). Said determination is on file with the Clerk of the Board of Supervisors in File No. 231165 and is incorporated herein by reference. The Board affirms this determination.

Section 2. Findings under California Health and Safety Code. The Board of Supervisors hereby finds that the following local conditions apply to the amendments to the San Francisco Fire Code enacted by this ordinance:

(a) The City and County of San Francisco is unique among California communities with respect to the possible causes and effects of fires, including fires in residential multi-unit buildings. Among other things, San Francisco is located on an active seismic zone; certain buildings in San Francisco are at an increased risk for earthquake-induced failure and consequent fire because of local hazardous microzones, slide areas, and local liquefaction hazards; and enhanced fire, structural, and other protections are required due to high building density, the prevalence of wood structures, and high occupancy in many buildings.

(b) San Francisco has narrow and crowded sidewalks due to building and population density and unusual topography; and San Francisco has numerous high-rise buildings, including residential buildings with large numbers of people living therein. For these reasons, fires in San Francisco can be especially devastating, and the need for extra measures to prevent, prepare for, and cope with fires is especially pressing.

(c) The number of lithium-ion battery-based fires has increased dramatically with the growing prevalence of such batteries in consumer products. Lithium-ion batteries contain flammable materials and present a fire and explosion hazard, particularly when batteries are damaged or improperly charged or stored. Fires caused by lithium-ion batteries can be particularly devastating, due to the chemical hazards posed by such fires, their tendency to flash and grow quickly in size, and the difficulty of extinguishing them.

(d) The fire risk posed by lithium-ion batteries used in powered mobility devices, such as electric bikes, scooters, skateboards, and hoverboards, is particularly high due to the size of batteries necessary to power such devices, the frequency of collisions and corresponding damage to batteries, and the frequency of re-charging batteries for mobility devices that are

often used on a daily basis. In San Francisco, the fire risk is heightened by local conditions, including narrow streets and traffic congestion, which increase the likelihood that batteries used to power conveyances traveling on City streets are damaged by collision or impact.

(e) In San Francisco, numerous fire incidents have been associated with~~attributed to~~ rechargeable batteries in recent years. In 2020, according to Fire Department records, 36~~21~~ fire incidents were associated with~~attributed to~~ rechargeable batteries. In 2021, 35~~17~~ fire incidents were associated with~~attributed to~~ rechargeable batteries. In 2022, 58~~31~~ fire incidents were associated with~~attributed to~~ rechargeable batteries. In 2023, as of early November, 37~~21~~ fire incidents have been associated with~~attributed to~~ rechargeable batteries, according to Fire Department records.

(f) California Health and Safety Code Sections 17958 and 17958.5 allow the City to make changes or modifications in the requirements contained in the provisions published by the California Building Standards Commission, including the California Fire Code, when those changes or modifications are reasonably necessary because of local climatic, geological, or topographical conditions. California Health and Safety Code Section 17958.7 provides that before making any such changes or modifications, the governing body must make express findings that such changes or modifications are reasonably necessary because of the specified local conditions, and those findings shall be filed with the California Building Standards Commission.

(g) California Code of Regulations, Title 22, Division 4.5, Chapters 11 and 23 define the characteristics of hazardous waste and special handling requirements for batteries. Lithium-ion batteries must be handled as hazardous waste, and as such, cannot be disposed of in recycling, compost, or landfill collection bins. Batteries contain corrosive materials and heavy metals that can contaminate the environment. Additionally, lithium-ion batteries pose a fire risk if placed in a recycling, compost, or landfill collection bin. However, used lithium-ion batteries

possess useful raw materials and therefore should be recycled to conserve valuable natural resources and contribute to a more sustainable economy. Safe recycling methods exist for these batteries in San Francisco, which include battery take-back programs at participating bicycle shops, and battery recycling programs provided by the City's waste hauler.

(h) It is the intent of the Board of Supervisors to explore the creation of a trade-in program to facilitate the disposal and upgrade of unsafe powered mobility devices operating in San Francisco, including through the use and deployment of state and local incentive programs.

(~~g~~i) Pursuant to the applicable California Health and Safety Code sections, the Board of Supervisors finds and determines that the conditions described above constitute a general summary of the most significant local conditions giving rise to the need for variance from the California Fire Code and any other applicable provisions published by the California Building Standards Commission through the proposed regulations to mitigate the significant fire risk associated with use, charging, and storage of lithium-ion batteries used in powered mobility devices. Further, the Board of Supervisors finds and determines that the fire safety regulations in this ordinance are reasonably necessary based on these local conditions, in the densest major city in the State of California, and that these conditions justify more restrictive standards applicable to the use, charging, and storage of lithium-ion batteries used in powered mobility devices, which are becoming ever more ubiquitous on City streets.

Section 3. Part II, Chapter 3 of the Fire Code is hereby amended by adding Section 325, consisting of Sections 325.1, 325.2, 325.3, 325.4, 325.5, 325.6, 325.7, 325.8, and 325.9, to read as follows:

SECTION 325. – LITHIUM-ION BATTERIES USED IN POWERED MOBILITY DEVICES.

***325.1. Definitions**. For purposes of this Section 325, the following definitions apply~~ies~~:*

***"Powered Mobility Device"** means a conveyance with the primary purpose of carrying people and is capable of transporting one or more persons powered by a lithium-ion battery; which includes, but is not limited to, a motorized or powered scooter, an electric bicycle, an electric skateboard, an electric hoverboard, or light electric vehicle (LEV). Notwithstanding the previous sentence, Powered Mobility Device does not include wheelchairs or other mobility devices designed for use by persons with disabilities, or any vehicle capable of being registered with the California Department of Motor Vehicles.*

"***Battery Cabinet***" means a cabinet that is designed for the purpose of storage and/or charging of lithium-ion battery packs or other removable lithium-ion storage batteries that has demonstrated the ability to prevent thermal propagation from a battery pack or a removable storage battery to other adjacent battery packs or removable storage batteries, and has passed testing by an accredited ~~Nationally Recognized Testing L~~laboratory, or has otherwise been approved by the Fire Department.

"***Safety-Certified Powered Mobility Device***" means a Powered Mobility Device for which the Powered Mobility Device, or its electrical system, has been certified for compliance with:

(1) Underwriters Laboratories (UL) standards UL 2849 or UL 2272;

(2) European (EN) standards EN 15194 or EN 17128; or

(3) Other safety standard of an accredited laboratory, approved by the Fire Department.

***325.2. General Requirement**. The use, sale, transfer, charging, and storage of lithium-ion batteries used in Powered Mobility Devices shall comply with Section 325.*

325.3. Powered Mobility Devices*. Powered Mobility Devices using a storage, charging, or repair facility, including any storage or charging area in a Group B, R-1, R-2,* R-3, *F, S, or M occupancy, that is designed, installed, operated, and maintained in accordance with the Building and Electrical Codes, shall comply with Sections 325.4 through 325.7.*

Exceptions:

(a) Storage and charging in a Group R-3 occupancy where each Powered Mobility Device is a Safety-Certified Powered Mobility Device., ~~or its electrical system, has been certified for compliance with:~~

~~(1) Underwriters Laboratories (UL) standards UL 2849 or UL 2272;~~

~~(2) European (EN) standards EN 15194 or EN 17128; or~~

~~(3) Other safety standard of a Nationally Recognized Testing Laboratory, approved by the Fire Department.~~

(b) Storage and charging ~~or~~ *within a* single *dwelling unit*, garage, or storage area *in a Group R-2 occupancy, of not more than* four~~three~~ *Powered Mobility Devices, provided that such Powered Mobility Devices are for* the *personal use* of a person occupying the unit, and where each Powered Mobility Device is a Safety-Certified Powered Mobility Device~~or its electrical system, has been certified for compliance with:~~

~~(1) Underwriters Laboratories (UL) standards UL 2849 or UL 2272;~~

~~(2) European (EN) Standards EN 15194 or 17128; or~~

~~(3) Other safety standard of a Nationally Recognized Testing Laboratory, approved by the Fire Department~~.

~~(b)~~(c) *Charging of a single Powered Mobility Device by and in the presence of its owner or user in occupancies other than Group H or L*, where the Powered Mobility Device is a Safety-Certified Powered Mobility Device~~, or its electrical system, has been certified for compliance with:~~

~~(1) Underwriters Laboratories (UL) standards UL 2849 or UL 2272;~~

~~(2) European (EN) Standards EN 15194 or 17128; or~~

~~(3) Other safety standard of a Nationally Recognized Testing Laboratory,~~ approved by the Fire Department.

***325.4. Battery Chargers**. Powered Mobility Devices shall be charged in accordance with the manufacturer's instructions and the applicable listing standard using the original equipment, manufacturer-supplied charging equipment, or other charging equipment suitable for the purpose, that is designed in accordance with applicable federal, state, and any other applicable laws, rules, and regulations, and listed:*

*(a) Pursuant to either UL 1564, UL1310, UL1012, or other approved listing from a*n accredited ~~Nationally-Recognized Testing L~~laboratory, approved by the Fire Department*; or*

(b) For use with the Powered Mobility Device in accordance with UL 2271, UL *2272, UL 2849, or other approved listing from a*n accredited ~~Nationally-Recognized Testing L~~laboratory, approved by the Fire Department.

***325.5. Battery Inspection; Damaged Batteries**. A lithium-ion battery used in a Powered Mobility Device shall be inspected for cracks, punctures, leaking contents, or other damage prior to charging or re-charging if the battery was dropped, involved in a collision, or otherwise subjected to a potential mechanism of damage. Damaged lithium-ion batteries shall not be used in Powered Mobility Devices. Damaged lithium-ion batteries and lithium-ion batteries at the end of their useable life shall be promptly and lawfully disposed of.*

***325.6. Battery Charging Areas**. Powered Mobility Devices* and lithium-ion batteries used in such devices *shall be charged in a suitable indoor room or area, or outdoor location, that, in either location:*

(a) Has sufficient natural or mechanical ventilation in accordance with the Mechanical Code to prevent the accumulation of any flammable or other gases that may be discharged during normal charging operations;

(b) For the charging of Powered Mobility Devices with attached or enclosed batteries, h~~H~~*as an adequate electrical supply and a sufficient number of electrical receptacles to allow* ~~the charging equipment for~~ *each device* ~~or item of equipment~~ *to be directly connected to an electrical receptacle. Extension cords and power strips shall not be used. A minimum of 3 feet (914 mm) shall be maintained between each Powered Mobility Device during charging operations*. Subject to the approval of the Fire Department, the minimum 3 feet (914 mm) separation distance while charging multiple Powered Mobility Devices may be reduced to a minimum of 6 inches (152 mm) if the Powered Mobility Device is UL 2272 listed, contains a UL 2271 listed battery tested and certified by an accredited~~approved Nationally Recognized Testing L~~laboratory, and such battery is contained in a completely enclosed non-combustible compartment within the Powered Mobility Device that has been tested and certified by an accredited ~~Nationally Recognized Testing L~~laboratory;

(c) For the charging of detached battery packs or other removable storage batteries, h~~H~~*as an adequate electrical supply and a sufficient number of electrical receptacles to allow the charging equipment for battery packs and other removable storage batteries to be directly connected to an electrical receptacle. Extension cords and power strips shall not be used. Battery packs and other removable storage batteries shall not be stacked or charged in an enclosed cabinet unless the cabinet is* a Battery Cabinet approved by the Fire Department ~~designed for such purpose and approved by a Nationally Recognized Testing Laboratory, or by the Fire Department~~. *Except as otherwise approved by the Fire Department, a minimum distance of 2 feet (610 mm) shall be maintained between each battery pack or other removable storage battery during charging operations, provided that the*

aggregate energy capacity of battery packs or other removable storage batteries that can be simultaneously charged in a single Fire Area does not exceed 20 kWh. A minimum distance of 3 feet (914 mm) shall be maintained between each battery pack or other removable storage battery during charging operations if the aggregate energy capacity exceeds 20 kWh. The aggregate energy capacity of battery packs or other removable batteries that can be simultaneously charged in a single Ff~~f~~*ire* Aa~~a~~*rea shall not exceed 50 kWh*. The minimum separation distance requirements of this subsection (c) shall not apply to battery packs or other removable storage batteries during storage or charging within a Battery Cabinet. Each approved Battery Cabinet shall be considered a single Fire Area with an aggregate energy capacity not exceeding 50kWh*;*

(d) Is not used for the storage of flammable or combustible liquids, combustible waste, or hazardous materials;

(e) Is separated by:

(1) ~~within a Battery Cabinet, or by a~~A *fire barrier with a minimum one-hour fire-resistance rating*, or enclosure within a Battery Cabinet, *from areas in which repairs or other servicing* ~~is~~ are *conducted on the battery or other electrical components of the Powered Mobility Device in* a Group B, R-1, R-2, F, or S occupancy; or

(2) In an M occupancy, a minimum distance of at least 10 feet (3048 mm) from areas where Powered Mobility Devices are displayed for retail sale, stored, or where repairs or other servicing are conducted on the battery or other electrical components of the Powered Mobility Device, and where each Powered Mobility Device for sale is a Safety-Certified Powered Mobility Device~~has been certified for compliance with:~~

~~(A) Underwriters Laboratories (UL) standards UL 2849 or UL 2272;~~

~~(B) European (EN) Standards EN 15194 or 17128; or~~

~~(C) Other safety standard of a Nationally Recognized Testing Laboratory, approved by the Fire Department~~.

(f) ~~Is dedicated for battery charging and secured from unauthorized entry; W~~w*here* five~~six~~ *or more Powered Mobility Devices*, detached battery packs, or other removable storage batteries *are being charged at a single indoor location*, is~~using a Battery Cabinet or~~, *separated by a fire barrier that encloses the entire space with a minimum one-hour fire-resistance rating;* is separated within the enclosure of a Battery Cabinet; or in an M occupancy, is separated by a minimum distance of 10 feet (3048 mm) from areas where Powered Mobility Devices are displayed for sale. The building or occupancy shall be equipped with ~~and protected by~~ *a fire sprinkler system complying with Section 903.3.1.1 of the Fire Code*,~~and having one or more smoke detectors. The building or occupancy shall be equipped with~~ *an automatic fire detection and alarm system complying with Section 907 of the Fire Code*, and have one or more smoke detectors. *If the ambient temperature of the room during battery charging operations exceeds the limitations set forth in the manufacturer's instructions or the equipment listing, the room or area shall be temperature controlled to prevent over-heating or other unsafe battery condition; and*

(g) Is provided with a portable fire extinguisher complying with the requirements of Section 906 of the Fire Code and having a minimum 4-A:20-B:C rating.

325.7. Storage Areas. *Indoor storage rooms and areas, or outdoor enclosures used for the storage, but not for the charging or repair, of Powered Mobility Devices shall comply with the requirements of Section 325.6(d), (e), and (g).*

325.8. Reassembled or Reconditioned Lithium-Ion Batteries. Except as part of a City-authorized recycling program with required permits, and subject to obtaining safety certification from an accredited laboratory and the Fire Department's approval of such certification, ~~i~~it *shall be unlawful to:*

(a) Assemble or recondition a lithium-ion battery for use in a Powered Mobility Device using cells removed from used lithium-ion batteries; or

(b) Sell, offer for sale, give, or transfer a lithium-ion battery for use in a Powered Mobility Device that uses cells removed from used lithium-ion batteries.

325.9. Informational Campaign.

(a) The Fire Department, in consultation with the Department of the Environment, *shall develop an informational campaign to educate the public on the fire risks posed by Powered Mobility Devices and lithium-ion batteries and safety measures that mitigate such risks. Such campaign shall include, but not be limited to, the use of print, online, and social media advertisements, public service announcements, and public forums. Such campaign shall address both commercial and personal use of Powered Mobility Devices and lithium-ion batteries, including, but not limited to, guidance on:*

(1) Powered Mobility Devices and battery equipment that meet established fire safety standards, including Safety-Certified Powered Mobility Devices*;*

(2) Maintenance and care information for Powered Mobility Devices and lithium-ion batteries;

(3) Storage and charging precautions for Powered Mobility Devices and lithium-ion batteries; ~~and~~

(4) Prohibitions on the assembly and sale of second-use lithium-ion batteries as described in Fire Code Section 325.8~~.~~*;*

(5) Proper disposal of, and recycling solutions for, lithium-ion batteries at the end of their life; and

(6) Information about available programs and rebates for consumers to obtain Safety-Certified Powered Mobility Devices.

(b) All forms of public notice provided pursuant to this Section 325.9 shall comply with the requirements of the Language Access Ordinance, Chapter 91 of the Administrative Code, to provide vital information about the Department's programs in the languages spoken by a Substantial Number of Limited English Speaking Persons, as defined in Chapter 91.

Section 4. Chapter 1 of the Fire Code, Division II, Part I, Section 112, is hereby amended by revising Section 112.1, to read as follows:

112.1. [For SF] Unlawful Acts.

(a) It shall be unlawful for a person to erect, construct, enlarge, alter, repair, move, improve, remove, convert, demolish, equip, *charge, store,* use, occupy, or maintain a building, occupancy, premises, system, *conveyance, battery,* or vehicle, or any portion thereof~~:~~, or cause the same to be done, in violation of any of the provisions of this code.

* * * *

Section 5. Scope of Ordinance. In enacting this ordinance, the Board of Supervisors intends to amend only those words, phrases, paragraphs, subsections, sections, articles, numbers, punctuation marks, charts, diagrams, or any other constituent parts of the Municipal Code that are explicitly shown in this ordinance as additions, deletions, Board amendment additions, and Board amendment deletions in accordance with the "Note" that appears under the official title of the ordinance.

Section 6. No Conflict with Federal or State Law. Nothing in this ordinance shall be interpreted or applied so as to create any requirement, power, or duty in conflict with any federal or state law.

Section 7. Undertaking for the General Welfare. In enacting and implementing this ordinance, the City is assuming an undertaking only to promote the general welfare. It is not assuming, nor is it imposing on its officers and employees, an obligation for breach of which it

is liable in money damages to any person who claims that such breach proximately caused injury.

Section 8. Severability. If any section, subsection, sentence, clause, phrase or word of this ordinance, or any application thereof to any person or circumstance, is held to be invalid or unconstitutional by a decision of court of competent jurisdiction, such decision shall not affect the validity of the remaining portions or applications of this ordinance. The Board of Supervisors hereby declares that it would have passed this ordinance and each and every subsection, sentence, clause, phrase, and word not declared invalid or unconstitutional without regard to whether any portion of this ordinance or application thereof would be subsequently declared invalid or unconstitutional.

Section 9. Effective Date. This ordinance shall become effective 30 days after enactment. Enactment occurs when the Mayor signs the ordinance, the Mayor returns the ordinance unsigned or does not sign the ordinance within ten days of receiving it, or the Board of Supervisors overrides the Mayor's veto of the ordinance.

Section 10. Directions to the Clerk. The Clerk of the Board of Supervisors is hereby directed to forward a copy of this ordinance to the California Building Standards Commission upon final passage as required by state law.

APPROVED AS TO FORM:
DAVID CHIU, City Attorney

By: /s/
JEN HUBER
Deputy City Attorney

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