



STATE OF WASHINGTON  
**STATE BUILDING CODE COUNCIL**

May 2018  
Log No. \_\_\_\_\_

**1. State Building Code to be Amended:**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> International Building Code | <input type="checkbox"/> International Mechanical Code        |
| <input type="checkbox"/> ICC ANSI A117.1 Accessibility Code     | <input type="checkbox"/> International Fuel Gas Code          |
| <input type="checkbox"/> International Existing Building Code   | <input type="checkbox"/> NFPA 54 National Fuel Gas Code       |
| <input type="checkbox"/> International Residential Code         | <input type="checkbox"/> NFPA 58 Liquefied Petroleum Gas Code |
| <input checked="" type="checkbox"/> International Fire Code     | <input type="checkbox"/> Wildland Urban Interface Code        |
| <input type="checkbox"/> Uniform Plumbing Code                  |   |

For the Washington State Energy Code, please see specialized [energy code forms](#)

**Section(s): 1207& 1203 IFC & 907.2.23 IFC & IBC**

**Title: ELECTRICAL ENERGY STORAGE SYSTEMS (ESS)**

**2. Proponent Name (Specific local government, organization or individual):**

**Proponent: Ken Brouillette**  
**Title: Technical Code Coordinator**  
**Date: 9/19/2024**

**3. Designated Contact Person:**

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**4. Proposed Code Amendment.** Reproduce the section to be amended by underlining all added language, striking through all deleted language. Insert new sections in the appropriate place in the code in order to continue the established numbering system of the code. If more than one section is proposed for amendment or more than one page is needed for reproducing the affected section of the code, additional pages may be attached.

Clearly state if the proposal modifies an existing amendment or if a new amendment is needed. If the proposal modifies an **existing amendment**, show the modifications to the existing amendment by underlining all added language and striking through all deleted language. If a new amendment is needed, show the modifications to the **model code** by underlining all added language and striking through all deleted language.

Code(s) 2024 IFC and IBC Section(s) 1207 & 1203 IFC 907.2.23 IFC and IBC

Revise as follows:

**1207.1 General.** The provisions in this section are applicable to stationary, portable, and mobile electrical energy storage systems (ESS).

~~Exception: ESS in Group R-3 and R-4 occupancies shall only be required to comply with Section 1207.11 except where Section 1207.11.4 requires compliance with Sections 1207.1 through 1207.9.~~

**Exceptions:** 1. ESS in Group R-3 and R-4 occupancies listed and labeled for use in habitable spaces in accordance with UL 9540 and NFPA 855 and where installed in accordance with the listing, the manufacturer's installation instructions and NFPA 70.

2. ESS installed in accordance with Section R330 of the International Residential Code in detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress and their accessory structures not more than three stories above grade in height.

Delete without substitution:

~~**1207.1.1 Utilities and industrial applications.** This section shall not apply to capacitors and capacitor equipment for electric utilities and industrial facilities used in applications such as flexible AC transmission (FACTS) devices, filter capacitor banks, power factor correction, and standalone capacitor banks for voltage correction and stabilization. [material based on NFPA 855 (2023)]~~

~~**1207.1.2 Mobile ESS.** Mobile ESS deployed at an electric utility substation or generation facility for 90 days or less shall not add to the threshold values in Table 1207.1.3 for the stationary ESS installation if both of the following conditions apply:~~

~~1. \_\_\_\_\_~~

~~The mobile ESS complies with Section 1207.10.~~

~~2. \_\_\_\_\_~~

~~The mobile ESS is being used only during periods in which the facility's stationary ESS is being tested, repaired, retrofitted or replaced.~~

~~[material based on NFPA 855 (2023)]~~

Revise as follows:

**1207.1.3 1207.1.1 Scope.** ESS having capacities exceeding the values shown in Table 1207.1.3 Table 1.3 of NFPA 855 shall comply with this section. ~~[material based on NFPA 855 (2023)]~~

Delete without substitution:

~~TABLE 1207.1.3 ENERGY STORAGE SYSTEM (ESS) THRESHOLD QUANTITIES~~

~~TECHNOLOGY — ENERGY CAPACITY<sup>a</sup>~~

~~Capacitor ESS 3 kWh~~

~~Flow batteries<sup>b</sup> — 20 kWh~~

~~Lead-acid batteries, all types 70 kWh<sup>e</sup>~~

~~Lithium-ion batteries 20 kWh~~

~~Nickel-cadmium (Ni-Cd), nickel metal hydride (Ni-MH) and nickel-zinc (Ni-Zn) batteries — 70 kWh~~

~~Nonelectrochemical ESS<sup>d</sup> — 70 kWh~~

~~Other battery technologies — 10 kWh~~

~~Other electrochemical ESS technologies — 3 kWh~~

~~Sodium-nickel chloride batteries — 70 kWh~~

~~Zinc-manganese dioxide batteries (Zn-MnO<sub>2</sub>) — 70 kWh~~

~~For SI: 1 kilowatt-hour = 3.6 megajoules.~~

~~a. —~~

~~Energy capacity is the total energy capable of being stored (nameplate rating), not the usable energy rating. For units rated in amp-hours, kWh shall equal rated voltage times amp-hour rating divided by 1,000.~~

~~b. —~~

~~Shall include vanadium, zinc-bromine, polysulfide-bromide and other flowing electrolyte-type technologies.~~

~~e. —~~

~~Fifty gallons of lead-acid battery electrolyte shall be considered equivalent to 70 kWh.~~

~~d. —~~

~~Covers nonelectrochemical technologies such as flywheel and thermal ESS.~~

Revise as follows:

**1207.1.4 1207.2 Permits.** Permits shall be obtained for ESS as follows:

1.

Construction permits shall be obtained for stationary ESS installations and for mobile ESS charging and storage installations covered by Section 1207.10.1. Permits shall be obtained in accordance with Section 105.6.6.

2.

Operational permits shall be obtained for stationary ESS installations and for mobile ESS deployment operations covered by Section 1207.10.3. Permits shall be obtained in accordance with Section 105.5.14.

**1207.1.4.1 1207.2.1 Communication utilities.** Operational permits shall not be required for lead-acid and nickel-cadmium battery systems at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 voltage alternating current (VAC) and 60 voltage direct current (VDC).

Add new text as follows:

**1207.2.2 Detached one- and two-family dwellings and townhouses.** Operational permits shall not be required for ESS located at detached one- and two-family dwellings and townhouses, other than Group R-4.

Revise as follows:

**1207.3 Installation.** Stationary, mobile and portable electrical energy storage systems (ESS). shall be designed, constructed, installed, commissioned, operated, maintained, and decommissioned in accordance with NFPA 855, the required listings and the manufacturer’s installation instructions, and the applicable requirements in this section. Energy storage systems (ESS) shall also comply with NFPA 99 where applicable.

Add new text as follows:

**1207.4 Fire safety and evacuation plan.** A fire safety and evacuation plan complying with NFPA 855 and Section 404 shall be provided for review and approval.

Revise as follows:

**1207.4.5 1207.5 Vehicle impact protection.** Where ESS are subject to impact by a motor vehicle, including forklifts, vehicle impact protection shall be provided in accordance with Section 312.

Add new text as follows:

**1207.6 Fire detection.** Where fire detection is required by NFPA 855, fire detection shall be installed in accordance with Section 907.

**1207.7 Fire suppression systems.** Where automatic fire sprinkler system protection is required by NFPA 855, the automatic fire sprinkler system shall be installed in accordance with Chapter 9.

Revise as follows:

**1207.6.3 1207.8 Explosion control.** Where explosion control is required by ~~Table 1207.6~~ NFPA 855, ~~or elsewhere in this code, or NFPA 69,~~ an explosion control system complying with Section 911 shall be provided for rooms, areas, ESS cabinets or ESS walk-in units containing the electrochemical ESS technologies. Where an ESS cabinet or ESS walk-in unit is installed within a room or building the design of the explosion control system shall include the cabinet, walk-in unit and the room it is installed within.

**Exception:** Where approved by the fire code official, engineered explosion control systems for ESS cabinets designed, validated, and evaluated in accordance with NFPA 855, shall be permitted in lieu of providing explosion control complying with Section 911.

Exceptions: ~~[material based on NFPA 855 (2023)]~~

1. \_\_\_\_\_

~~Where approved, explosion control is permitted to be waived by the fire code official based on large-scale fire testing complying with Section 1207.1.7 that demonstrates that flammable gases are not liberated from electrochemical ESS cells or modules.~~

2. \_\_\_\_\_

~~Where approved, explosion control is permitted to be waived by the fire code official based on documentation provided in accordance with Section 104.2.2 that demonstrates that the electrochemical ESS technology to be used does not have the potential to release flammable gas concentrations in excess of 25 percent of the LFL anywhere in the room, area, walk-in unit or structure under thermal runaway or other fault conditions.~~

3. \_\_\_\_\_

Where approved, ESS cabinets that have no debris, shrapnel or enclosure pieces ejected during large-scale fire testing complying with Section 1207.1.5 shall be permitted in lieu of providing explosion control complying with Section 911.

4. —

~~Explosion control is not required for lead-acid and nickel-cadmium battery systems less than 50 VAC, 60 VDC in telecommunication facilities under the exclusive control of communications utilities located in building spaces or walk-in units used exclusively for such installations.~~

5. —

~~Explosion control is not required for lead-acid and nickel-cadmium systems used for DC power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, located in building spaces or walk-in units used exclusively for such installations.~~

6. —

~~Explosion control is not required for lead-acid battery systems in uninterruptable power supplies listed and labeled in accordance with UL 1778, utilized for standby power applications, and housed in a single cabinet in a single fire area in buildings or walk-in units.~~

Add new text as follows:

**1207.9 Mechanical exhaust system.** Where a mechanical exhaust system is required by NFPA 855, the mechanical exhaust system shall be installed in accordance with the International Mechanical Code.

**1207.10 Gas detection system.** Where a gas detection system is installed to comply with the requirements of NFPA 855, the gas detection system shall comply with Section 916.

**1207.11 Fire-resistance rated separations.** Where fire-resistance-rated separation is required by NFPA 855, the fire-resistance-rated-separations shall be provided by fire barriers constructed in accordance with Section 707 of the International Building Code and horizontal assemblies constructed in accordance with Section 711 of the International Building Code.

**1207.12 Dedicated use buildings.** Where ESS are installed within dedicated-use ESS buildings they shall be classified as Group F-1 occupancies in accordance with the International Building Code.

~~**1207.13 Fire apparatus access roads.** Fire apparatus access roads shall be provided in accordance with Section 503.~~

~~**1207.14****1207.13 Fire protection water supplies.** Fire protection water supplies shall be provided in accordance with Section 507.~~

Delete without substitution:

~~**1207.1.5 Construction documents.** The following information shall be provided with the permit application:~~

~~1. —~~

~~Location and layout diagram of the room or area in which the ESS is to be installed.~~

~~2. —~~

~~Details on the hourly fire-resistance ratings of assemblies enclosing the ESS.~~

~~3. —~~

~~The quantities and types of ESS to be installed.~~

4. —

~~Manufacturer's specifications, ratings and listings of each ESS.~~

5. —

~~Description of energy (battery) management systems and their operation.~~

6. —

~~Location and content of required signage.~~

7. —

~~Details on fire suppression, smoke or fire detection, thermal management, ventilation, exhaust and deflagration venting systems, if provided.~~

8. —

~~Support arrangement associated with the installation, including any required seismic restraint.~~

9. —

~~A commissioning plan complying with Section 1207.2.1.~~

10. —

~~A decommissioning plan complying with Section 1207.2.3.~~

11. —

~~A fire safety and evacuation plan in accordance with Section 404.~~

~~**1207.1.5.1 Utilities applicability.** Plans and specifications associated with ESS owned and operated by electric utilities as a component of the electric grid that are considered critical infrastructure documents in accordance with the provisions of the North American Electric Reliability Corporation and other applicable governmental laws and regulations shall be made available to the fire code official for viewing based on the requirements of the applicable governmental laws and regulations. [material based on NFPA 855 (2023)]~~

~~**1207.1.6 Hazard mitigation analysis.** A failure modes and effects analysis (FMEA) or other approved hazard mitigation analysis shall be provided in accordance with Section 104.2.2 under any of the following conditions:~~

1. —

~~Where ESS technologies not specifically identified in Table 1207.1.3 are provided.~~

2. —

~~More than one ESS technology is provided in a single fire area where there is a potential for adverse interaction between technologies.~~

3. —

~~Where allowed as a basis for increasing maximum allowable quantities. See Section 1207.5.2.~~

4. —

~~Where required by the fire code official to address a potential hazard with an ESS installation that is not addressed by existing requirements.~~

~~**1207.1.6.1 Fault condition.** The hazard mitigation analysis shall evaluate the consequences of the following failure modes. Only single failure modes shall be considered.~~

1. —

~~A thermal runaway condition in a single electrochemical ESS unit.~~

2. \_\_\_\_\_

~~A mechanical failure of a nonelectrochemical ESS unit.~~

3. \_\_\_\_\_

~~Failure of any battery (energy) management system or fire protection system within the ESS equipment that is not covered by the product listing failure mode effects analysis (FMEA).~~

4. \_\_\_\_\_

~~Failure of any required protection system external to the ESS, including but not limited to ventilation (HVAC), exhaust ventilation, smoke detection, fire detection, gas detection or fire suppression system. [material based on NFPA 855 (2023)]~~

~~**1207.1.6.2 Analysis approval.** The fire code official is authorized to approve the hazardous mitigation analysis provided that the consequences of the hazard mitigation analysis demonstrate:~~

1. \_\_\_\_\_

~~Fires will be contained within unoccupied ESS rooms or areas for the minimum duration of the fire resistance-rated separations identified in Section 1207.7.4.~~

2. \_\_\_\_\_

~~Fires involving the ESS will allow occupants or the general public to evacuate to a safe location. [material based on NFPA 855 (2023)]~~

~~**1207.1.6.3 Additional protection measures.** Construction, equipment and systems that are required for the ESS to comply with the hazardous mitigation analysis, including but not limited to those specifically described in Section 1207, shall be installed, maintained and tested in accordance with nationally recognized standards and specified design parameters.~~

~~**1207.1.7 Large scale fire test.** Where required elsewhere in Section 1207, large scale fire testing shall be conducted on a representative ESS in accordance with UL 9540A. The testing shall be conducted or witnessed and reported by an approved testing laboratory and show that a fire involving one ESS will not propagate to an adjacent ESS, and where installed within buildings, enclosed areas and walk-in units will be contained within the room, enclosed area or walk-in unit for the duration of the test. The test report shall be provided to the fire code official for review and approval in accordance with Section 104.2.2. [material based on NFPA 855 (2023)]~~

~~**1207.1.8 Fire remediation.** Where a fire or other event has damaged the ESS and ignition or re-ignition of the ESS is possible, the system owner, agent or lessee shall take the following actions, at their expense, to mitigate the hazard or remove damaged equipment from the premises to a safe location.~~

~~**1207.1.8.1 Fire mitigation personnel.** Where, in the opinion of the fire code official, it is essential for public safety that trained personnel be on-site to respond to possible ignition or re-ignition of a damaged ESS, the system owner, agent or lessee shall dispatch within 15 minutes one or more fire mitigation personnel to the premise, as required and approved, at their expense. These personnel shall remain on duty continuously after the fire department leaves the premise until the damaged energy storage equipment is removed from the premises, or earlier if the fire code official indicates the public safety hazard has been abated. [material based on NFPA 855 (2023)]~~

~~**1207.1.8.2 Duties.** On-duty fire mitigation personnel shall have the following responsibilities:~~

1. \_\_\_\_\_

~~Keep a diligent watch for fires, obstructions to means of egress and other hazards.~~

2. \_\_\_\_\_

Immediately contact the fire department if their assistance is needed to mitigate any hazards or extinguish fires.

3.——

Take prompt measures for remediation of hazards in accordance with the decommissioning plan per Section 1207.2.3.

4.——

Take prompt measures to assist in the evacuation of the public from the structures. [material based on NFPA 855 (2023)]

**1207.2 Commissioning, decommissioning, operation and maintenance.** Commissioning, decommissioning, operation and maintenance shall be conducted in accordance with this section.

**1207.2.1 Commissioning.** Commissioning of newly installed ESS and existing ESS that have been retrofitted, replaced or previously decommissioned and are returning to service shall be conducted prior to the ESS being placed in service in accordance with a commissioning plan that has been approved prior to initiating commissioning. The commissioning plan shall include the following:

1.——

A narrative description of the activities that will be accomplished during each phase of commissioning, including the personnel intended to accomplish each of the activities.

2.——

A listing of the specific ESS and associated components, controls and safety related devices to be tested, a description of the tests to be performed and the functions to be tested.

3.——

Conditions under which all testing will be performed, which are representative of the conditions during normal operation of the system.

4.——

Documentation of the owner's project requirements and the basis of design necessary to understand the installation and operation of the ESS.

5.——

Verification that required equipment and systems are installed in accordance with the approved plans and specifications.

6.——

Integrated testing for all fire and safety systems.

7.——

Testing for any required thermal management, ventilation or exhaust systems associated with the ESS installation.

8.——

Preparation and delivery of operation and maintenance documentation.

9.——

Training of facility operating and maintenance staff.

10.——



Identification and documentation of the requirements for maintaining system performance to meet the original design intent during the operation phase.

11. —

Identification and documentation of personnel who are qualified to service, maintain and decommission the ESS, and respond to incidents involving the ESS, including documentation that such service has been contracted for.

12. —

A decommissioning plan for removing the ESS from service, and from the facility in which it is located. The plan shall include details on providing a safe, orderly shutdown of energy storage and safety systems with notification to the code officials prior to the actual decommissioning of the system. The decommissioning plan shall include contingencies for removing an intact operational ESS from service, and for removing an ESS from service that has been damaged by a fire or other event.

Exceptions:

1. —

Commissioning shall not be required for lead acid and nickel cadmium battery systems at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC. A decommissioning plan shall be provided and maintained where required by the fire code official.

2. —

Lead acid and nickel cadmium battery systems less than 50 VAC, 60 VDC that are in telecommunications facilities for installations of communications equipment under the exclusive control of communications utilities, and are located outdoors or in building spaces or walk-in units used exclusively for such installations that are in compliance with NFPA 76, shall be permitted to have a commissioning plan in compliance with recognized industry practices in lieu of complying with Section 1207.2.1.

3. —

Lead acid and nickel cadmium battery systems that are used for DC power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utilities, and are located in building spaces or walk-in units used exclusively for such installations, shall be permitted to have a commissioning plan in compliance with applicable governmental laws and regulations in lieu of developing a commissioning plan in accordance with Section 1207.2.1. [material based on NFPA 855 (2023)]

**1207.2.1.1 Initial acceptance testing.** During the commissioning process an ESS shall be evaluated for proper operation in accordance with the manufacturer's instructions and the commissioning plan prior to final approval.

**1207.2.1.2 Commissioning report.** A report describing the results of the system commissioning, including the results of the initial acceptance testing required in Section 1207.2.1.1, shall be provided to the fire code official prior to final inspection and approval and maintained at an approved on-site location. [material based on NFPA 855 (2023)]

**1207.2.2 Operation and maintenance.** An operation and maintenance manual shall be provided to both the ESS owner or their authorized agent and the ESS operator before the ESS is put into operation and shall include the following:

1. —

Manufacturer's operation manuals and maintenance manuals for the entire ESS, or for each component of the system requiring maintenance, that clearly identify the required routine maintenance actions.

2. —

Name, address and phone number of a service agency that has been contracted to service the ESS and its associated safety systems.

3. \_\_\_\_\_

Maintenance and calibration information, including wiring diagrams, control drawings, schematics, system programming instructions and control sequence descriptions, for all energy storage control systems.

4. \_\_\_\_\_

Desired or field-determined control set points that are permanently recorded on control drawings at control devices or, for digital control systems, in system programming instructions.

5. \_\_\_\_\_

A schedule for inspecting and recalibrating all ESS controls.

6. \_\_\_\_\_

A service record log form that lists the schedule for all required servicing and maintenance actions and space for logging such actions that are completed over time and retained on-site.

The ESS shall be operated and maintained in accordance with the manual and a copy of the manual shall be retained at an approved on-site location.

**1207.2.2.1 Ongoing inspection and testing.** Systems that monitor and protect the ESS installation shall be inspected and tested in accordance with the manufacturer's instructions and the operation and maintenance manual. Inspection and testing records shall be maintained in the operation and maintenance manual.

**1207.2.3 Decommissioning.** The code official shall be notified prior to the decommissioning of an ESS. Decommissioning shall be performed in accordance with the decommissioning plan that includes the following:

1. \_\_\_\_\_

A narrative description of the activities to be accomplished for removing the ESS from service, and from the facility in which it is located.

2. \_\_\_\_\_

A listing of any contingencies for removing an intact operational ESS from service, and for removing an ESS from service that has been damaged by a fire or other event. [material based on NFPA 855 (2023)]

**1207.3 Equipment.** ESS equipment shall be in accordance with Sections 1207.3.1 through 1207.3.9.

**1207.3.1 Energy storage system listings.** ESS shall be listed in accordance with UL 9540.

Exceptions:

1. \_\_\_\_\_

Lead-acid and nickel-cadmium battery systems less than 50 VAC, 60 VDC in telecommunications facilities for installations of communications equipment under the exclusive control of communications utilities located outdoors or in building spaces used exclusively for such installations that are in compliance with NFPA 76.

2. \_\_\_\_\_

Lead-acid and nickel-cadmium battery systems that are used for DC power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, and located outdoors or in building spaces used exclusively for such installations.

3. \_\_\_\_\_

~~Lead-acid battery systems in uninterruptable power supplies listed and labeled in accordance with UL 1778 and utilized for standby power applications.~~

~~[material based on NFPA 855 (2023)]~~

~~**1207.3.2 Equipment listing.** Chargers, inverters and energy storage management systems shall be covered as part of the UL 9540 listing or shall be listed separately.~~

~~**1207.3.3 Utility interactive systems.** Inverters shall be listed and labeled in accordance with UL 1741. Only inverters listed and labeled for utility interactive system use and identified as interactive shall be allowed to operate in parallel with the electric utility power system to supply power to common loads.~~

~~**1207.3.4 Energy storage management system.** Where required by the ESS listing, an approved energy storage management system that monitors and balances cell voltages, currents and temperatures within the manufacturer's specifications shall be provided. The system shall disconnect electrical connections to the ESS or otherwise place it in a safe condition if potentially hazardous temperatures or other conditions such as short circuits, over voltage or under voltage are detected. [material based on NFPA 855 (2023)]~~

~~**1207.3.5 Enclosures.** Enclosures of ESS shall be of noncombustible construction. [material based on NFPA 855 (2023)]~~

~~**1207.3.6 Repairs.** Repairs of ESS shall only be done by qualified personnel. Repairs with other than identical parts shall be considered retrofitting and comply with Section 1207.3.7. Repairs shall be documented in the service records log. [material based on NFPA 855 (2023)]~~

~~**1207.3.7 Retrofits.** Retrofitting of an existing ESS shall comply with the following:~~

~~1. \_\_\_\_\_~~

~~A construction permit shall be obtained in accordance with Section 105.6.6.~~

~~2. \_\_\_\_\_~~

~~New batteries, battery modules, capacitors and similar ESS components shall be listed.~~

~~3. \_\_\_\_\_~~

~~Battery management and other monitoring systems shall be connected and installed in accordance with the manufacturer's instructions.~~

~~4. \_\_\_\_\_~~

~~The overall installation shall continue to comply with UL 9540 listing requirements, where applicable.~~

~~5. \_\_\_\_\_~~

~~Systems that have been retrofitted shall be commissioned in accordance with Section 1207.2.1.~~

~~6. \_\_\_\_\_~~

~~Retrofits shall be documented in the service records log. [material based on NFPA 855 (2023)]~~

~~**1207.3.7.1 Retrofitting lead acid and nickel cadmium.** Changing out or retrofitting of lead-acid and nickel-cadmium batteries with other lead-acid and nickel-cadmium batteries in the following applications shall be considered repairs where there is no increase in system size or energy capacity greater than 10 percent of the original design.~~

~~1. \_\_\_\_\_~~

~~At facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC.~~

2. \_\_\_\_\_

Battery systems used for DC power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, and located outdoors or in building spaces used exclusively for such installations.

3. \_\_\_\_\_

Batteries in uninterruptible power supplies listed and labeled in accordance with UL 1778 and used for standby power applications only.

[material based on NFPA 855 (2023)]

**1207.3.8 Replacements.** Replacements of ESS shall be considered new ESS installations and shall comply with the provisions of Section 1207 as applicable to new ESS. The ESS being replaced shall be decommissioned in accordance with Section 1207.2.3. [material based on NFPA 855 (2023)]

**1207.3.9 Reused and repurposed equipment.** Equipment and materials shall only be reused or reinstalled as permitted in Section 104.9.1. Storage batteries previously used in other applications, such as electric vehicle propulsion, shall not be reused in applications regulated by Chapter 12 unless approved by the fire code official and unless the equipment is refurbished by a battery refurbishing company approved in accordance with UL 1974. [material based on NFPA 855 (2023)]

**1207.4 General installations requirements.** Stationary and mobile ESS shall comply with the requirements of Sections 1207.4.1 through 1207.4.12.

**1207.4.1 Electrical disconnects.** Where the ESS disconnecting means is not within sight of the main electrical service disconnecting means, placards or directories shall be installed at the location of the main electrical service disconnecting means indicating the location of stationary storage battery system disconnecting means in accordance with NFPA 70.

**Exception:** Electrical disconnects for lead acid and nickel cadmium battery systems at facilities under the exclusive control of communications utilities and operating at less than 50 VAC and 60 VDC shall be permitted to have electrical disconnects signage in accordance with NFPA 76.

**1207.4.2 Working clearances.** Access and working space shall be provided and maintained about all electrical equipment to permit ready and safe operation and maintenance of such equipment in accordance with NFPA 70 and the manufacturer's instructions.

**1207.4.3 Fire resistance-rated separations.** Rooms and other indoor areas containing ESS shall be separated from other areas of the building in accordance with Section 1207.7.4. ESS shall be permitted to be in the same room with the equipment they support.

**1207.4.4 Seismic and structural design.** Stationary ESS shall comply with the seismic design requirements in Chapter 16 of the International Building Code, and shall not exceed the floor loading limitation of the building.

**1207.4.6 Combustible storage.** Combustible materials shall not be stored in ESS rooms, areas or walk-in units. Combustible materials in occupied work centers covered by Section 1207.4.10 shall be stored at least 3 feet (914 mm) from ESS cabinets.

**1207.4.7 Toxic and highly toxic gases.** ESS that have the potential to release toxic and highly toxic gas during charging, discharging and normal use conditions shall be provided with a hazardous exhaust system in accordance with Section 502.8 of the International Mechanical Code.

**1207.4.8 Signage.** Approved signs shall be provided on or adjacent to all entry doors for ESS rooms or areas and on enclosures of ESS cabinets and walk-in units located outdoors, on rooftops or in open parking garages.

Signs designed to meet both the requirements of this section and NFPA 70 shall be permitted. The signage shall include the following or equivalent:

1. \_\_\_\_\_

~~“ENERGY STORAGE SYSTEM,” “BATTERY STORAGE SYSTEM,” “CAPACITOR ENERGY STORAGE SYSTEM” or the equivalent.~~

2. \_\_\_\_\_

~~The identification of the electrochemical ESS technology present.~~

3. \_\_\_\_\_

~~“ENERGIZED ELECTRICAL CIRCUITS.”~~

4. \_\_\_\_\_

~~Where water reactive electrochemical ESS are present, the signage shall include “APPLY NO WATER.”~~

5. \_\_\_\_\_

~~Current contact information, including phone number, for personnel authorized to service the equipment and for fire mitigation personnel required by Section 1207.1.8.1.~~

~~Exception: Existing electrochemical ESS shall be permitted to include the signage required at the time they were installed. [material based on NFPA 855 (2023)]~~

~~**1207.4.9 Security of installations.** Rooms, areas and walk-in units in which electrochemical ESS are located shall be secured against unauthorized entry and safeguarded in an approved manner. Security barriers, fences, landscaping and other enclosures shall not inhibit the required air flow to or exhaust from the electrochemical ESS and its components. [material based on NFPA 855 (2023)]~~

~~**1207.4.10 Occupied work centers.** Electrochemical ESS located in rooms or areas occupied by personnel not directly involved with maintenance, service and testing of the systems shall comply with the following:~~

1. \_\_\_\_\_

~~Electrochemical ESS located in occupied work centers shall be housed in locked noncombustible cabinets or other enclosures to prevent access by unauthorized personnel.~~

2. \_\_\_\_\_

~~Where electrochemical ESS are contained in cabinets in occupied work centers, the cabinets shall be located within 10 feet (3048 mm) of the equipment that they support.~~

3. \_\_\_\_\_

~~Cabinets shall include signage complying with Section 1207.4.8. [material based on NFPA 855 (2023)]~~

~~**1207.4.11 Open rack installations.** Where electrochemical ESS are installed in a separate equipment room and only authorized personnel have access to the room, they shall be permitted to be installed on an open rack for ease of maintenance. [material based on NFPA 855 (2023)]~~

~~**1207.4.12 Walk-in units.** Walk-in units shall be entered only for inspection, maintenance and repair of ESS units and ancillary equipment, and shall not be occupied for other purposes.~~

~~**1207.5 Electrochemical ESS protection.** The protection of electrochemical ESS shall be in accordance with Sections 1207.5.1 through 1207.5.8 where required by Sections 1207.7 through 1207.10. [material based on NFPA 855 (2023)]~~

~~TABLE 1207.5 MAXIMUM ALLOWABLE QUANTITIES OF ELECTROCHEMICAL ESS TECHNOLOGY — MAXIMUM ALLOWABLE QUANTITIES a~~  
~~STORAGE BATTERIES~~

~~Flow batteriesb — 600 kWh~~

~~Lead acid, all types — Unlimited~~

~~Lithium ion — 600 kWh~~

~~Nickel-cadmium (Ni-Cd), nickel-metal hydride (NI-MH) and nickel-zinc (Ni-Zn) — Unlimited~~

~~Sodium nickel chloride — 600 kWh~~

~~Zinc-manganese dioxide (Zn-MnO<sub>2</sub>) — Unlimited~~

~~Other battery technologies — 200 kWh~~

~~CAPACITORS~~

~~All types — 20 kWh~~

~~OTHER ELECTROCHEMICAL ESS~~

~~All types — 20 kWh~~

~~For SI: 1 kilowatt hour = 3.6 megajoules.~~

~~a. —~~

~~For electrochemical ESS units rated in amp-hours, kWh shall equal rated voltage times the amp-hour rating divided by 1,000.~~

~~b. —~~

~~Shall include vanadium, zinc-bromine, polysulfide-bromide and other flowing electrolyte-type technologies.~~

~~**1207.5.1 Size and separation.** Electrochemical ESS shall be segregated into groups not exceeding 50 kWh (180 megajoules). Each group shall be separated a minimum of 3 feet (914 mm) from other groups and from walls in the storage room or area. The storage arrangements shall comply with Chapter 10. Exceptions: [material based on NFPA 855 (2023)]~~

~~1. —~~

~~Lead acid and nickel-cadmium battery systems in facilities under the exclusive control of communications utilities and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76.~~

~~2. —~~

~~Lead acid and nickel-cadmium systems that are used for DC power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, and located outdoors or in building spaces used exclusively for such installations.~~

~~3. —~~

~~Lead acid battery systems in uninterruptable power supplies listed and labeled in accordance with UL 1778, utilized for standby power applications, and limited to not more than 10 percent of the floor area on the floor on which the ESS is located.~~

~~4. —~~

~~The fire code official is authorized to approve larger capacities or smaller separation distances based on large-scale fire testing complying with Section 1207.1.5.~~

~~**1207.5.2 Maximum allowable quantities.** Fire areas within rooms, areas and walk-in units containing electrochemical ESS shall not exceed the maximum allowable quantities in Table 1207.5. Exceptions: [material based on NFPA 855 (2023)]~~

~~1. —~~

~~Where approved by the fire code official, rooms, areas and walk-in units containing electrochemical ESS that exceed the amounts in Table 1207.5 shall be permitted based on a hazardous mitigation analysis in accordance with Section 1207.1.6 and large-scale fire testing complying with Section 1207.1.7.~~

~~2. \_\_\_\_\_~~

~~Lead-acid and nickel-cadmium battery systems installed in facilities under the exclusive control of communications utilities, and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76.~~

~~3. \_\_\_\_\_~~

~~Dedicated-use buildings in compliance with Section 1207.7.1.~~

~~**1207.5.2.1 Mixed electrochemical energy systems.** Where rooms, areas and walk-in units contain different types of electrochemical energy technologies, the total aggregate quantities of the systems shall be determined based on the sum of percentages of each technology type quantity divided by the maximum allowable quantity of each technology type. The sum of the percentages shall not exceed 100 percent of the maximum allowable quantity.~~

~~**1207.5.3 Elevation.** Electrochemical ESS shall not be located in the following areas:~~

~~1. \_\_\_\_\_~~

~~Where the floor is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.~~

~~2. \_\_\_\_\_~~

~~Where the floor is located below the lowest level of exit discharge.~~

~~Exceptions: [material based on NFPA 855 (2023)]~~

~~1. \_\_\_\_\_~~

~~Lead-acid and nickel-cadmium battery systems less than 50 VAC and 60 VDC installed in facilities under the exclusive control of communications utilities in accordance with NFPA 76.~~

~~2. \_\_\_\_\_~~

~~Lead-acid and nickel-cadmium systems that are used for DC power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, and located outdoors or in building spaces used exclusively for such installations.~~

~~3. \_\_\_\_\_~~

~~Lead-acid battery systems in uninterruptable power supplies listed and labeled in accordance with UL 1778, utilized for standby power applications, which is limited to not more than 10 percent of the floor area on the floor on which the ESS is located.~~

~~4. \_\_\_\_\_~~

~~Where approved, installations shall be permitted in underground vaults complying with NFPA 70, Article 450, Part III.~~

~~5. \_\_\_\_\_~~

~~Where approved by the fire code official, installations shall be permitted on higher and lower floors.~~

~~**1207.5.4 Fire detection.** An approved automatic smoke detection system or radiant energy sensing fire detection system complying with Section 907.2 shall be installed in rooms, indoor areas and walk-in units containing electrochemical ESS. An approved radiant energy sensing fire detection system shall be installed to protect open parking garage and rooftop installations. Alarm signals from detection systems shall be transmitted~~

to a central station, proprietary or remote station service in accordance with NFPA 72, or where approved to a constantly attended location.

**Exception:** Normally unoccupied, remote stand-alone telecommunications structures with a gross floor area of less than 1,500 square feet (139 m<sup>2</sup>) utilizing lead acid or nickel-cadmium batteries shall not be required to have a fire detection system installed. [material based on NFPA 855 (2023)]

~~**1207.5.4.1 System status.** Lead acid and nickel-cadmium battery systems that are used for DC power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, and located outdoors or in building spaces used exclusively for such installations, shall be allowed to use the process control system to monitor the smoke or radiant energy-sensing fire detectors required in Section 1207.5.4. [material based on NFPA 855 (2023)]~~

~~**1207.5.5 Fire suppression systems.** Rooms and areas within buildings and walk-in units containing electrochemical ESS shall be protected by an automatic fire suppression system designed and installed in accordance with one of the following:~~

~~1. —~~

~~Automatic sprinkler systems designed and installed in accordance with Section 903.3.1.1 for ESS units (groups) with a maximum stored energy capacity of 50 kWh, as described in Section 1207.5.1, shall be designed with a minimum density of 0.3 gpm/ft<sup>2</sup> (1.14 L/min) based over the area of the room or 2,500 square-foot (232 m<sup>2</sup>) design area, whichever is smaller, unless a lower density is approved based on large-scale fire testing in accordance with Section 1207.1.7.~~

~~2. —~~

~~Automatic sprinkler systems designed and installed in accordance with Section 903.3.1.1 for ESS units (groups) exceeding 50 kWh shall use a density based on large-scale fire testing complying with Section 1207.1.7.~~

~~3. —~~

~~The following alternative automatic fire extinguishing systems designed and installed in accordance with Section 904, provided that the installation is approved by the fire code official based on large-scale fire testing complying with Section 1207.1.7:~~

~~3.1. —~~

~~NFPA 12, Standard on Carbon Dioxide Extinguishing Systems.~~

~~3.2. —~~

~~NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection.~~

~~3.3. —~~

~~NFPA 750, Standard on Water Mist Fire Protection Systems.~~

~~3.4. —~~

~~NFPA 2001, Standard on Clean Agent Fire Extinguishing Systems.~~

~~3.5. —~~

~~NFPA 2010, Standard for Fixed Aerosol Fire Extinguishing Systems.~~

~~Exceptions:~~

~~1. —~~



Fire suppression systems for lead-acid and nickel-cadmium battery systems at facilities under the exclusive control of communications utilities that operate at less than 50 VAC and 60 VDC shall be provided where required by NFPA 76.

2. \_\_\_\_\_

Lead-acid and nickel-cadmium systems that are used for DC power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, and located outdoors or in building spaces used exclusively for such installations, shall not be required to have a fire suppression system installed.

3. \_\_\_\_\_

Lead-acid battery systems in uninterruptable power supplies listed and labeled in accordance with UL 1778, utilized for standby power applications, which is limited to not more than 10 percent of the floor area on the floor on which the ESS is located, shall not be required to have a fire suppression system. [material based on NFPA 855 (2023)]

**1207.5.5.1 Water-reactive systems.** Electrochemical ESS that utilize water-reactive materials shall be protected by an approved alternative automatic fire-extinguishing system in accordance with Section 904, where the installation is approved by the fire code official based on large-scale fire testing complying with Section 1207.1.7.

**1207.5.6 Maximum enclosure size.** Outdoor walk-in units housing ESS shall not exceed 53 feet by 8 feet by 9.5 feet high (16 154 mm × 2438 mm × 2896 mm), not including bolt-on HVAC and related equipment, as approved. Outdoor walk-in units exceeding these limitations shall be considered indoor installations and comply with the requirements in Section 1207.7. [material based on NFPA 855 (2023)]

**1207.5.7 Vegetation control.** Areas within 10 feet (3048 mm) on each side of outdoor ESS shall be cleared of combustible vegetation and other combustible growth. Single specimens of trees, shrubbery or cultivated ground cover such as green grass, ivy, succulents or similar plants used as ground cover shall be permitted to be exempt provided that they do not form a means of readily transmitting fire. [material based on NFPA 855 (2023)]

**1207.5.8 Means of egress separation.** ESS located outdoors and in open parking garages shall be separated from any means of egress as required by the fire code official to ensure safe egress under fire conditions, but in no case less than 10 feet (3048 mm).

**Exception:** The fire code official is authorized to approve a reduced separation distance if large-scale fire testing complying with Section 1207.1.7 is provided that shows that a fire involving the ESS will not adversely impact occupant egress.

**1207.6 Electrochemical ESS technology-specific protection.** Electrochemical ESS installations shall comply with the requirements of this section in accordance with the applicable requirements of Table 1207.6. [material based on NFPA 855 (2023)]

TABLE 1207.6 ELECTROCHEMICAL ESS TECHNOLOGY-SPECIFIC REQUIREMENTS  
COMPLIANCE REQUIRED<sup>b</sup> — BATTERY TECHNOLOGY OTHER ESS AND BATTERY  
TECHNOLOGIES<sup>b</sup> — CAPACITOR ESS<sup>b</sup>

Feature	Section	Lead-acid	Nickel-cadmium (Ni-Cd)	Nickel-metal hydride (Ni-MH)	and nickel-zinc (Ni-Zn)	Zinc-manganese dioxide (Zn-MnO <sub>2</sub> )	Lithium-ion	Flow	Sodium nickel chloride		
Exhaust ventilation	1207.6.1	Yes	Yes	Yes	No	Yes	No	Yes	Yes		
Explosion control	1207.6.3	Yes <sup>a</sup>	Yes <sup>a</sup>	Yes	Yes	No	Yes	Yes	Yes		
Safety caps	1207.6.4	Yes	Yes	No	No	No	No	Yes	Yes		
Spill control and neutralization	1207.6.2	Yes <sup>c</sup>	Yes <sup>c</sup>	Yes <sup>c</sup>	Yes <sup>c</sup>	Yes <sup>f</sup>	No	Yes	No	Yes	Yes

~~Thermal runaway — 1207.6.5 — Yesd Yes — Yese Yese No — Yes — Yese — Yes~~

~~a. —~~

~~Not required for lead-acid and nickel-cadmium batteries at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC.~~

~~b. —~~

~~Protection shall be provided unless documentation acceptable to the fire code official is provided in accordance with Section 104.2.2 that provides justification why the protection is not necessary based on the technology used.~~

~~e. —~~

~~Applicable to vented-type (i.e., flooded) nickel-cadmium and lead-acid batteries.~~

~~d. —~~

~~Not required for vented-type (i.e., flooded) batteries.~~

~~e. —~~

~~The thermal runaway protection is permitted to be part of a battery management system that has been evaluated with the battery as part of the evaluation to UL 1973.~~

~~f. —~~

~~Not required for batteries with gelled electrolyte.~~

~~**1207.6.1 Exhaust ventilation.** Where required by Table 1207.6 or elsewhere in this code, exhaust ventilation of rooms, areas and walk-in units containing electrochemical ESS shall be provided in accordance with the International Mechanical Code and Section 1207.6.1.1 or 1207.6.1.2.~~

~~**1207.6.1.1 Ventilation based on LFL.** The exhaust ventilation system shall be designed to limit the maximum concentration of flammable gas to 25 percent of the lower flammable limit (LFL) of the total volume of the room, area or walk-in unit during the worst-case event of simultaneous charging of batteries at the maximum charge rate, in accordance with nationally recognized standards.~~

~~**1207.6.1.2 Ventilation based on exhaust rate.** Mechanical exhaust ventilation shall be provided at a rate of not less than 1 ft<sup>3</sup>/min/ft<sup>2</sup> (5.1 L/sec/m<sup>2</sup>) of floor area of the room, area or walk-in unit. The ventilation shall be either continuous or shall be activated by a gas detection system in accordance with Section 1207.6.1.2.4.~~

~~**1207.6.1.2.1 Standby power.** Mechanical exhaust ventilation shall be provided with a minimum of 2 hours of standby power in accordance with Section 1203.2.5.~~

~~**1207.6.1.2.2 Installation instructions.** Required mechanical exhaust ventilation systems shall be installed in accordance with the manufacturer's installation instructions and the International Mechanical Code.~~

~~**1207.6.1.2.3 Supervision.** Required mechanical exhaust ventilation systems shall be supervised by an approved central station, proprietary or remote station service in accordance with NFPA 72, or shall initiate an audible and visible signal at an approved constantly attended on-site location.~~

~~**1207.6.1.2.4 Gas detection system.** Where required by Section 1207.6.1.2, rooms, areas and walk-in units containing ESS shall be protected by an approved continuous gas detection system that complies with Section 916 and with the following:~~

~~1. —~~

~~The gas detection system shall be designed to activate the mechanical ventilation system when the level of flammable gas in the room, area or walk-in unit exceeds 25 percent of the LFL.~~

2. \_\_\_\_\_

The mechanical ventilation system shall remain on until the flammable gas detected is less than 25 percent of the LFL.

3. \_\_\_\_\_

The gas detection system shall be provided with a minimum of 2 hours of standby power in accordance with Section 1203.2.5.

4. \_\_\_\_\_

Failure of the gas detection system shall annunciate a trouble signal at an approved central station, proprietary or remote station service in accordance with NFPA 72, or shall initiate an audible and visible trouble signal at an approved constantly attended on-site location. [material based on NFPA 855 (2023)]

**1207.6.2 Spill control and neutralization.** Where required by Table 1207.6 or elsewhere in this code, areas containing free-flowing liquid electrolyte or hazardous materials shall be provided with spill control and neutralization in accordance with this section. [material based on NFPA 855 (2023)]

**1207.6.2.1 Spill control.** Spill control shall be provided to prevent the flow of liquid electrolyte or hazardous materials to adjoining rooms or areas. The method shall be capable of containing a spill from the single largest battery or vessel. [material based on NFPA 855 (2023)]

**1207.6.2.2 Neutralization.** An approved method that is capable of neutralizing spilled liquid electrolyte from the largest battery or vessel to a pH between 5.0 and 9.0 shall be provided. [material based on NFPA 855 (2023)]

**1207.6.2.3 Communications utilities.** The requirements of Section 1207.6.2 shall apply only when the aggregate capacity of multiple vessels exceeds 1,000 gallons (3785 L) for lead-acid and nickel-cadmium battery systems operating at less than 50 VAC and 60 VDC that are located at facilities under the exclusive control of communications utilities, and those facilities comply with NFPA 76 in addition to applicable requirements of this code.

**1207.6.4 Safety caps.** Where required by Table 1207.6 or elsewhere in this code, vented batteries and other ESS shall be provided with flame-arresting safety caps.

**1207.6.5 Thermal runaway.** Where required by Table 1207.6 or elsewhere in this code, batteries and other ESS shall be provided with a listed device or other approved method to prevent, detect and minimize the impact of thermal runaway.

**1207.7 Indoor installations.** Indoor ESS installations shall be in accordance with Sections 1207.7.1 through 1207.7.4. [material based on NFPA 855 (2023)]

TABLE 1207.7 INDOOR ESS INSTALLATIONS  
COMPLIANCE REQUIRED DEDICATED USE BUILDINGS<sup>a</sup> NONDEDICATED USE BUILDINGS<sup>b</sup>

Feature	Section	Yes	No	NA
Dwelling units and sleeping units	1207.7.3	Yes	No	NA
Elevation	1207.5.3	Yes	Yes	
Fire suppression systems	1207.5.5	Yes	Yes	
Fire resistance-rated separations	1207.7.4	Yes	Yes	
General installation requirements	1207.4	Yes	Yes	
Maximum allowable quantities	1207.5.2	No	Yes	
Size and separation	1207.5.1	Yes	Yes	

~~Smoke and automatic fire detection 1207.5.4 — Yes — Yes~~

~~Technology specific protection 1207.6 Yes — Yes~~

~~NA = Not Allowed.~~

~~a. —~~

~~See Section 1207.7.1.~~

~~b. —~~

~~See Section 1207.7.2.~~

~~e. —~~

~~Where approved by the fire code official, fire suppression systems are permitted to be omitted in dedicated-use buildings located more than 100 feet (30.5 m) from buildings, lot lines, public ways, stored combustible materials, hazardous materials, high-piled stock and other exposure hazards.~~

~~d. —~~

~~Where approved by the fire code official, alarm signals are not required to be transmitted to a central station, proprietary or remote station service in accordance with NFPA 72, or a constantly attended location where local fire alarm annunciation is provided and trained personnel are always present.~~

~~e. —~~

~~Lead-acid and nickel-cadmium battery systems installed in Group U buildings and structures less than 1,500 square feet (139 m<sup>2</sup>) under the exclusive control of communications utilities, and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76, are not required to have an approved automatic smoke or fire detection system.~~

~~**1207.7.1 Dedicated-use buildings.** For the purpose of Table 1207.7, dedicated-use ESS buildings shall be classified as Group F-1 occupancies and comply with all the following:~~

~~1. —~~

~~The building shall only be used for ESS, electrical energy generation and other electrical grid-related operations.~~

~~2. —~~

~~Occupants in the rooms and areas containing ESS are limited to personnel that operate, maintain, service, test and repair the ESS and other energy systems.~~

~~3. —~~

~~No other occupancy types shall be permitted in the building.~~

~~4. —~~

~~Administrative and support personnel shall be permitted in areas within the buildings that do not contain ESS, provided that:~~

~~4.1. —~~

~~The areas do not occupy more than 10 percent of the building area of the story in which they are located.~~

~~4.2. —~~

~~A means of egress is provided from the incidental use areas to the public way that does not require occupants to traverse through areas containing ESS or other energy system equipment. [material based on NFPA 855 (2023)]~~

**1207.7.2 Nondedicated-use buildings.** For the purpose of Table 1207.7, nondedicated-use buildings include all buildings that contain ESS and do not comply with Section 1207.7.1 dedicated-use building requirements. [material based on NFPA 855 (2023)]

**1207.7.3 Dwelling units and sleeping units.** ESS shall not be installed in sleeping units or in habitable spaces of dwelling units. [material based on NFPA 855 (2023)]

**1207.7.4 Fire-resistance-rated separations.** Rooms and areas containing ESS shall include fire-resistance-rated separations as follows:

1. \_\_\_\_\_

In dedicated-use buildings, rooms and areas containing ESS shall be separated from areas in which administrative and support personnel are located.

2. \_\_\_\_\_

In nondedicated-use buildings, rooms and areas containing ESS shall be separated from other areas in the building.

Separation shall be provided by 2-hour fire barriers constructed in accordance with Section 707 of the International Building Code and 2-hour horizontal assemblies constructed in accordance with Section 711 of the International Building Code, as appropriate. [material based on NFPA 855 (2023)]

**1207.8 Outdoor installations.** Outdoor installations shall be in accordance with Sections 1207.8.1 through 1207.8.3. Exterior wall installations for individual ESS units not exceeding 20 kWh shall be in accordance with Section 1207.8.4. [material based on NFPA 855 (2023)]

TABLE 1207.8 OUTDOOR ESS INSTALLATIONS<sup>a</sup>  
COMPLIANCE REQUIRED REMOTE INSTALLATIONS<sup>a</sup> — INSTALLATIONS NEAR EXPOSURES<sup>b</sup>  
Feature Section

All ESS installations	1207.4	Yes	Yes
Clearance to exposures	1207.8.3	Yes	Yes
Fire suppression systems	1207.5.5	Yes	Yes
Maximum allowable quantities	1207.5.2	No	Yes
Maximum enclosure size	1207.5.6	Yes	Yes
Means of egress separation	1207.5.8	Yes	Yes
Size and separation	1207.5.1	No	Yes <sup>d</sup>
Smoke and automatic fire detection	1207.5.4	Yes	Yes
Technology-specific protection	1207.6	Yes	Yes
Vegetation control	1207.5.7	Yes	Yes

a. \_\_\_\_\_

See Section 1207.8.1.

b. \_\_\_\_\_

See Section 1207.8.2.

e. \_\_\_\_\_

Where approved by the fire code official, fire suppression systems are permitted to be omitted.

d. \_\_\_\_\_

In outdoor walk-in units, spacing is not required between ESS units and the walls of the enclosure.

**1207.8.1 Remote outdoor installations.** For the purpose of Table 1207.8, remote outdoor installations include ESS located more than 100 feet (30 480 mm) from buildings, lot lines, public ways, stored combustible

materials, hazardous materials, high-piled stock and other exposure hazards. [material based on NFPA 855 (2023)]

**1207.8.2 Installations near exposures.** For the purpose of Table 1207.8, installations near exposures include all outdoor ESS installations that do not comply with Section 1207.8.1 remote outdoor location requirements. [material based on NFPA 855 (2023)]

**1207.8.3 Clearance to exposures.** ESS located outdoors shall be separated by a minimum of 10 feet (3048 mm) from the following exposures:

1. \_\_\_\_\_

Lot lines.

2. \_\_\_\_\_

Public ways.

3. \_\_\_\_\_

Buildings.

4. \_\_\_\_\_

Stored combustible materials.

5. \_\_\_\_\_

Hazardous materials.

6. \_\_\_\_\_

High-piled stock.

7. \_\_\_\_\_

Other exposure hazards.

**Exceptions:** [material based on NFPA 855 (2023)]

1. \_\_\_\_\_

Clearances are permitted to be reduced to 3 feet (914 mm) where a 1-hour free-standing fire barrier suitable for exterior use and extending 5 feet (1524 mm) above and 5 feet (1524 mm) beyond the physical boundary of the ESS installation is provided to protect the exposure.

2. \_\_\_\_\_

Clearances to buildings are permitted to be reduced to 3 feet (914 mm) where noncombustible exterior walls with no openings or combustible overhangs are provided on the wall adjacent to the ESS and the fire resistance rating of the exterior wall is a minimum of 2 hours.

3. \_\_\_\_\_

Clearances to buildings are permitted to be reduced to 3 feet (914 mm) where a weatherproof enclosure constructed of noncombustible materials is provided over the ESS, and it has been demonstrated that a fire within the enclosure will not ignite combustible materials outside the enclosure based on large-scale fire testing complying with Section 1207.1.7.

**1207.8.4 Exterior wall installations.** ESS shall be permitted to be installed outdoors on exterior walls of buildings when all of the following conditions are met:

1. \_\_\_\_\_

The maximum energy capacity of individual ESS units shall not exceed 20 kWh.

2. \_\_\_\_\_

The ESS shall comply with applicable requirements in Section 1207.

3. \_\_\_\_\_

The ESS shall be installed in accordance with the manufacturer's instructions and their listing.

4. \_\_\_\_\_

Individual ESS units shall be separated from each other by at least 3 feet (914 mm).

5. \_\_\_\_\_

The ESS shall be separated from doors, windows, operable openings into buildings or HVAC inlets by at least 5 feet (1524 mm).

**Exception:** Where approved, smaller separation distances in Items 4 and 5 shall be permitted based on large-scale fire testing complying with Section 1207.1.7. [material based on NFPA 855 (2023)]

**1207.9 Special installations.** Rooftop and open parking garage ESS installations shall comply with Sections 1207.9.1 through 1207.9.6. [material based on NFPA 855 (2023)]

TABLE 1207.9 SPECIAL ESS INSTALLATIONS  
COMPLIANCE REQUIRED ROOFTOPS<sup>a</sup> OPEN PARKING GARAGES<sup>b</sup>

Feature	Section	Roof	Garage
All ESS installations	1207.4	Yes	Yes
Clearance to exposures	1207.9.3	Yes	Yes
Fire suppression systems	1207.9.4	Yes	Yes
Maximum allowable quantities	1207.5.2	Yes	Yes
Maximum enclosure size	1207.5.6	Yes	Yes
Means of egress separation	1207.5.8	Yes	Yes
Open parking garage installations	1207.9.6	No	Yes
Rooftop installations	1207.9.5	Yes	No
Size and separation	1207.5.1	Yes	Yes
Smoke and automatic fire detection	1207.5.4	Yes	Yes
Technology specific protection	1207.6	Yes	Yes

a. \_\_\_\_\_

See Section 1207.9.1.

b. \_\_\_\_\_

See Section 1207.9.2.

**1207.9.1 Rooftop installations.** For the purpose of Table 1207.9, rooftop ESS installations are those located on the roofs of buildings. [material based on NFPA 855 (2023)]

**1207.9.2 Open parking garage installations.** For the purpose of Table 1207.9, open parking garage ESS installations are those located in a structure or portion of a structure that complies with Section 406.5 of the International Building Code. [material based on NFPA 855 (2023)]

**1207.9.3 Clearance to exposures.** ESS located on rooftops and in open parking garages shall be separated by a minimum of 10 feet (3048 mm) from the following exposures:

1. \_\_\_\_\_

Buildings, except the building on which rooftop ESS is mounted.

2. \_\_\_\_\_

Any portion of the building on which a rooftop system is mounted that is elevated above the rooftop on which the system is installed.

3. \_\_\_\_\_  
Lot lines.

4. \_\_\_\_\_  
Public ways.

5. \_\_\_\_\_  
Stored combustible materials.

6. \_\_\_\_\_  
Locations where motor vehicles can be parked.

7. \_\_\_\_\_  
Hazardous materials.

8. \_\_\_\_\_  
Other exposure hazards.

#### **Exceptions:**

1. \_\_\_\_\_  
Clearances are permitted to be reduced to 3 feet (914 mm) where a 1-hour free-standing fire barrier suitable for exterior use and extending 5 feet (1524 mm) above and 5 feet (1524 mm) beyond the physical boundary of the ESS installation is provided to protect the exposure.

2. \_\_\_\_\_  
Clearances are permitted to be reduced to 3 feet (914 mm) where a weatherproof enclosure constructed of noncombustible materials is provided over the ESS, and it has been demonstrated that a fire within the enclosure will not ignite combustible materials outside the enclosure based on large-scale fire testing complying with Section 1207.1.7. [material based on NFPA 855 (2023)]

**1207.9.4 Fire suppression systems.** ESS located in walk-in units on rooftops or in walk-in units in open parking garages shall be provided with automatic fire suppression systems within the ESS enclosure in accordance with Section 1207.5.5. Areas containing ESS other than walk-in units in open parking structures on levels not open above to the sky shall be provided with an automatic fire suppression system complying with Section 1207.5.5.

**Exception:** A fire suppression system is not required in open parking garages if large-scale fire testing complying with Section 1207.1.7 is provided that shows that a fire will not impact the exposures in Section 1207.9.3. [material based on NFPA 855 (2023)]

**1207.9.5 Rooftop installations.** ESS and associated equipment that are located on rooftops and not enclosed by building construction shall comply with the following:

1. \_\_\_\_\_  
Stairway access to the roof for emergency response and fire department personnel shall be provided either through a bulkhead from the interior of the building or a stairway on the exterior of the building.

2. \_\_\_\_\_  
Service walkways at least 5 feet (1524 mm) in width shall be provided for service and emergency personnel from the point of access to the roof to the system.



3. \_\_\_\_\_

ESS and associated equipment shall be located from the edge of the roof a distance equal to at least the height of the system, equipment or component but not less than 5 feet (1524 mm).

4. \_\_\_\_\_

The roofing materials under and within 5 feet (1524 mm) horizontally from an ESS or associated equipment shall be noncombustible or shall have a Class A rating when tested in accordance with ASTM E108 or UL 790.

5. \_\_\_\_\_

A Class I standpipe outlet shall be installed at an approved location on the roof level of the building or in the stairway bulkhead at the top level.

6. \_\_\_\_\_

The ESS shall be the minimum of 10 feet (3048 mm) from the fire service access point on the rooftop. [material based on NFPA 855 (2023)]

**1207.9.6 Open parking garages.** ESS and associated equipment that are located in open parking garages shall comply with all of the following:

1. \_\_\_\_\_

ESS shall not be located within 50 feet (15 240 mm) of air inlets for building HVAC systems.

Exception: This distance shall be permitted to be reduced to 25 feet (7620 mm) if the automatic fire alarm system monitoring the radiant energy sensing detectors de-energizes the ventilation system connected to the air intakes upon detection of fire.

2. \_\_\_\_\_

ESS shall not be located within 25 feet (7620 mm) of exits leading from the attached building where located on a covered level of the parking structure not directly open to the sky above.

3. \_\_\_\_\_

An approved fence with a locked gate or other approved barrier shall be provided to keep the general public at least 5 feet (1524 mm) from the outer enclosure of the ESS. [material based on NFPA 855 (2023)]

**1207.10 Mobile ESS equipment and operations.** Mobile ESS equipment and operations shall comply with Sections 1207.10.1 through 1207.10.7.7. [material based on NFPA 855 (2023)]

TABLE 1207.10 MOBILE ENERGY STORAGE SYSTEMS (ESS)  
COMPLIANCE REQUIRED DEPLOYMENT<sup>a</sup>

Feature	Section	Yes <sup>b</sup>	Yes <sup>c</sup>	Yes <sup>d</sup>	Yes <sup>e</sup>	Yes
All ESS installations	1207.4	Yes <sup>b</sup>				
Fire suppression systems	1207.5.5		Yes <sup>c</sup>			
Maximum allowable quantities	1207.5.2			Yes		
Maximum enclosure size	1207.5.6		Yes			
Means of egress separation	1207.5.8		Yes			
Size and separation	1207.5.1		Yes <sup>d</sup>			
Smoke and automatic fire detection	1207.5.4		Yes <sup>e</sup>			
Technology specific protection	1207.6	Yes				
Vegetation control	1207.5.7		Yes			

a. \_\_\_\_\_

See Section 1207.10.2.

b. \_\_\_\_\_

~~Mobile operations on wheeled vehicles and trailers shall not be required to comply with Section 1207.4.4 seismic and structural load requirements.~~

e. \_\_\_\_\_

~~Fire suppression system connections to the water supply shall be permitted to use approved temporary connections.~~

d. \_\_\_\_\_

~~In walk-in units, spacing is not required between ESS units and the walls of the enclosure.~~

e. \_\_\_\_\_

~~Alarm signals are not required to be transmitted to an approved location for mobile ESS deployed 30 days or less.~~

**1207.10.1 Charging and storage.** For the purpose of Section 1207.10, charging and storage covers the operation where mobile ESS are charged and stored so they are ready for deployment to another site, and where they are charged and stored after a deployment.

**Exception:** Mobile ESS used to temporarily provide power to lead-acid and nickel-cadmium systems that are used for DC power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, and located outdoors or in building spaces used exclusively for such installations. [material based on NFPA 855 (2023)]

**1207.10.2 Deployment.** For the purpose of Section 1207.10, deployment covers operations where mobile ESS are located at a site other than the charging and storage site and are being used to provide power.

**Exception:** Mobile ESS used to temporarily provide power to lead-acid and nickel-cadmium systems that are used for DC power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, and located outdoors or in building spaces used exclusively for such installations. [material based on NFPA 855 (2023)]

**1207.10.3 Permits.** Construction and operational permits shall be provided for charging and storage of mobile ESS and operational permits shall be provided for deployment of mobile ESS as required by Section 1207.1.4.

**1207.10.4 Construction documents.** Construction documents complying with Section 1207.1.5 shall be provided with the construction permit application for mobile ESS charging and storage locations.

**1207.10.4.1 Deployment documents.** The following information shall be provided with the operation permit applications for mobile ESS deployments:

1. \_\_\_\_\_

~~Relevant information for the mobile ESS equipment and protection measures in the construction documents required by Section 1207.1.5.~~

2. \_\_\_\_\_

~~Location and layout diagram of the area in which the mobile ESS is to be deployed, including a scale diagram of all nearby exposures.~~

3. \_\_\_\_\_

~~Location and content of signage, including no-smoking signs.~~

4. \_\_\_\_\_

~~Description of fencing to be provided around the ESS, including locking methods.~~

5. \_\_\_\_\_

~~Details on fire suppression, smoke and automatic fire detection, system monitoring, thermal management, exhaust ventilation and explosion control, if provided.~~

6. \_\_\_\_\_

~~For deployment, the intended duration of operation, including anticipated connection and disconnection times and dates.~~

7. \_\_\_\_\_

~~Location and description of local staging stops during transit to the deployment site. See Section 1207.10.7.5.~~

8. \_\_\_\_\_

~~Description of the temporary wiring, including connection methods, conductor type and size, and circuit overcurrent protection to be provided.~~

9. \_\_\_\_\_

~~Description of how fire suppression system connections to water supplies or extinguishing agents are to be provided.~~

10. \_\_\_\_\_

~~Contact information for personnel who are responsible for maintaining and servicing the equipment, and responding to emergencies as required by Section 1207.1.8.1. [material based on NFPA 855 (2023)]~~

~~**1207.10.5 Approved locations.** Locations where mobile ESS are charged, stored and deployed shall be restricted to the locations established on the construction and operational permits. [material based on NFPA 855 (2023)]~~

~~**1207.10.6 Charging and storage.** Installations where mobile ESS are charged and stored shall be treated as permanent ESS indoor or outdoor installations, and shall comply with the following sections, as applicable:~~

~~1. \_\_\_\_\_~~

~~Indoor charging and storage shall comply with Section 1207.7.~~

~~2. \_\_\_\_\_~~

~~Outdoor charging and storage shall comply with Section 1207.8.~~

~~3. \_\_\_\_\_~~

~~Charging and storage on rooftops and in open parking garages shall comply with Section 1207.9.~~

**Exceptions:**

1. \_\_\_\_\_

~~Electrical connections shall be permitted to be made using temporary wiring complying with the manufacturer's instructions, the UL 9540 listing and NFPA 70.~~

2. \_\_\_\_\_

~~Fire suppression system connections to the water supply shall be permitted to use approved temporary connections. [material based on NFPA 855 (2023)]~~

~~**1207.10.7 Deployed mobile ESS requirements.** Deployed mobile ESS equipment and operations shall comply with this section and Table 1207.10. [material based on NFPA 855 (2023)]~~

~~**1207.10.7.1 Duration.** The duration of mobile ESS deployment shall not exceed 30 days.~~

## **Exceptions:**

1. \_\_\_\_\_

~~Mobile ESS deployments that provide power for durations longer than 30 days shall comply with Section 1207.10.6.~~

2. \_\_\_\_\_

~~Mobile ESS deployments shall not exceed 180 days unless additional operational permits are obtained. [material based on NFPA 855 (2023)]~~

~~**1207.10.7.2 Restricted locations.** Deployed mobile ESS operations shall not be located indoors, in covered parking garages, on rooftops, below grade or under building overhangs. [material based on NFPA 855 (2023)]~~

~~**1207.10.7.3 Clearance to exposures.** Deployed mobile ESS shall be separated by a minimum of 10 feet (3048 mm) from the following exposures:~~

1. \_\_\_\_\_

~~Public ways.~~

2. \_\_\_\_\_

~~Buildings.~~

3. \_\_\_\_\_

~~Stored combustible materials.~~

4. \_\_\_\_\_

~~Hazardous materials.~~

5. \_\_\_\_\_

~~High piled storage.~~

6. \_\_\_\_\_

~~Other exposure hazards.~~

~~Deployed mobile ESS shall be separated by a minimum of 50 feet (15 240 mm) from public seating areas and from tents, canopies and membrane structures with an occupant load of 30 or more. [material based on NFPA 855 (2023)]~~

~~**1207.10.7.4 Electrical connections.** Electrical connections shall be made in accordance with the manufacturer's instructions and the UL 9540 listing. Temporary wiring for electrical power connections shall comply with NFPA 70. Fixed electrical wiring shall not be provided. [material based on NFPA 855 (2023)]~~

~~**1207.10.7.5 Local staging.** Mobile ESS in transit from the charging and storage location to the deployment location and back shall not be parked within 100 feet (30 480 mm) of an occupied building for more than 1 hour during transit, unless specifically approved by the fire code official when the permit is issued. [material based on NFPA 855 (2023)]~~

~~**1207.10.7.6 Fencing.** An approved fence with a locked gate or other approved barrier shall be provided to keep the general public at least 5 feet (1524 mm) from the outer enclosure of a deployed mobile ESS. [material based on NFPA 855 (2023)]~~

~~**1207.10.7.7 Smoking.** Smoking shall be prohibited within 10 feet (3048 mm) of mobile ESS. Signs shall be posted in accordance with Section 310.~~

**1207.11 ESS in Group R-3 and R-4 occupancies.** ESS in Group R-3 and R-4 occupancies shall be in accordance with Sections 1207.11.1 through 1207.11.9.

**Exceptions:**

1. \_\_\_\_\_

~~ESS listed and labeled in accordance with UL 9540 and marked "For use in residential dwelling units," where installed in accordance with the manufacturer's instructions and NFPA 70.~~

2. \_\_\_\_\_

~~ESS rated less than 1 kWh (3.6 megajoules).~~

**1207.11.1 Equipment listings.** ESS shall be listed and labeled in accordance with UL 9540.

**1207.11.2 Installation.** ESS shall be installed in accordance with the manufacturer's instructions and their listing. [material based on NFPA 855 (2023)]

**1207.11.2.1 Spacing.** Individual ESS units shall be separated from each other by at least 3 feet (914 mm) except where smaller separation distances are documented to be adequate based on large scale fire testing complying with Section 1207.1.7.

**1207.11.3 Location.** ESS shall be installed only in the following locations:

1. \_\_\_\_\_

~~Detached garages and detached accessory structures.~~

2. \_\_\_\_\_

~~Attached garages separated from the dwelling unit living space and sleeping units in accordance with Section 406.3.2 of the International Building Code.~~

3. \_\_\_\_\_

~~Outdoors or on the exterior side of exterior walls located a minimum of 3 feet (914 mm) from doors and windows directly entering the dwelling unit.~~

4. \_\_\_\_\_

~~Enclosed utility closets, basements, and storage or utility spaces within dwelling units and sleeping units with finished or noncombustible walls and ceilings. Walls and ceilings of unfinished wood framed construction shall be provided with not less than 5/8-inch Type X gypsum wallboard.~~

~~ESS shall not be installed in sleeping rooms, or in closets or spaces opening directly into sleeping rooms. [material based on NFPA 855 (2023)]~~

**1207.11.4 Energy ratings.** Individual ESS units shall have a maximum rating of 20 kWh. The aggregate rating of the ESS shall not exceed:

1. \_\_\_\_\_

~~40 kWh within utility closets, basements, and storage or utility spaces.~~

2. \_\_\_\_\_

~~80 kWh in attached or detached garages and detached accessory structures.~~

3. \_\_\_\_\_

~~80 kWh on exterior walls.~~

4. \_\_\_\_\_

80 kWh outdoors on the ground.

ESS installations exceeding the permitted individual or aggregate ratings shall be installed in accordance with Sections 1207.1 through 1207.9. [material based on NFPA 855 (2023)]

**1207.11.5 Electrical installation.** ESS shall be installed in accordance with NFPA 70. Inverters shall be listed and labeled in accordance with UL 1741 or provided as part of the UL 9540 listing. Systems connected to the utility grid shall use inverters listed for utility interaction. [material based on NFPA 855 (2023)]

**1207.11.6 Fire detection.** ESS installed in Group R-3 and R-4 occupancies shall comply with the following:

1. \_\_\_\_\_

Rooms and areas within dwelling units, sleeping units, basements and attached garages in which ESS are installed shall be protected by smoke alarms in accordance with Section 907.2.11.

2. \_\_\_\_\_

A listed heat alarm shall be installed in locations where smoke alarms cannot be installed based on their listing.

**1207.11.7 Protection from impact.** ESS installed in a location subject to vehicle damage in accordance with Section 1207.11.7.1 or 1207.11.7.2 shall be provided with impact protection in accordance with Section 1207.11.7.3.

**1207.11.7.1 Garages.** Where an ESS is installed in the normal driving path of vehicle travel within a garage, impact protection complying with Section 1207.11.3 shall be provided. The normal driving path is a space between the garage vehicle opening and the interior face of the back wall to a height of 48 inches (1219 mm) above the finished floor. The width of the normal driving path shall be equal to the width of the garage door opening. Impact protection shall also be provided for an ESS installed at either of the following locations (see Figure 1207.11.7.1):

1. \_\_\_\_\_

On the interior face of the back wall and located within 36 inches (914 mm) to the left or to the right of the normal driving path.

2. \_\_\_\_\_

On the interior face of a side wall and located within 24 inches (610 mm) of the back wall and 36 inches (914 mm) of the normal driving path.

**Exception:** Where the clear height of the vehicle garage opening is 7 feet 6 inches (2286 mm) or less, ESS installed not less than 36 inches (914 mm) above the finished floor are not subject to vehicle impact protection requirements.

#### FIGURE 1207.11.7.1 ESS VEHICLE IMPACT PROTECTION

**1207.11.7.2 Other locations subject to vehicle impact.** Where an ESS is installed in a location other than as defined in Section 1207.11.7.1 and is subject to vehicle damage, impact protection shall be provided in accordance with Section 1207.11.7.3.

**1207.11.7.3 Impact protection options.** Where ESS is required to be protected from impact in accordance with Section 1207.11.7.1 or 1207.11.7.2, such protection shall comply with one of the following:

1. \_\_\_\_\_

Bollards constructed in accordance with one of the following:

1.1. \_\_\_\_\_

Minimum 48 inches (1219 mm) in length by 3 inches (76 mm) in diameter Schedule 80 steel pipe embedded in a concrete pier not less than 12 inches (304 mm) deep and 6 inches (152 mm) in diameter, with at least 36 inches (914 mm) of pipe exposed, filled with concrete and spaced at a maximum interval of 5 feet (1524 mm). Each bollard shall be located not less than 6 inches (152 mm) from an ESS.

1.2.—

Minimum 36 inches (914 mm) in height by 3 inches (76 mm) in diameter Schedule 80 steel pipe fully welded to a minimum 8 inches (203 mm) by ¼ inch (6.4 mm) thick steel plate and bolted to a concrete floor by means of four ½ inch (13 mm) concrete anchors with 3-inch (76 mm) minimum embedment. Spacing shall be not greater than 60 inches (1524 mm), and each bollard shall be located not less than 6 inches (152 mm) from the ESS.

1.3.—

Premanufactured steel pipe bollards shall be filled with concrete and anchored in accordance with the manufacturer's installation instructions, with spacing not greater than 60 inches (1524 mm). Each bollard shall be located not less than 6 inches (152 mm) from the ESS.

2.—

Wheel barriers constructed in accordance with one of the following:

2.1.—

Four inches (102 mm) in height by 5 inches (127 mm) in width by 70 inches (1778 mm) in length wheel barrier made of concrete or polymer, anchored to the concrete floor not less than every 36 inches (914 mm) and located not less than 54 inches (1372 mm) from the ESS. Minimum 3½ inch (89 mm) diameter concrete anchors with 3-inch (76 mm) embedment per barrier shall be used. Spacing between barriers shall be not greater than 36 inches (914 mm).

2.2.—

Premanufactured wheel barriers shall be anchored in accordance with the manufacturer's installation instructions.

3.—

Approved method designed to resist a 2,000-pound-force (8896 N) impact in the direction of travel at 24 inches (610 mm) above grade.

**1207.11.8 Ventilation.** Indoor installations of ESS that include batteries that produce hydrogen or other flammable gases during charging shall be provided with exhaust ventilation in accordance with Section 304.5 of the International Mechanical Code. [material based on NFPA 855 (2023)]

**1207.11.9 Electric vehicle use.** The temporary use of an owner or occupant's electric powered vehicle to power a dwelling unit or sleeping unit while parked in an attached or detached garage or outdoors shall comply with the vehicle manufacturer's instructions and NFPA 70. [material based on NFPA 855 (2023)]

Revise as follows:

**1203.2.5 Mechanical Exhaust Ventilation Systems.** Standby power shall be provided for mechanical exhaust ventilation systems as required in Section 1207.6.1.2.4 1207.9. The system shall be capable of powering the required load for a duration of not less than 2 hours.

**1203.2.7 Gas detection systems.** Emergency power shall be provided for gas detection systems where required by Sections 1203.2.10 and 1203.2.17 and 1207.10. Standby power shall be provided for gas detection systems where required by Sections 916.5 and 1207.6.1.2.4.

**907.2.23 Energy storage systems.** An automatic smoke detection system, thermal imaging detection system or radiant-energy detection system shall be installed in rooms, areas and walk-in units containing energy storage systems as required in Section ~~1207.5.4~~ 1207.6.

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Revise as follows:

**[F] 907.2.23 Energy storage systems.** An automatic smoke detection system, thermal imaging detection system, or radiant-energy detection system shall be installed in rooms, areas and walk-in units containing energy storage systems as required in Section ~~1207.5.4~~ 1207.6 of the International Fire Code.

**5. Briefly explain your proposed amendment, including the purpose, benefits and problems addressed.**

The requirements for energy storage systems in the 2024 IFC are very similar and in many cases identical to the 2023 edition of NFPA 855. The requirements in the two documents are technically consistent. This proposal is intended to accomplish the following:

1. Delete the Section 1207 prescriptive requirements and replace the language with references to NFPA 855. Since the addition of the requirements to the 2018 I-Codes the testimony reflected an intent to delete language in favor of direct use of NFPA 855 once that document was established.
2. Retain cross references to protection requirements in the IFC, IBC, and IMC.
3. Correlates related references in the I-Codes to the new proposed IFC Section 1207.

Properly updating the current IFC language is complicated by the fact that the NFPA 855 process for the next edition has completed its first revision phase with only the formal ballot vote remaining, so the ideas, concepts and technical language necessary for updating the IFC language is already part of that documents process, and the submitters granted the rights to that language to NFPA. As a result, with NFPA 855 well established this cycle is the best time to make the transition to NFPA 855.

An additional factor is that the IFC now contains a general reference to NFPA 855 in Section 1201.1.

“1201.1 Scope. The provisions of this chapter shall apply to the installation, operation, maintenance, repair, retrofitting, testing, commissioning and decommissioning of energy systems used for generating or storing energy, including but not limited to energy storage systems under the exclusive control of an electric utility or lawfully designated agency. It shall not apply to equipment associated with the generation, control, transformation, transmission, or distribution of energy installations that is under the exclusive control of an electric utility or lawfully designated agency. Energy storage systems regulated by Section 1207 shall comply with this chapter, as appropriate, and NFPA 855.”

As a result, the code user must read Section 1207 line by line at the same time they do so with NFPA 855 to pick up on any nuances, eliminating the technical language other than linkage to relevant ICC sections elsewhere assists the designer, installer, and code official.

The changes to Sections 1203.2.5, 1203.2.7, and 907.2.23 are correlation changes.



In recognition of the difficulty of digging thru the additions and strikeouts as involved as they are in this proposal, following is what Section 1207 would contain if this proposal is approved.

## **SECTION 1207**

### **ELECTRICAL ENERGY STORAGE SYSTEMS (ESS)**

**1207.1 General.** The provisions in this section are applicable to stationary, portable and mobile electrical energy storage systems (ESS).

**1207.1.1 Scope.** ESS having capacities exceeding the values shown in Table 1.3 of NFPA 855 shall comply with this section.

**1207.2 Permits.** Permits shall be obtained for ESS as follows:

1. Construction permits shall be obtained for stationary ESS installations and for mobile ESS charging and storage installations. Permits shall be obtained in accordance with Section 105.6.5.
2. Operational permits shall be obtained for stationary ESS installations and for mobile ESS deployment operations. Permits shall be obtained in accordance with Section 105.5.14.

**1207.2.1 Communication utilities.** Operational permits shall not be required for lead-acid and nickel-cadmium battery systems at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 voltage alternating current (VAC) and 60 voltage direct current (VDC).

**1207.2.2 Detached one- and two-family dwellings and townhouses.** Operational permits shall not be required for ESS located at detached one- and two-family dwellings and townhouses, other than Group R-4.

**1207.3 Installation.** Stationary, mobile and portable electrical energy storage systems (ESS). shall be designed, constructed, installed, commissioned, operated, maintained, and decommissioned in accordance with NFPA 855, the required listings and the manufacturer's installation instructions, and the applicable requirements of this section.

**1207.4 Fire safety and evacuation plan.** A fire safety and evacuation plan complying with NFPA 855 and Section 404 shall be provided for review and approval.

**1207.5 Vehicle Impact protection.** Where ESS are subject to impact by a motor vehicle, including forklifts, vehicle impact protection shall be provided in accordance with Section 312.

**1207.6 Fire detection.** Where fire detection is required by NFPA 855, fire detection shall be provided in accordance with Section 907.

**1207.7 Fire suppression systems.** Where automatic fire sprinkler system protection is required by NFPA 855, the automatic fire sprinkler system shall be installed in accordance with Chapter 9.

**1207.8 Explosion control.** Where explosion control is required by NFPA 855, an NFPA 69 explosion control system complying with Section 911 shall be provided for rooms, areas, ESS cabinets or ESS walk-in units containing the electromechanical ESS technologies. Where an ESS cabinet or ESS walk-in unit is

installed within a room or building the design of the explosion control system shall include the cabinet, walk-in unit and the room it is installed within.

**1207.9 Mechanical exhaust ventilation.** Where required by NFPA 855, mechanical exhaust ventilation shall be provided in accordance with the International Mechanical Code.

**1207.10 Gas detection system.** Where a gas detection system is installed to comply with the requirements of NFPA 855, the gas detection system shall comply with Section 916.

**1207.11 Fire-resistance-rated separations.** Where fire-resistance-rated separation is required by NFPA 855, fire-resistance-rated separations shall be provided by fire barriers constructed in accordance with Section 707 of the International Building Code and horizontal assemblies constructed in accordance with Section 711 of the International Building Code.

**1207.12 Dedicated-use buildings.** Where ESS are installed within Dedicated-use ESS buildings shall be classified as Group F-1 occupancies.

~~**1207.13 Fire apparatus access roads.** Fire apparatus access roads shall be provided in accordance with Section 503.~~

~~**1207.14**~~**1207.13 Fire protection water supplies.** Fire protection water supplies shall be provided in accordance with Section 507.

**6. Specify what criteria this proposal meets.** You may select more than one.

- The amendment is needed to address a critical life/safety need.
- The amendment clarifies the intent or application of the code.
- The amendment is needed to address a specific state policy or statute.
- The amendment is needed for consistency with state or federal regulations.
- The amendment is needed to address a unique character of the state.
- The amendment corrects errors and omissions.

**7. Is there an economic impact:**  Yes  No

If no, state reason: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

This proposal does not increase the cost of construction since the overall technical requirements of the IFC and NFPA 855 are similar. The proposal has the potential of reducing design and AHJ review costs by eliminating the need to compare the two documents line by line.

If yes, provide economic impact, costs and benefits as noted below in items a – f.

- a. **Life Cycle Cost.** Use the OFM Life Cycle Cost [Analysis tool](#) to estimate the life cycle cost of the proposal using one or more typical examples. Reference these [Instructions](#); use these [Inputs](#). Webinars on the tool can be found [Here](#) and [Here](#)). If the tool is used, submit a copy of the excel file with your proposal submission. If preferred, you may submit an alternate life cycle cost analysis.
- b. **Construction Cost.** Provide your best estimate of the construction cost (or cost savings) of your code change proposal.

\$Click here to enter text./square foot

(For residential projects, also provide \$[Click here to enter text.](#)/ dwelling unit)

Show calculations here, and list sources for costs/savings, or attach backup data pages

- c. **Code Enforcement.** List any code enforcement time for additional plan review or inspections that your proposal will require, in hours per permit application:
  
- d. **Small Business Impact.** Describe economic impacts to small businesses:
  
- e. **Housing Affordability.** Describe economic impacts on housing affordability:
  
- f. **Other.** Describe other qualitative cost and benefits to owners, to occupants, to the public, to the environment, and to other stakeholders that have not yet been discussed:

Please send your completed proposal to: [sbcc@des.wa.gov](mailto:sbcc@des.wa.gov)

**All questions must be answered to be considered complete. Incomplete proposals will not be accepted.**