

CAL FIRE

Office of the State Fire Marshal

Webinar Series



February 22, 2024

Featuring:

- *Energy Storage Systems*



Welcome!

- ▶ The purpose of this webinar series is to host a live and interactive platform to educate on laws, regulations, and various safety topics to increase the coordination of education and outreach from CAL FIRE - OSFM to the public and stakeholders.
 - If you experience technical difficulties during this presentation, please contact Kara Garrett at (916) 201-5539 or Kara.Garrett@fire.ca.gov.



Energy Storage Systems

Speaker Introduction

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Image courtesy of Tesla, Inc.

Why have an Energy Storage System?

System Types

▶ Residential

- ▶ Limited to $\leq 20\text{kWh}$ unit size
- ▶ Specific code language for detached one- and two-family dwellings

▶ Commercial

- ▶ Retail and manufacturing facilities, etc.
- ▶ Limited to 600 kWh unit size

▶ Utility

- ▶ Front-of-meter installations under exclusive control of the operating utility.



► Residential Energy Storage



Photo courtesy of ELLA.



Residential Review and Inspection

- ▶ Be familiar with potential hazards relevant to the type of ESS being inspected
- ▶ Procure and be prepared to use the appropriate personal protection equipment
- ▶ Review and print out/download relevant technical documents
- ▶ Understand what aspects of the ESS need to be reviewed

“Utility-scale ESS”

► Commercial Energy

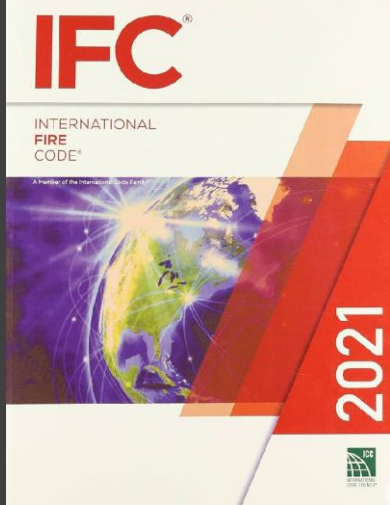
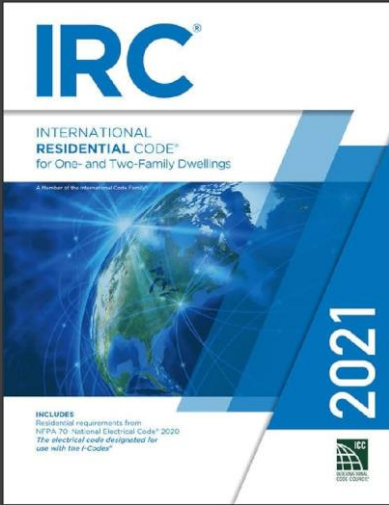
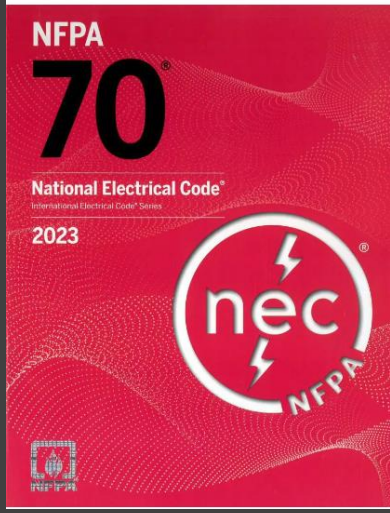
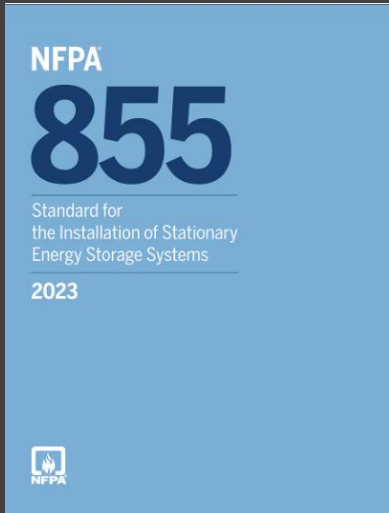


Photo courtesy of WEG.



Commercial Review and Inspection

- ▶ Have a Safety meeting prior to entering the site
- ▶ General inspection of the overall site
- ▶ Inspection of the ESS equipment (Exterior and Interior)
- ▶ Commission plan
- ▶ Emergency operation plan
- ▶ Fire and explosion control summary
- ▶ Signage



Building and Fire Codes

Address key safety for occupants and firefighters.

Size

Separation for other units and exposures

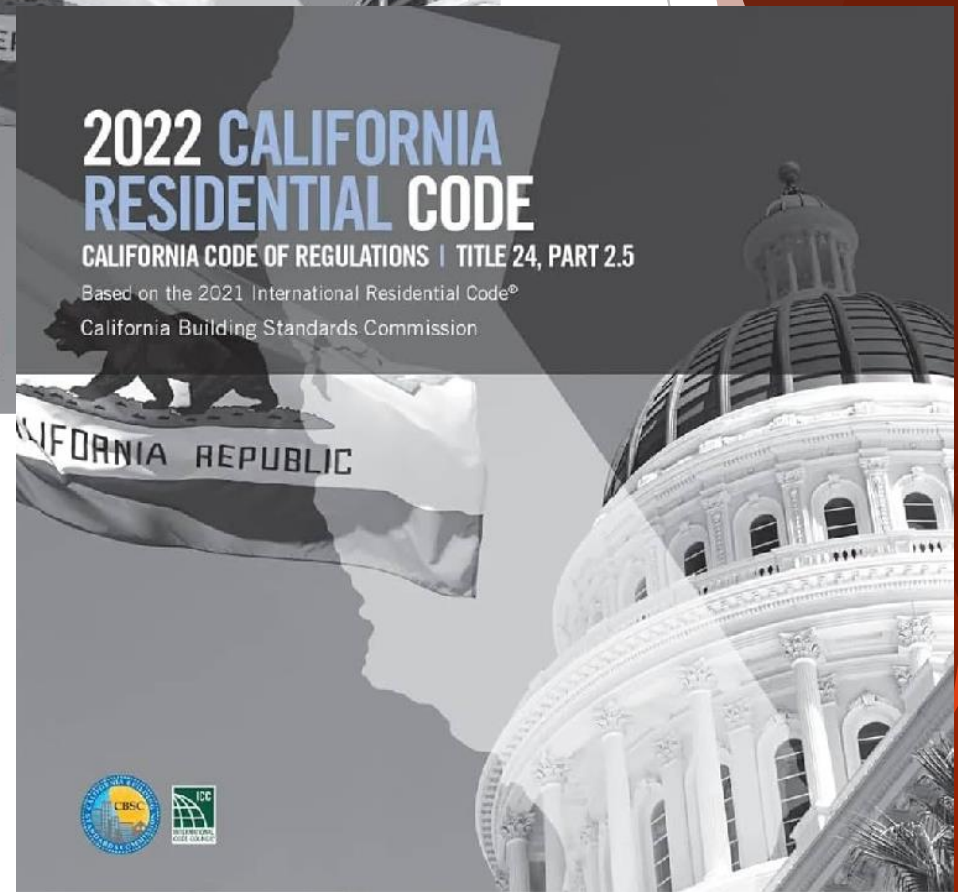
Separation from means of egress

Fire detection and suppression

Explosion protection

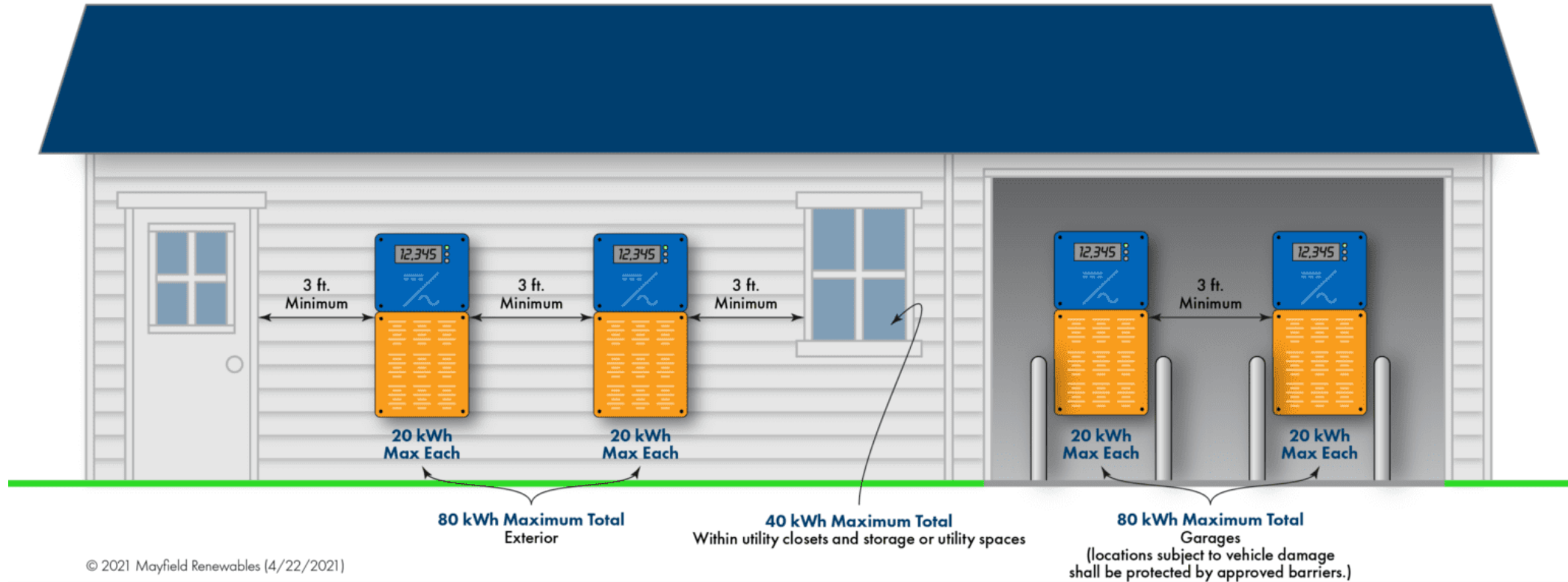
Storage and Handling

Maintenance



2022 Intervening Code Change
Effective July 1, 2024

Residential ESS Spacing, Unit, & Maximum Allowable Quantity Limitations



CFC-Chapter 12 ENERGY SYSTEMS

CRC-Chapter 3 R328.5

TABLE 1207.11.4 MAXIMUM AGGREGATE RATINGS OF ESS

<u>LOCATION</u>	<u>MAXIMUM AGGREGATE RATINGS (kWh)</u>	<u>INSTALLATION REQUIREMENTS</u>
<u>Within utility closets, basements, and storage or utility spaces located within dwellings</u>	<u>40</u>	
<u>In attached garages</u>	<u>80</u>	
<u>On or within 3 feet of exterior walls of dwellings and attached garages</u>	<u>100</u>	
<u>On or within 3 feet of exterior walls of dwellings and attached garages</u>	<u>200</u>	<u>Exterior walls and eaves are constructed with noncombustible surfaces ^a</u>
<u>In detached garages and detached accessory structures</u>	<u>200</u>	
<u>In detached garages and detached accessory structures</u>	<u>600</u>	<u>Detached garage or detached accessory structure is a minimum 10 feet away from property lines and dwellings.</u>
<u>Outdoors on the ground</u>	<u>200</u>	<u>ESS is a minimum 3 feet away from property lines and dwellings.</u>
<u>Outdoors on the ground</u>	<u>600</u>	<u>ESS is a minimum 10 feet away from property lines and dwellings.</u>

-
- ▶ Micro Mobility Devices

Information Bulletin 24-001

- ▶ <https://osfm.fire.ca.gov/resources/information-bulletins>





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INFORMATION BULLETIN 24-001**

Issued: January 23, 2024
Updated from IB 23-003

Lithium-Ion Battery Safety

BACKGROUND

Lithium-ion rechargeable batteries are commonly used in home electronics such as phones, batteries are small and powerful, but when used incorrectly, they can overheat, catch fire, or explode. Fire agencies across California continue to respond to fires caused by lithium-ion batteries.

REQUIREMENTS FOR STORAGE OF ELECTRONIC BIKES, SCOOTERS, AND OTHER ELECTRONIC MICROMOBILITY DEVICES IN RENTAL HOUSING

California Civil Code (CIV) Section 1940.41 defines a "Personal micro-mobility device" as device with both of the following characteristics:

- (A) It is powered by the physical exertion of the rider or an electric motor.
- (B) It is designed to transport one individual, or one adult accompanied by up to three minors.

CIV 1940.41 that takes effect January 1, 2024, the new law affects storage of e-bikes, e-scooters, and other *personal micro-mobility devices* stored in a rental housing unit. The owner may prohibit the tenant from charging a device in the unit if the device does not meet the standards listed below. It allows for storage and charging of up to one e-bike, e-scooter, or other *personal micro-mobility device* in the rental unit for each person occupying the unit if the device meets one of the following:

- A. Complies with the following safety standards:
 - For e-bikes, UL 2849, the Standard for Electrical Systems for E-bikes, as recognized by the United States Consumer Product Safety Commission, or EN 15194, the European Standard for electrically powered assisted cycles (EPAC Bicycles).
 - For e-scooters, UL 2272, the Standard for Electrical Systems for Personal E-Mobility Devices, as recognized by the United States Consumer Product Safety Commission, or EN 17128, the European Standard for personal light electric vehicles (PLEV).
- B. Is insured by the tenant under an insurance policy covering storage of the device within the tenant's dwelling unit.



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INFORMATION BULLETIN 24-001**

SAFETY TIPS

- Purchase and use devices that are listed by standards UL 2849, EN 15194, UL 2272, EN 17128 or a qualified testing laboratory.
- Always follow the manufacturer's instructions.
- Only use the battery that is designed for the device.
- Put batteries in the device the right way.
- Only use the charging cord that came with the device.
- Do not charge a device under your pillow, on your bed, or on a couch.
- Do not keep charging the device or device battery after it is fully charged.
- Plug directly into a wall electrical outlet for charging.
- Keep batteries at room temperature and away from heat or direct sunlight. Do not charge them at temperatures below 32°F (0°C) or above 105°F (40°C).
- Store batteries away from anything that can catch fire.
- Do not charge a device while sleeping.
- Do not charge a device near your primary exit.

STOP OPERATION OF THE DEVICE OR CHARGING THE BATTERY IF:

- They emit an unusual smell,
- Develop heat,
- Change shape/geometry,
- Behave abnormally, or
- Develop a leak or make an odd noise.

If any of the above happens and you feel in danger, call 9-1-1. If safe, move the device away from anything that can catch fire.

BATTERY DISPOSAL

- Do not put lithium-ion batteries in the trash.
- Recycling is always the best option.
- Take them to a battery recycling location or contact your community for disposal instructions.
- Do not put discarded batteries in piles.

FIRE EXTINGUISHER

- Lithium-ion batteries are considered a Class B fire, so a standard ABC or dry chemical fire extinguisher should be used.



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INFORMATION BULLETIN 24-001**



Use approved batteries
Only purchase and use devices that have a reputable testing agency mark such as UL. These show that the product has been safety tested.



Use the wall outlet
Always plug directly into a wall electrical outlet for charging.



Store in open space
Batteries should be stored away from anything flammable (ex. pillow, bed, or couch).



Keep away from heat
Keep batteries and devices at room temperature. Keep away from direct sunlight and any heat source such as a radiator.



Use supplied charger
Follow the manufacturer's instructions for charging and storage. Use the correct cord and power adapter made specifically for the device.



Make sure you can get out
Never block your primary way in or out of a room/apartment.



No overnight charging
Do not leave devices unattended while charging or charge them overnight.



Dispose of batteries safely
Do not place lithium-ion batteries in a trash or recycling bin.



Use baterías aprobadas
Sólo compre y use dispositivos que tengan una marca de agencia de pruebas acreditada, como UL. Estos muestran que el producto ha sido probado en seguridad.



Use el tomacorriente de pared
Siempre conecte directamente a un tomacorriente de pared para cargar.



Almacenar en espacio abierto
Las baterías deben almacenarse lejos de cualquier objeto inflamable (p. ej., almohadas, camas o sofás).



Manténgala alejada del calor
Mantenga las baterías y los dispositivos a temperatura ambiente. Mantener alejado de la luz solar directa y de cualquier fuente de calor como un radiador.



Utilice el cargador suministrado
Siga las instrucciones del fabricante para la carga y el almacenamiento. Utilice el cable y el adaptador de corriente correcto fabricado específicamente para el dispositivo.



Asegúrese de poder salir
Nunca bloquee su entrada o salida principal de una habitación/apartamento.



No Cargar durante la noche
No deje los dispositivos desatendidos mientras se cargan, ni los deje cargando durante la noche.



Botar las baterías de forma segura
No coloque las baterías de iones de Litio en un contenedor de basura o de reciclaje.

Additional Resources

- ▶ OSFM Resources Page:
 - <https://osfm.fire.ca.gov/resources>

- ▶ Code Interpretation Requests:
 - If you have specific Code Interpretation requests, please visit:
 - <https://osfm.fire.ca.gov/what-we-do/code-development-and-analysis/code-interpretations>

- ▶ Information Bulletins:
 - To see all information bulletins, visit:
 - <https://osfm.fire.ca.gov/resources/information-bulletins>



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Questions?

- We will now be opening it up for questions.
- If you have a question, please use the “**raise hand**” feature and we will unmute you.



Thank you!

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<https://osfm.fire.ca.gov/what-we-do/code-development-and-analysis>

