Buildings

Promulgation Details for 1 RCNY 3616-07

This rule became effective on October, 26, 2025.

This rule has an effective date of 10-26-25

NEW YORK CITY DEPARTMENT OF BUILDINGS

NOTICE OF ADOPTION OF RULE

NOTICE IS HEREBY GIVEN, pursuant to the authority vested in the Commissioner of Buildings by Section 643 of the New York City Charter and in accordance with Section 1043 of the Charter, that the Department of Buildings hereby adopts the addition of new section 101-19 to Subchapter A of Chapter 100 of Title 1 of the Rules of the City of New York and new section 3616-07 to Chapter 3600 of Title 1 of the Official Compilation of the Rules of the City of New York, regarding the installation of electric energy storage systems. This rule was first published on December 24, 2024, and a public hearing thereon was held on January 23, 2025.

Dated: 9-17-2025
New York, New York

James S. Oddo
Commissioner

Statement of Basis and Purpose of Rule

Energy storage systems (ESS) are critical to the energy grid of the future because they balance energy supply with demand for electricity. Energy production, especially from renewable sources such as wind and solar, can be intermittent and is not always aligned with peak demand times. ESS, however, can store excess energy produced during low demand periods and release it during peak demand periods. ESS also enhance grid stability and reliability by providing backup power during outages, frequency regulation, and voltage control. This ensures a consistent and reliable supply of electricity.

ESS facilitate the integration of renewable energy sources by improving their dependability. This makes it easier to incorporate a higher percentage of renewables into the grid without compromising reliability. Additionally, by storing energy when it is cheap (off-peak times) and releasing it when it is expensive (peak times), energy storage can help reduce energy costs for consumers and utilities. Overall, ESS play a crucial role in creating a more flexible, efficient, and sustainable energy grid.

The Department is adding two rules related to ESS. The first rule, section 101-19, establishes the requirements for design, filing, construction, installation, commissioning, operation, maintenance, decommissioning and reporting for ESS. ESS are a relatively new technology. Because of that, the New York City Construction Codes (Construction Codes) currently treat them as an alternative material and do not adequately prescribe the requirements for the design, installation and use of these systems. The second rule, section 3616-07, adopts a modification to the national standard establishing installation requirements for ESS.

Rule 101-19.

Rule 101-19 adopts various national standards to be applied to the design and use of ESS to improve the safety of their installations in several ways. These standards include National Fire Protection Association (NFPA) 855, *Standard for the Installation of Stationary Energy Storage Systems*, Underwriters Laboratories 9540, *Safety of Energy Storage Systems and Equipment*, and Underwriters Laboratories 9540A, *Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems*.

First, these standards establish uniform safety criteria that all ESS installations must meet and ensure a consistent approach to safety across installations, thereby reducing the risk of accidents and failures. Second, these standards require that ESS components and systems undergo rigorous testing and certification processes. This ensures that the products used in installations meet high safety and performance criteria before being deployed in the field. Third, these standards provide detailed guidelines on the proper installation of ESS, including considerations for site selection, system layout, electrical connections, and fire protection measures. Adhering to the guidelines established in these standards will help prevent installation errors that could lead to safety hazards. Fourth, these standards also include protocols for the safe operation and regular maintenance of ESS. This helps ensure that systems are operated within their design limits and maintained properly to avoid deterioration that could lead to unsafe conditions.

The filing, submission and equipment approval process prescribed in rule 101-19 are based on Buildings Bulletin 2019-002 with modifications for consistency with current practice and newly adopted ESS requirements of the 2022 New York City Fire Code. While current Fire Code, agency

rules, and directives permit the installation of ESS within buildings, the Construction Codes do not have adequate requirements to address the unique hazards associated with indoor installations. Rule 101-19 makes indoor installations viable and establishes consistent design, approval and installation requirements, which promote the safe installation of this necessary infrastructure.

Rule 3616-07.

Rule 3616-07 modifies NFPA 855, *Standard for the Installation of Stationary Energy Storage Systems*, which is adopted by rule 101-19, to make it consistent with current Department rules, the New York City Fire Code, and recommendations of a panel of industry experts tasked with analyzing and making recommendations for modifications to this standard for the unique urban environment that is New York City.

The NFPA 855 standard improves safety for ESS by addressing various critical aspects of installation, operation, and maintenance. For example, it enhances safety by establishing where ESS can be located and mandates adequate separation distances between ESS and other critical infrastructure. This reduces the risk of fire spreading to adjacent areas and ensures safe evacuation routes.

The NFPA 855 standard requires appropriate fire detection and suppression systems to be installed alongside ESS. This includes automatic fire suppression systems designed to quickly contain and extinguish fires, minimizing potential damage and hazards. It also mandates proper ventilation and thermal management systems to prevent overheating and accumulation of hazardous gases. Adequate ventilation reduces the risk of thermal runaway in battery systems and the buildup of flammable gases.

The standard also requires the development of comprehensive emergency response plans. These plans include coordination with local fire departments, training for emergency responders, and clear procedures for handling ESS-related incidents, to ensure a swift and effective response in case of emergencies.

NFPA 855 mandates a hazard mitigation analysis to identify potential risks associated with ESS installations. This analysis helps in designing systems and implementing measures to mitigate identified risks, thereby enhancing overall safety. The standard specifies requirements for continuous monitoring of ESS for signs of malfunction, such as temperature fluctuations, gas emissions, and electrical faults. Real-time monitoring allows for prompt detection and intervention to prevent potential incidents.

NFPA 855 provides detailed guidelines for the proper installation and commissioning of ESS, ensuring that systems are installed correctly and function as intended. This includes verifying electrical connections, structural stability, and system integrity. Clear signage and labeling requirements ensure that ESS components are properly marked, providing critical information to operators and emergency responders about the system’s specifications, hazards, and safety procedures.

The standard emphasizes the importance of training for personnel involved in the installation, operation, and maintenance of ESS. Proper training ensures that individuals are aware of safety protocols and can competently handle ESS-related tasks. NFPA 855 mandates regular

inspections and maintenance of ESS to ensure continued safe operation. This includes checking for wear and tear, system degradation, and compliance with safety standards.

By setting out these comprehensive safety measures, NFPA 855 significantly reduces the risk of accidents, enhances the ability to respond effectively to incidents, and ensures the safe integration of energy storage systems into the energy grid.

In response to comments received prior to and at the public hearing, the following changes have been made:

Changes to Section 101-19:

1. **101-19(f)(3)(ii)(A):** Clarified that peer reviewers must have strong expertise in the Construction Codes, Electrical Code, the Fire Code, and FDNY rules, rather than "all applicable laws." This change makes the requirement more precise.

2. **101-19(k):** Clarified that the ESS registration requirement is not intended for lead-acid and nickel-cadmium batteries used for emergency, standby, or uninterruptible power supply. These technologies have been widely used for decades and have established good safety records. Therefore, an exception has been added to exempt such systems from ESS registration.

Changes to Section 3616-07:

1. **Table 1.3:** At FDNY's request, the threshold of lithium-ion and other battery technologies was changed to 1kWh to reflect the potential hazards of these smaller systems and to better align with anticipated changes to the Fire Code.

2. **Section 4.1.5.1:** Vented lead-acid and nickel-cadmium batteries used in standby and emergency applications are now excluded from the large-scale testing requirement. These technologies, predominantly used by the telecom industry for decades, have established strong safety records.

3. **Sections 4.4.4.5 and 4.10.4:** Thermal image fire detection systems were added to align with the most recent technical changes in NFPA 855. These detectors sense heat in the long-wave infrared band with an imager and are well-suited to detecting anomalies in ESS.

4. **Sections 4.12.1.2:** This section was removed at FDNY's request because FC 911 and FC Table 911.1 do not give the DOB discretion to permit cabinets designed for explosion containment in place of those complying with NFPA 68 or NFPA 69.

5. **Section 15.6.1:** Clarified permissible ESS installation locations, including outdoor wall- and ground-mounted configurations, as well as wall- and floor-mounted systems within attached and detached garages, to align with the Fire Code and FDNY rules.

6. **Section 15.7.1:** Clarified the permissible aggregate rated energy capacity of the ESS to align with the Fire Code and FDNY rules. The aggregate rated energy capacity ranges from 20 to 40 kWh.

7. **Section 15.14.1:** Amended to align the energy storage management system requirement with the Fire Code and FDNY rules.

8. Additional changes to other sections were also made to reflect recommendations from FDNY and industry members.

The Department of Buildings' authority for these rules is found in sections 28-104.7.11 and 28-103.19 of the New York City Administrative Code.

New material is underlined.
[Deleted material is in brackets.]
Asterisks (***) indicate unamended text.

"Shall" and "must" denote mandatory requirements and may be used interchangeably in the rules of this department, unless otherwise specified or unless the context clearly indicates otherwise.

Section 1. Subchapter A of Chapter 100 of Title 1 of the Rules of the City of New York is amended by adding a new section 101-19 to read as follows:

§101-19 Energy Storage Systems

(a) Applicability and scope. This section governs the design, filing, construction, installation, commissioning, operation, maintenance, decommissioning of and establishes reporting requirements for the following categories of energy storage systems (ESS):

(1) ESS that exceed the minimum aggregate capacities established in NFPA 855 when installed indoors.

(2) ESS that exceed the minimum aggregate capacities established in the New York City Fire Department's (FDNY) rules when installed outdoors.

(3) Indoor and outdoor ESS installations associated with one- and two-family dwellings.

(b) Definitions. For the purposes of this section, the following terms have the following meanings:

(1) Certificate of Approval (COA). As defined in the New York City Fire Code (Fire Code).

(2) Energy Storage System (ESS). One or more devices that, when assembled together, are capable of storing energy in order to supply electrical energy at a future time to the local power loads, to the utility grid, or for grid support.

(3) NFPA 855. National Fire Protection Association 855 - Amendment Relating to the Standard for the Installation of Stationary Energy Storage Systems – 2020 edition, as amended by the New York City Department of Buildings (DOB).

(c) Codes. All work relating to the design, filing, construction, installation, commissioning, operation, maintenance, decommissioning and reporting of ESS must comply with the requirements of the New York City Construction Codes (Construction Codes) set forth in title 28 of the Administrative Code of the City of New York. All such work must also comply with the requirements of the New York City Electrical Code (Electrical Code), the Fire Code, the New York City Energy Conservation Code, the New York City Zoning Resolution, the FDNY rules, the DOB rules, and any other applicable laws and rules.

(d) General design and installation requirements for ESS.

(1) Indoor ESS systems must comply with the following requirements:

(i) ESS must comply with NFPA 855.

(ii) Equipment listing, testing, evaluation, and certification:

(A) ESS must be listed in accordance with UL 9540, as referenced in section 3616-07 item 2.3.7, unless specifically exempted by NFPA 855.

(B) UL 9540A, as referenced in section 3616-07 item 2.3.7, large-scale fire testing must be performed on all ESS, unless specifically exempted by NFPA 855.

(C) A COA must be obtained, as required by the Fire Code and FDNY rules.

(2) Outdoor ESS systems must comply with the FDNY rules.

(3) ESS installations associated with one- and two-family dwellings must comply with paragraph (1) of this subdivision for indoor ESS installations and paragraph (2) of this subdivision for outdoor installations.

(e) Construction document approval. An application for construction document approval for construction related to an ESS must be filed with DOB. Construction documents filed in connection with the ESS and related construction must comply with the requirements of the Construction Codes. In addition, such applications must include the following information, as applicable:

(1) Plans and specifications associated with the ESS submitted in accordance with NFPA 855.

(2) Zoning analysis demonstrating that the ESS complies with the New York City Zoning Resolution.

Exception: An accessory indoor ESS installation within an existing building envelope that complies with the definition of "accessory use" in the New York City Zoning Resolution does not require a zoning analysis.

(3) For a roof installation, a roof plan demonstrating that the ESS does not obstruct access for firefighting in accordance with the Fire Code and maintenance of roof equipment.

(4) For a site installation, the site plan must show access to energy storage equipment and site buildings for firefighting in accordance with the Fire Code and for maintenance.

(5) Proof of compliance with the flood-resistant construction requirements of the New York City Building Code (Building Code).

(6) When a site-specific approval is required pursuant to subdivision (f) of this section, an Office of Technical Certification and Research (OTCR) conditional acceptance letter.

(7) When a site-specific approval is not required pursuant to subdivision (f) of this section, an application for construction document approval must include:

(i) A COA issued by FDNY for the proposed ESS; and

(ii) Where required by the Fire Code or the FDNY rules, Installation Approval issued by FDNY.

(f) Site-specific review.

(1) Applicability. ESS installations subject to the requirements of this section require site-specific review and approval by OTCR.

Exception: OTCR review and approval are not required for the following:

(i) ESS installations associated with one- and two-family dwellings that comply with the applicable provisions of NFPA 855, provided that the equipment has been approved by the FDNY through a COA or other listing that accounts for thermal runaway conditions approved by DOB and FDNY.

(ii) At the discretion of OTCR, an ESS that has received a COA from the FDNY may not require site specific equipment evaluation and approval.

(2) Site-specific application contents. A submission for site-specific evaluation of the proposed ESS must include:

(i) The OTCR site-specific application form, and all required fees;

(ii) The construction documents required pursuant to subdivision (e) of this section;

(iii) Documentation of peer review as applicable in accordance with paragraph (3) of this subdivision;

(iv) A COA issued by the FDNY for the proposed ESS;

(v) Where required by the Fire Code or the FDNY rules, a letter of conditional acceptance issued by the FDNY; and

(vi) An OTCR conditional acceptance letter and an OTCR final certification letter uploaded to DOB's electronic filing system.

(3) Peer review. Peer review is required for site-specific ESS installations except as directed by DOB. The peer reviewer(s) must review the plans and specifications for compliance with the provisions of NFPA 855.

(i) Peer reviewer. The peer reviewer(s) must be one or more engineers licensed and registered in the state of New York with relevant experience with and knowledge about fire protection engineering and ESS applications and systems. The peer reviewer must also:

(A) Be retained by the owner of the ESS and be approved by DOB prior to commencing the review,

(B) Be independent from the registered design professional of record; and

(C) Avoid conflicts of interest by not engaging in any activities that might compromise their objective judgment and integrity, including but not limited to having a financial or other interest in the design, construction, installation, manufacture or maintenance of the structures or components that they are reviewing.

(ii) During the review, the peer reviewer(s) must verify that:

(A) The proposed design of the ESS and supporting infrastructure complies with the Construction Codes, Electrical Code, the Fire Code and FDNY rules;

(B) The proposed design of the ESS and supporting infrastructure conforms to NFPA 855, UL 9540 listing conditions, and conditions specified under the COA; and

(C) All applicable UL 9540A test data has been interpreted as compliant with the intent of the provisions of the New York City Construction, Electrical, and Fire codes, and safety benchmarks have been established based on such interpretation to mitigate thermal runaway propagation and site-specific hazard conditions.

(iii) The peer reviewer(s) must prepare a report summarizing the findings of the peer review. OTCR will not issue a conditional acceptance letter for the ESS site-specific review in accordance with paragraph (4) of this subdivision until a peer review report has been submitted indicating the ESS design shown on identified plans and specifications complies with the requirements of this section. Such report must be separately signed and sealed by each peer reviewer.

(iv) If a dispute arises between the registered design professional of record and the peer reviewer regarding compliance with the provisions of this section and the parties are unable to resolve the dispute, such dispute must be reported to DOB in the form of a letter from the registered design professional of record. DOB will either resolve the dispute or to allow a change of the peer reviewer(s).

(v) The registered design professional of record for the ESS retains sole responsibility for the design of the ESS. The activities and reports of the peer reviewer(s) do not relieve the registered design professional of record of this responsibility.

(4) Conditional acceptance. Upon demonstration of compliance with the requirements of this section, OTCR will issue a conditional acceptance letter. The applicant must submit the conditional acceptance letter in connection with the application for construction document approval.

(g) Certificate of Occupancy. Where the ESS is not accessory to the principal use on the same zoning lot, a new certificate of occupancy must be issued by DOB to reflect the zoning Use Group of the non-accessory ESS pursuant to Article 118 of Title 28 of the Administrative Code.

(h) Permits. Prior to any work being performed, permits must be obtained for both the construction work and the electrical work.

(1) Where the Construction Codes require the filing of technical reports identifying those responsible for required special, progress and final inspections, such reports must be filed with DOB.

(2) Before commencing any electrical work, an application for an electrical work permit must be filed with DOB in accordance with the Electrical Code, including an electrical plan review as required by the DOB rules. The construction permit for the installation of the energy storage equipment will not be issued until the electrical permit has been issued.

(i) Job sign-off. The registered design professional must take all steps required by DOB for the issuance of a letter of completion, or, if applicable, a certificate of occupancy, pursuant to section 28-116.4 of the Administrative Code, including but not limited to, the completion of the following:

(1) Inspections. Any construction work performed in connection with the construction application, including but not limited to the energy storage equipment, must be inspected in accordance with Administrative Code. The electrical work performed in connection with the energy storage equipment must be completed and inspected in accordance with the Electrical Code.

(2) Commissioning. Where required by NFPA 855, and where required by the Fire Code or the FDNY rules, commissioning must be performed accordingly. A commissioning report must be submitted to DOB as required.

(3) Final acceptance. Where a site-specific approval is required pursuant to subdivision (f) of this section, a registered design professional must submit a final certification attesting that the installed ESS is in compliance with the conditional acceptance letter. OTCR will issue a final acceptance letter upon demonstration of compliance with the requirements of this section.

(j) Operation. An ESS may not be operated until the job sign-off has been completed in accordance with subdivision (i) of this section.

(k) Registration and reporting requirements. All system registrations and notifications must be in a form and manner prescribed by DOB. Registration is not required for lead acid and nickel cadmium batteries used for emergency, standby, or uninterruptable power supply

(1) Where a new ESS is subject to the requirements of this section, building owners and property managers must register each new system with DOB prior to operation.

(2) Where an existing ESS would be subject to the requirements of this section, building owners and property managers must register such existing ESS with DOB within 3 years of the effective date of this section.

(3) Prior to decommissioning a registered ESS, DOB must be notified. All required permits must be obtained prior to decommissioning.

§2. Chapter 3600 of Title 1 of the Rules of the City of New York is amended by adding a new section 3616-07 to read as follows:

§3616-07 National Fire Protection Association (NFPA) 855 Amendment Relating to the Standard for the Installation of Stationary Energy Storage Systems.

Pursuant to section 28-103.19 of the New York City Administrative Code, NFPA 855 (2020 edition) is hereby amended as follows:

1.1 Delete and replace with the following: **Scope.** This standard applies to the design, construction, installation, commissioning, operations, maintenance, and decommissioning of indoor stationary energy storage systems (ESS), including mobile and portable ESS installed in a stationary situation and the storage of lithium metal and lithium ion batteries. Outdoor and rooftop ESS are regulated by the New York City Fire Code (Fire Code) and the New York City Fire Department (FDNY) rules, and as indicated in section 1.3.2.

1.3 Delete and replace with the following: **Application.** This standard applies to indoor ESS exceeding the values shown in Table 1.3 and mobile installations in accordance with section 4.5.

1.3.2 Delete and replace with the following: Indoor and outdoor ESS installations associated with one- and two-family dwellings must comply with Chapter 15 of this title, the Fire Code and the FDNY rules.

1.3.3 Delete and replace with the following: DELETED.

Table 1.3 Delete and replace with the following:

Table 1.3 Threshold Quantities

	Aggregate Capacity[a]	
ESS Technology	**kWh**	**MJ**
Battery ESS		
Lead-acid, all types	70	252
Nickel including Ni-Cad, Ni-MH, and Ni-Zn[b]	70	252
Lithium-ion, all types	1	3.6
Sodium nickel chloride	20	72
Flow batteries[c]	20	72
Other battery technologies	1	3.6
Batteries in one- and two-family dwellings	1	3.6

[a] For ESS units rated in amp-hrs, kWh equals maximum rated voltage multiplied by amp-hr rating divided by 1000.

[b] Nickel battery technologies include nickel cadmium (Ni-Cad), nickel metal hydride (Ni-MH), and nickel zinc (Ni-Zn).

[c] Includes vanadium, zinc-bromine, polysulfide-bromide, and other flowing electrolyte-type technologies.

2.1 Delete and replace with the following: **General.** The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this standard. Reference the New York City Building Code (Building Code) for applicable modifications to documents.

2.2 Delete and replace the item containing NFPA 70 with the following:

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NFPA 70®, National Electrical Code®, 2020 edition, including the amendments made by the New York City Electrical Code.

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2.3.7 Delete and replace with the following: **UL Publications.** Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

UL 263, *Fire Tests of Building Construction and Materials*, 14th edition dated June 21, 2011, with revisions through August 5, 2021.

UL 790, *Standard Test Methods for Fire Tests of Roof Coverings*, 8th edition dated April 22, 2004, with revisions through October 19, 2018.

UL 1012, *Power Units Other Than Class 2*, 8th edition dated November 9, 2010, with revisions through March 30, 2021

UL 1741, *Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources*, 1st edition dated January 20, 2010.

UL 1778, *Uninterruptible Power Systems*, 5th edition dated June 13, 2014, with revisions through October 12, 2017.

UL 1973, *Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications*, 2nd edition dated February 7, 2018.

UL 1974, *Evaluation for Repurposing Batteries*, 1st edition dated October 25, 2018.

UL 2900-1, *Software Cybersecurity for Network-Connectable Products, Part 1: General Requirements,* 2nd edition dated December 13, 2023.

UL 9540, *Energy Storage Systems and Equipment*, 2nd edition dated February 27, 2020, with revisions through April 9, 2021.

UL 9540A, *Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems*, 4th edition dated November 12, 2019.

2.4 Delete and replace with the following: **References for Extracts in Mandatory Sections**

NFPA 30, Flammable and Combustible Liquids Code, 2018 edition.

NFPA 70®, National Electrical Code®, 2020 edition, including the amendments made by the New York City Electrical Code.

NFPA 72®, National Fire Alarm and Signaling Code®, 2016 edition, as modified by Appendix Q of the New York City Building Code.

NFPA 101®, Life Safety Code®, 2018 edition.

3.2.2* Delete and replace with the following: **Authority Having Jurisdiction (AHJ).** An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure. In New York City, the AHJ for ESS is the New York City Department of Buildings (DOB) and/or FDNY.

3.3.3 Delete and replace with the following: **Battery Management System (BMS).** A system that monitors performance of one or more battery modules in an ESS. Such system may also control and optimize the operation of the ESS, including the ability to control the disconnection of module(s) from the system in the event of abnormal conditions.

3.3.5 Delete and replace with the following: **Dwelling Unit**. See section 202 of the Building Code for the definition of "Dwelling Unit."

3.3.7* Delete and replace with the following: **Reserved.**

A.3.3.7 Delete and replace with the following: **Reserved.**

3.3.8* Energy Storage Management System (ESMS). A system that monitors, controls, and optimizes the performance of an ESS and has the ability to control the disconnection of the energy storage system in the event of abnormal conditions. This system can control one or more individual management systems such as battery management systems.

A.3.3.8 Delete and replace with the following: **Reserved.**

A.3.3.9 Delete and replace with the following: **Energy Storage Systems (ESS)**. ESS include but are not limited to the following categories:

(1) Chemical: hydrogen storage

(2) Thermal: thermal energy storage

(3) Electrochemical:

(a) Batteries

(b) Flow batteries

(4) Mechanical:

(a) Flywheel

(b) Pumped hydro

(c) Compressed air energy storage (CAES)

(5) Electrical:

(a) Capacitors

(b) Superconducting magnetic energy storage (SMES)

These systems can have ac or dc output for utilization and can include inverters and converters to change stored energy into electrical energy. It is not the intention for ESS to include energy generation systems. It is the intention for ESS to include backup systems facility standby power, emergency power or uninterrupted power supply (UPS).

3.3.10 Delete and replace with the following: **Fire Area**. An area of a building separated from the remainder of the building by construction having a fire resistance as required in 4.3.6 and having all communicating openings properly protected by an assembly having a fire resistance rating as required by code.

3.3.13 Delete and replace with the following**: Large-Scale Fire Testing**. Testing of a representative ESS that induces a significant cascading thermal runaway into the device under test and evaluates whether fire will spread to adjacent energy storage system units, surrounding equipment, or through an adjacent fire-resistance-rated barrier and hazards associated with off-gassing such as explosion control and toxic gas requiring ventilation.

3.3.15 Delete and replace with the following: **Maximum Stored Energy**. The quantity of energy storage, expressed in kWh, permitted in a fire area.

Add **3.3.16.1 Deflagration.** Propagation of a rapid combustion zone creating over-pressure at a velocity that is less than the speed of sound in the unreacted medium, which may be caused by a thermal runaway condition.

3.3.20 Delete and replace with the following: **Thermal Runaway.** The condition when an electro-chemical battery cell increases its temperature through self-heating in an uncontrollable fashion and progresses when the cell's heat generation is at a higher rate than it can dissipate, potentially leading to off-gassing, fire, or deflagration.

Add **3.3.22 Maximum Aggregate Rated Energy Capacity.** The quantity of energy storage, expressed in kWh, permitted in a control area in accordance with the Fire Code.

Add **3.3.23 Module.** A subassembly that is a component of a battery ESS that consists of a group of cells connected together either in a series and/or parallel configuration.

Add **3.3.24 Unit.** A cabinet or enclosure that contains a functional battery ESS including components and subassemblies such as cells, modules, battery management systems, ventilation devices and other ancillary equipment.

4.1 Delete and replace with the following: **General.** The design, construction, and installation of ESS and related equipment shall comply with this Chapter and as supplemented or modified by the technology-specific provisions in Chapter 9.

4.1.2.1.1 Delete and replace with the following: The plans and specifications associated with an ESS and its intended installation, replacement or renewal, commissioning, and use shall be submitted to the AHJ for approval and include, but not be limited to, the following:

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

(2) Details on hourly fire-resistant-rated assemblies provided or relied upon in relation to the ESS.

(3) The quantities and types of ESS units.

(4) Manufacturer's specifications, ratings, and listings of ESS.

(5) Description of energy storage management systems and their operation.

(6) Location and content of required signage.

(7) Details on fire suppression, smoke or fire detection, gas detection, thermal management, ventilation, exhaust, and deflagration venting systems, if provided.

(8) Support arrangement associated with the installation, including any required seismic support.

4.1.2.1.2 Delete and replace with the following: Utility installations are subject to approval of FDNY and must comply with the Fire Code including any exemptions and other applicable law, rules, and regulations.

4.1.2.1.3 Delete and replace with the following: The following test data, evaluation information, and calculations shall be provided in addition to the plans and specifications in 4.1.2.1.1 where required elsewhere in this standard:

(1) Large-scale fire test data in accordance with 4.1.5.

(2) Hazard mitigation analysis in accordance with 4.1.4.

(3) Calculations or modeling data to determine compliance with NFPA 68 and NFPA 69 in accordance with 4.12.

(4) Other test data, evaluation information, or calculations as required elsewhere in this standard.

(5) Peer review as required by section 101-19 of these rules.

4.1.2.3.1 Delete and replace with the following: The operations and maintenance manual shall be prepared prior to final approval of the ESS and be readily accessible to personnel responsible for the ESS, including the Certificate of Fitness holder.

Add **4.1.2.5. Decommissioning Plan.** A decommissioning plan meeting the provisions of Chapter 8 shall be provided to the building owner or their authorized agent and the AHJ.

4.1.3 Delete and replace with the following: **Emergency Management Plan.**

4.1.3.1* Delete and replace with the following: **General.** In accordance with the Fire Code and the FDNY rules, the owner, manufacturer and/or installer of an ESS shall develop and maintain for each ESS installation an emergency management plan that includes the following:

(1) Identification of the remote monitoring facility and contact information for such facility;

(2) Procedures or protocols by which notifications are made to FDNY, the Certificate of Fitness holder who will be responsible for the installation, and a subject matter expert to provide technical assistance to FDNY in the event the system exceeds or appears likely to exceed thresholds at which fire, explosion or other serious adverse consequences may result;

(3) Procedures or protocols by which notifications are made to the building owner and/or building occupants in the event of such an emergency, unless the ESS is also monitored by an attended on-site monitoring station;

(4) Procedures or protocols by which the ESS will be safeguarded after the emergency has been abated, pending repair or removal of the energy storage system from the premises; and

(5) The manner in which any damaged or defective storage batteries or equipment must be removed from the premises and lawfully disposed.

A.4.1.3.1 Delete and replace with the following: **Pre-Incident Planning.** Owners of ESS should develop pre-incident plans to coordinate their own response to emergencies, consistent with the emergency management plan. NFPA 1620 provides criteria for developing pre-incident plans for use by personnel responding to emergencies. NFPA 1620 can be a useful resource to help in the development of pre-incident plans to assist personnel in effectively managing incidents and events for the protection of occupants, responding personnel, property, and the environment. Additional information is published in the FDNY Emergency Management Plan Preparation Guide. Contact FDNY for more information.

The requirement of an emergency management plan is intended to ensure that the various parties who will be installing, owning, operating or maintaining an ESS have agreed upon their respective responsibilities and have made the necessary arrangements to implement those responsibilities in advance of the commissioning of the system.

Timely notification and accurate reporting of the nature of the incident and access to the installer or other subject matter expert will assist FDNY in managing the emergency.

4.1.3.2 through 4.1.3.2.2.2 Delete and replace with the following: **DELETED.**

4.1.4.1* Delete and replace with the following: A hazard mitigation analysis shall be provided to the AHJ for review and approval when any of the following conditions are present:

(1) When technologies not specifically addressed in Table 1.3 are provided.

(2) More than one ESS technology is provided in a room or indoor area where adverse interaction between the technologies is possible.

(3) When required to support a request to increase the maximum aggregate rated energy capacity.

4.1.5.1 Delete and replace with the following: Large-scale fire testing in accordance with 4.1.5 shall be conducted on a representative ESS in accordance with UL 9540A or equivalent test standard approved by DOB and FDNY. Large scale testing shall not be required for vented lead acid and nickel cadmium batteries used in standby and emergency applications. Large scale testing shall not be required for valve regulated lead acid and nickel cadmium batteries used in standby and emergency applications when listed to UL 1973.

Add **4.1.6.6** Combustible storage in working spaces around energy storage systems shall comply with the working spaces requirements of the New York City Electrical Code (Electrical Code).

4.2.3.1 Delete and replace with the following: Retrofitting of ESS shall comply with the following:

(1) Battery systems and modules and capacitor systems and modules shall be listed in accordance with UL 1973.

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

(3) The overall installation shall continue to comply with UL 9540 listing requirements, where applicable. Previously approved unlisted existing battery systems shall be required to obtain listing to UL 9540 when retrofit is performed.

(4) Retrofits shall be documented in the maintenance, testing, and events log required in 4.1.2.3.

(5) Retrofits shall be the same chemistry as the original system and shall result in equivalent fire and off-gas behavior results when compared to the original system tested under UL 9540A.

4.2.3.2 Delete and replace with the following: Changing out or retrofitting existing lead-acid or nickel-cadmium battery systems with other lead-acid or nickel-cadmium battery systems less than 50 V ac, 60 V dc 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 shall be considered repairs when there is no increase in system size or capacity greater than 10 percent from the original design. Such replaced or retrofitted system shall also comply with the Fire Code.

4.2.3.4 Delete and replace with the following: Changing out or retrofitting existing lead-acid batteries with other lead-acid batteries utilized exclusively in uninterruptable power supplies or for standby power applications shall be considered repairs where there is no increase in system size or capacity greater than 10 percent from the original design. Such replacement or retrofitting shall also comply with the Fire Code.

A.4.2.3.3 Delete and replace with the following: **DELETED.**

4.2.5.2 Delete and replace with the following: An increase in maximum aggregate rated energy capacity or power rating to an existing ESS shall be considered a retrofit and comply with 4.2.3.

4.2.7.3 Delete and replace with the following: **DELETED.**
4.2.9.3* Delete and replace with the following: When required by the AHJ, visible annunciation shall be provided on the cabinet exterior or in an approved remote monitoring station(s) at the building's fire command center and/or other approved location to indicate potentially hazard conditions associated with the ESS exist.

4.2.9.4 Delete and replace with the following: **DELETED.**

4.2.9.5* Delete and replace with the following: **DELETED**.

4.2.10.1 Delete and replace with the following: Storage batteries previously used in other applications, such as electric vehicle propulsion, shall not be permitted to be reused or repurposed.

4.2.10.2 Delete and replace with the following: Materials, equipment, and devices, excluding batteries, shall not be reused or reinstalled unless approved by the AHJ.

4.3.1 Delete and replace with the following: **Electrical Installation.** The electrical installation shall be in accordance with the Electrical Code based on the location of the ESS in relation to and its interaction with the electrical grid.

4.3.2* Delete and replace with the following: **Working Space.** At a minimum, ESS equipment shall be provided with working space in accordance with the Electrical Code, as appropriate, for operation, inspection, troubleshooting, maintenance, or replacement.

4.3.5.2* Delete and replace with the following: The signage required in 4.3.5.1 shall be in compliance with ANSI Z535 and include the following information as shown in Figure 4.3.5.2:

(1) "Energy Storage Systems" with symbol of lightning bolt in a triangle

(2) Type of technology associated with the ESS

(3) Special hazards associated as identified in Chapters 9 through 15.

(4) Type of suppression system installed in the area of the ESS

(5) Emergency contact information

(6) Location of E-Stops/controls

(7) Location of manually activated smoke/gas purge system switch.

(8) Battery management system monitoring facility and other emergency contact information

(9) The number or other unique identifier used by the battery management system remote monitoring facility to identify the installation, which firefighters or Department representatives can reference in communications with the monitoring facility.

4.3.6 Delete and replace with the following: **Separation.** Rooms or spaces containing ESS shall be separated from other areas in accordance with the Building Code and the Fire Code.

4.3.7 Delete and replace with the following: **Impact Protection.** Where the battery system is subject to impact by a motor vehicle or other motorized equipment, such as a forklift or other powered industrial trucks, vehicle impact protection shall be provided in accordance with applicable requirements of the Fire Code.

Add **4.3.8.3 Cybersecurity**. Battery systems that are connected to a communication network and have the capability to permit control of any portion of the electrical system shall comply with either of the following:

(1) The ability to control the system is limited to a direct connection through a local non-networked interface.

(2) The battery system is connected through a networked interface complying with associated software certified to IEC 62443 or UL 2900-1.

4.3.9 Delete and replace with the following: **Elevation.** ESS shall be located in control areas on floors in the quantities with maximum aggregate rated energy capacity described by the Fire Code.

4.3.9.1.1 Delete and replace with the following: ESS shall not be installed below the finished floor of the lowest level of exit discharge, except when approved by the FDNY.

Add **4.3.9.1.1.1** ESS installations shall not be installed below the design flood elevation (DFE) as defined by Appendix G of the Building Code.

4.3.9.2 Delete and replace with the following: ESS installations on rooftops shall be in accordance with FDNY rules.

4.3.9.3 Delete and replace with the following: Unless otherwise provided in the Fire Code, the requirements in 4.3.9 shall not apply to the following:

(1) Lead-acid and nickel-cadmium battery systems less than 50 V ac, 60 V dc in telecommunications facilities for installations of communications equipment under the exclusive control of communications utilities and 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 designed in accordance with IEEE C2, 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.

4.3.10.2 Delete and replace with the following: Required means of egress shall be provided with emergency lighting as required by the Building Code.

4.3.12 Delete and replace with the following: **Fire Command Centers.** In buildings containing ESS and equipped with a fire alarm system, the main control panel location shall include signage or readily available documentation that describes the location and type of ESS, operating voltages, and location of electrical disconnects as required by the Electrical Code.

4.4.1 Delete and replace with the following: ESS installed indoors and in open parking garages shall comply with this section.

Table 4.4.2 Delete and replace with the following:

Indoor Stationary ESS Installations

Compliance Required	Dedicated-Use Buildings[a]	Non-Dedicated-Use Buildings[b]	Reference
Administrative	Yes	Yes	Chapters 1-3
General	Yes	Yes	Sections 4.1 – 4.3
Size and Separation	Yes[c]	Yes	Section 4.6
Maximum aggregate rated energy capacity	Yes	Yes	Section 4.8
Elevation	Yes	Yes	Section 4.3.9
Separation	NA	Yes	Section 4.3.6
Smoke and fire detection	Yes[d]	Yes	Section 4.10
Fire control and suppression	Yes[c]	Yes	Section 4.11
Water Supply	Yes[c]	Yes	Section 4.13
Signage	Yes	Yes	Section 4.3.5
Occupied work centers	Not allowed	Not allowed	Section 4.7 (Reserved) NA
Technology-specific protection	Yes	Yes	Chapters 9-13

NA: Not applicable.

[a]See 4.4.2.1

[b]See 4.4.2.2

[c]Reserved

[d]When approved by the AHJ, alarm signals are not required to be transmitted to an approved location when local fire alarm annunciation is provided and trained personnel are always present.

4.4.2.1 Delete and replace with the following: **Dedicated-Use Buildings.** Dedicated-use ESS buildings shall be constructed in accordance with the New York City Construction Codes (Construction Codes) and comply with all the following:

(1) The building shall only be used for energy storage, energy generation, and other electrical grid-related operations.

(2) Occupants in the rooms and areas containing ESS shall be 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 incidental-use areas within the buildings that do not contain ESS, provided the following:

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

(b) The areas are separated from the ESS and other rooms and areas containing ESS by 2-hour fire barriers and 2-hour fire resistance-rated horizontal assemblies constructed in accordance with the Building Code, as appropriate.

(c) A means of egress is provided from the incidental use areas to a public way that does not require occupants to traverse through areas containing ESS or other energy systems.

Add **4.4.2.1.1** An energy storage system in a dedicated use building as defined herein is an indoor system. This definition shall not apply to outdoor structures that are not buildings, including shipping containers, sheds, chemical storage buildings, prefabricated storage units, and other such structures or enclosures whether or not specifically designed to house energy storage systems. Such structures are regulated as outdoor installations pursuant to the FDNY rules.

4.4.3 Delete and replace with the following: **DELETED.**

4.4.3.1 through 4.4.3.10.2 Delete and replace with the following: **DELETED**

Table 4.4.4 Delete and replace with the following:

Open Parking Garage ESS Installations

Compliance Required	Open Parking Garages**	Reference
Administrative	Yes	Chapters 1-3
General	Yes	Sections 4.1 – 4.3
Maximum size	Yes	Section 4.4.3.2
Means of egress separation	Yes	Section 4.4.3.4
Walk-in units	Yes	Section 4.4.3.5
Enclosures	Yes	Section 4.4.3.7
Clearances to exposures	Yes	Section 4.4.4.2
Fire suppression and control	Yes	Section 4.11
Open parking garages	Yes	Section 4.4.4.5
Size and separation	Yes	Section 4.6
Maximum aggregate rated capacity	Yes	Section 4.8
Elevation	Yes	Section 4.3.9

Smoke and fire detection	Yes	Section 4.10
Signage	Yes	Section 4.3.5
Occupied work centers	Not allowed	Section 4.7 (Reserved) NA
Open rack installations	Not allowed	Section 4.3.11
Technology-specific protection	Yes	Chapters 9-13

**See 4.4.4.1(2).

4.4.4.2.1 Delete and replace with the following: Rooftop installations shall comply with applicable FDNY requirements for rooftop clearances to exposures. ESS located in open parking garages shall be separated by a minimum 10 ft (3048 mm) from the following exposures:

(1) Buildings, except the portion of the building on which rooftop ESS is mounted

(2) Lot lines

(3) Public ways

(4) Stored combustible materials

(5) Locations where motor vehicles can be parked

(6) Hazardous materials

(7) Other exposure hazards

4.4.4.2.2 Delete and replace with the following: Clearances in open parking garages shall be permitted to be reduced based on large-scale fire tests in accordance with 4.1.5, the FDNY Certificate of Approval, and requirements for electrical equipment separation in accordance with the Electrical Code.

4.4.4.3.1 Delete and replace with the following: ESS located in walk-in enclosures in open parking garages shall be provided with automatic fire control and suppression systems within the ESS enclosure in accordance with 4.11.

4.4.4.4 Delete and replace with the following: **DELETED.**

4.4.4.4.1 Delete and replace with the following: **DELETED.**

4.4.4.4.2 Delete and replace with the following: **DELETED.**

4.4.4.5 Delete and replace with the following: **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 ft (15.3 m) of air inlets for building HVAC systems. When approved, this distance is permitted to be reduced to 25 ft (7.6 m) if the

automatic fire alarm system monitoring the thermal image fire detection or radiant energy sensing detectors can shut down the ventilation system connected to the air intakes and close intake and exhaust dampers upon detection of fire.

(2) ESS shall not be located within 25 ft (7.6 m) of exits leading from the attached building when located on a covered level of the parking structure not directly open to the sky above. When approved, the separation distance is permitted to be reduced to 10 ft (3 m) based on largescale fire testing conducted in accordance with 4.1.5.

(3) ESS located in open parking garages shall be separated from any means of egress component as required by the AHJ to ensure safe egress under fire conditions.

(4) A thermal image fire detection or radiant energy-sensing fire detection system complying with 4.10 shall be provided to protect the ESS.

(5) An approved fence with a locked gate or other approved barrier shall be provided to keep the general public at least 5 ft (1.5 m) from the outer enclosure of the ESS.

4.5.4 Delete and replace with the following: **Deployment Documents.** The following information shall be provided to the AHJ with any locally required operational permit applications for mobile ESS deployments:

(1) Relevant information for the mobile ESS equipment and protection measures in the construction documents required by 4.1.2.

(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.

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

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

(9) Contact information for certificate of fitness holders who are responsible for general supervision of maintaining and servicing the equipment and responding to emergencies.

4.5.6.1 Delete and replace with the following: Electrical connections shall be permitted to be made using temporary wiring complying with the manufacturer's instructions, the UL 9540 listing, and the Electrical Code.

4.5.7 Delete and replace with the following: **Deployed Mobile ESS Requirements.** Deployed mobile ESS equipment and operations shall comply with this section and applicable FDNY requirements.

Table 4.5.7 Delete and replace with the following: DELETED.

4.5.7.1 Delete and replace with the following: Mobile operations on wheeled vehicles or trailers shall not be required to comply with seismic protection requirements in 4.3.3.

4.5.7.5.1.1 Delete and replace with the following: Required separation distances shall be permitted to be reduced when approved by the AHJ.

4.5.7.6 Delete and replace with the following: **Electrical Connections.** Electrical connections shall be made in accordance with the manufacturer's instructions and the Electrical Code.

4.5.7.6.1 Delete and replace with the following: Temporary wiring for electrical power connections shall comply with the Electrical Code.

4.5.7.8.1 Delete and replace with the following: An approved fence with a locked gate or other approved barrier shall be provided to keep the general public at least 10 ft (3 m) from the outer enclosure of a deployed mobile ESS.

4.6.1 Delete and replace with the following: ESS in the following locations shall comply with 4.6.2 and 4.6.3 unless otherwise permitted by 4.6.4 or 4.6.5.

(1) Indoor ESS installations in non-dedicated-use buildings in accordance with 4.4.2.

(2) Open parking garage installations.

4.6.7 Delete and replace with the following: Sections 4.6.2 and 4.6.3 shall not apply to 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. Batteries must be listed and labeled in accordance with UL 1973.

4.7 Delete and replace with the following: **Occupied Work Centers**. Reserved.

4.8 Delete and replace with the following: **Maximum Aggregate Rated Energy Capacity.** Comply with the Fire Code.

4.8.1 through **4.8.5** Delete and replace with the following: DELETED.

4.9.1 Delete and replace with the following: **General.** Exhaust and ventilation requirements for control areas must comply with the Fire Code and the FDNY rules.

4.9.2 through **4.9.3.2** Delete and replace with the following: DELETED.

4.10.4 Delete and replace with the following: When approved by the AHJ, the smoke detection system is permitted to be replaced with a radiant energy-sensing detection system installed in accordance with NFPA 72, or thermal image fire detection system installed in accordance with NFPA 72-2025, on rooftops, and in open parking garages and similar occupancies where conditions negatively impact the use of smoke detection technologies.

Add **4.10.6** When approved by FDNY, alarm signals are not required to be transmitted to an approved location when local fire alarm annunciation is provided and trained personnel are always present.

4.11 Delete and replace with the following: **Fire Control and Suppression.** Comply with the Fire Code.

4.11.1* Delete and replace with the following: Where required elsewhere in this standard, fire control and suppression for ESS shall be provided in accordance with the Fire Code and the FDNY rules.

4.11.2 Delete and replace with the following: **Indoor installations.** The indoor installation of ESS shall only be permitted in buildings fully protected throughout by a sprinkler system, except lead-acid battery systems, and nickel-cadmium battery systems as otherwise provided in the Fire Code. Control areas housing stationary ESS shall be fully protected throughout by a sprinkler system designed in accordance with NFPA 15, except as may otherwise be approved based on equipment listings and testing results pursuant to the Fire Code.

4.11.2.1 through 4.11.9 Delete and replace with the following: **DELETED**.

4.12 Delete and replace with the following: **Explosion Control.** Where required elsewhere in this standard and the Fire Code, explosion prevention or deflagration venting shall be provided in accordance with this section.

4.12.1 Delete and replace with the following: ESS installed within a room, building, ESS cabinet, or ESS walk-in unit shall be provided with one of the following:

(1) Explosion prevention systems designed, installed, operated, maintained, and tested in accordance with NFPA 69.

(2) Deflagration venting installed and maintained in accordance with NFPA 68.

4.12.2 Delete and replace with the following: Explosion prevention and deflagration venting shall not be required where approved by DOB and FDNY based on large scale testing in accordance with 4.1.5 and a deflagration hazard study that demonstrates that flammable gas concentrations in the room, building, ESS cabinet, or ESS walk-in unit cannot exceed 25 percent of the LFL.

4.13.1* Delete and replace with the following: Sites where nonmechanical ESS are installed shall be provided with a permanent source of water for fire protection.

4.13.2 Delete and replace with the following: **DELETED.**

4.13.4 Delete and replace with the following: Fire hydrants installed on private fire service mains shall be installed in accordance with NFPA 24 and the NYC Fire Code.

4.13.5 Delete and replace with the following: Normally unoccupied, remote stand-alone telecommunications structures with a gross floor area of less than 1500 ft^2 (139 m^2) with lead-acid and nickel-cadmium battery systems less than 50 V ac, 60 V dc that are in telecommunications facilities for installations of communications equipment under the exclusive control of communications utilities and located outdoors that are in compliance with NFPA 76 shall not be required to have a fire water supply.

4.13.6* Delete and replace with the following: Lead-acid and nickel-cadmium battery systems that are designed in accordance with IEEE C2, 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 shall not be required to have a fire water supply.

4.15.1* Delete and replace with the following: An approved method to neutralize and absorb spills from ESS with free-flowing electrolyte shall be provided.

5.1* Delete and replace with the following: **General.** All electrical connections and wiring to and from an ESS or the components of an ESS shall be in accordance with the Electrical Code or IEEE C2 based on the location of the ESS in relation to and its interaction with the electrical grid.

5.3 through 5.3.7 Delete and replace with the following: **DELETED.**

6.1.1 Delete and replace with the following: ESS shall be evaluated and confirmed for proper operation by the system owner or their designated agent in accordance the manufacturer's specifications and with a commissioning plan prepared in accordance with 6.1.2, 6.1.3, and 6.1.5. The certificate of fitness holder, as required by the Fire Code and the FDNY rules, shall be present during the evaluation.

6.1.1.1 Delete and replace with the following: **DELETED.**

6.1.1.2* Delete and replace with the following: **DELETED.**

6.1.2 Delete and replace with the following: System commissioning shall be conducted in accordance with 6.1.2.1 and 6.1.2.2 after the installation is complete but prior to final inspection and approval. System commissioning shall also be conducted after the installation of approved fire protection, smoke control and smoke purge, and hazard mitigation systems.

6.1.2.1 Delete and replace with the following: ESS shall be evaluated for their proper operation by the system installer or commissioning agent in accordance with the commissioning plan developed under 6.1.1. The commissioning agent shall be a qualified person as defined in 3.3.19 of this rule. A commissioning report documenting the commissioning process shall be prepared in accordance with 6.1.6.

6.1.2.2 Delete and replace with the following: The commissioning results in accordance with 6.1.3 shall be provided by the system installer or commissioning agent to the system owner and FDNY

and DOB prior to final inspection and approval. A copy of the commissioning results shall be retained by the certificate of fitness holder.

6.1.3.2 Delete and replace with the following: The report shall include the final commissioning plan, the results of the commissioning process, as well as a copy of the approved plans and specifications associated with the as-built system design and installation.

6.1.3.3 Delete and replace with the following: The report shall include any issues identified during commissioning and the measures taken to resolve them. A root cause analysis shall be performed for any identified issues.

6.1.3.4 Delete and replace with the following: A corrective action plan acceptable to FDNY and DOB shall be developed for any open or continuing issues that are allowed to be continued after commissioning.

6.1.4 Delete and replace with the following: **DELETED.**

6.1.5 Delete and replace with the following: The commissioning plan shall include, but should not be limited to, the following information:

(1) An overview of the commissioning process developed specifically for the ESS to be installed and narrative description of the activities to be conducted;

(2) Roles and responsibilities for all those involved in the design, commissioning construction, installation, or operation of the system(s);

(3) Means and methods whereby the commissioning plan will be made available during the implementation of the ESS project(s);

(4) Plans and specifications necessary to understand the installation and operation of the ESS and all associated operational controls and safety systems;

(5) A detailed description of each activity to be conducted during the commissioning process, who will perform each activity, and at what point in time the activity is to be conducted;

(6) Procedures to be used in documenting the proper operation of the ESS and all associated operational controls and safety systems;

(7) Testing for any required fire detection or suppression and thermal management, ventilation, or exhaust systems associated with the installation and verification of proper operation of the safety controls;

(8) Means and methods necessary to document and verify that the system and its associated controls and safety systems are in proper working condition;

(9) Guidelines and format for a commissioning checklist and relevant operational testing forms and necessary commissioning logs and progress reports;

(10) Means and methods whereby facility operating and maintenance staff will be trained on the system;

(11) Identification of personnel who are qualified to service and maintain the system and respond to incidents involving each system; and

(12) A decommissioning plan meeting the provisions of 8.1 that covers the removal of the system from service and from the facility in which it is located and information on disposal of materials associated with each ESS.

6.1.6.1 Delete and replace with the following: ESS shall be evaluated for their proper operation by the system installer in accordance with the manufacturer's instructions, the commissioning plan, and the requirements of this section after the installation is complete but prior to final approval. System testing shall also be conducted after the installation of approved fire protection, smoke control and smoke purge, and hazard mitigation systems. The certificate of fitness holder shall be present during system testing.

6.1.6.2 Delete and replace with the following: A report documenting the commissioning process and the results shall be prepared by the entity commissioning the system and a copy provided to FDNY and Department of Buildings prior to final inspection and approval and included in the manual required by 4.1.2.3.

6.3.1 Delete and replace with the following: Operations and maintenance documentation shall be provided to the Certificate of Fitness Holder.

7.1 Delete and replace with the following: **System Operation.** All ESS shall be operated in accordance with the manufacturer's instructions, the operation and maintenance documentation, and FDNY requirements.

7.1.6 Delete and replace with the following: The operations record shall be kept in a readily accessible location, or a sign indicating where the record is located shall be posted adjacent to the system. The FDNY Certificate of Fitness holder shall maintain the operations record.

7.1.6.2 Delete and replace with the following: The operations record shall be permitted to be made available electronically when approved by the AHJ.

7.2 Delete and replace with the following: **System Maintenance.** The ESS shall be maintained in accordance with its listing and the system manufacturer's instructions.

8.1 Delete and replace with the following: **Decommissioning Plan.** Prior to decommissioning, the owner's designated agent(s) shall prepare a written decommissioning plan in accordance with the manufacturer's specification and complying with 8.1.3 that provides the organization, documentation requirements, and methods and tools necessary to indicate how the safety

systems as required by this standard and the ESS and its components will be decommissioned and the ESS removed from the site. The designated agent is the certificate of fitness holder as prescribed in the Fire Code.

8.1.3* Delete and replace with the following: The decommissioning plan shall include the following information:

(1) An overview of the decommissioning process developed specifically for the ESS that are to be decommissioned;

(2) Roles and responsibilities for all those involved in the decommissioning of the ESS and their removal from the site;

(3) Means and methods whereby the decommissioning plan will be made available at a point in time corresponding to the decision to decommission the ESS;

(4) Plans and specifications necessary to understand the ESS and all associated operational controls and safety systems, as built, operated, and maintained;

(5) A detailed description of each activity to be conducted during the decommissioning process and who will perform that activity and at what point in time;

(6) Procedures to be used in documenting the ESS and all associated operational controls and safety systems that have been decommissioned;

(7) Guidelines and format for a decommissioning checklist and relevant operational testing forms and necessary decommissioning logs and progress reports;

(8) A description of how any changes to the surrounding areas and other systems adjacent to the ESS, such as but not limited to structural elements, building penetrations, means of egress, and required fire detection and suppression systems, will be protected during decommissioning and confirmed as being acceptable after the system is removed; and

(9) A description of hazards associated with ESS decommissioning and plans for mitigation of such hazards.

Add **8.1.4** Those involved in the decommissioning of the ESS shall be trained and knowledgeable in accordance with 3 RCNY 608-01.

8.2.1 Delete and replace with the following: DOB and FDNY shall be notified prior to decommissioning an ESS and in accordance with the Fire Code and the FDNY rules.

8.2.2 Delete and replace with the following: The ESS shall be decommissioned by the owner of the ESS and their designated agent(s) in accordance with the decommissioning plan.

8.3 Delete and replace with the following: **Decommissioning Report.** A decommissioning report shall be prepared by the ESS owner or their designated agent and summarize the decommissioning process of the system and associated operational controls and safety systems. The report shall be supplied to DOB upon request.

Table 9.2 Delete and replace with the following:

Electrochemical ESS Technology-Specific Requirements

	Battery Technology						
Compliance Required	Lead-Acid	Nickel[a]	Lithium-Ion	Flow	Sodium Nickel Chloride	Other Electrochemical ESS and Battery Technologies[b]	Reference
Exhaust ventilation	Yes	Yes[c]	No	Yes	No	Yes	Section 4.9
Spill control	Yes[d]	Yes[d]	No	Yes	No	Yes	Section 4.14
Neutralization	Yes[d]	Yes[d]	No	Yes	No	Yes	Section 4.15
Safety caps	Yes	Yes	No	No	No	Yes	Section 9.4
Thermal runaway	Yes[e]	Yes	Yes[f]	No	Yes[f]	Yes[f]	Section 9.3
Explosion control	Yes[g]	Yes[g]	Yes	No	Yes	Yes	Section 4.12
Size and separation	Yes	Yes	Yes	Yes	Yes	Yes	Section 4.6

[a]Nickel battery technologies covered in this column include nickel cadmium (Ni-Cad), nickel metal hydride (Ni-MH), and nickel zinc (Ni-Zn).

[b]The protection in this column is not required if documentation acceptable to the AHJ, including a hazard mitigation analysis complying with 4.1.4, provides justification that the protection is not necessary based on the technology used.

[c]Exhaust ventilation is not required for nickel metal hydride batteries.

[d]Applicable only to vented- (i.e., flooded-) type nickel and lead-acid batteries.

[e]Thermal runway protection is not required for vented (e.g., flooded) lead-acid batteries.

[f]The thermal runaway protection as described in 9.3 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 or UL 9540.

[g]Explosion control is not required for the following:

(1) Lead-acid and nickel-cadmium battery systems less than 50 V ac, 60 V dc in telecommunications facilities for installations of communications equipment under the exclusive control of communications utilities located in building spaces or walk-in units used exclusively for such installations that are in compliance with NFPA 76.

(2) Lead-acid and nickel-cadmium battery systems designed in accordance with IEEE C2 and 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.

(3) 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.

(4) Lead-acid and Ni-Cad battery systems listed and labeled in accordance with UL 1973, utilized for standby power applications.

9.3 Delete and replace with the following: * **Thermal Runaway Protection.** Where required by Table 9.2, a listed device evaluated as part of the ESS or other approved method shall be provided to manage charging and discharging during normal operation of the ESS to maintain batteries within their safe operating parameters and preclude thermal runaway.

Add **A.9.3** A component of the thermal runaway protection might be integrated within the ESS battery management system or ESS management system that controls the charging and discharging to keep the ESS within its normal and safe operating limits when that device has been evaluated with the batteries or capacitors as part of the listing to UL 1973 or UL 9540, as applicable. The device might also initiate appropriate hazard mitigation as required elsewhere in this standard when the ESS is in an abnormal state such as overheating or off-gassing.

Chapter 10 Delete and replace with the following: **DELETED**.

Chapter 11 Delete and replace with the following: **DELETED**.

Chapter 12 Delete and replace with the following: **DELETED**.

Chapter 15 Delete and replace the title of Chapter 15 as follows: **One- and Two-Family Dwellings**

15.1* Delete and replace as follows: **General**. ESS installations associated with one- or two-family dwellings shall comply with the requirements of this chapter and the Fire Code.

15.2 Delete and replace with the following: **Equipment Listings and Large-Scale Fire Testing Requirements.**

15.2.1 Delete and replace with the following: Permanently wired ESS greater than 1 kWh in maximum aggregate rated energy capacity shall be listed and labeled in accordance with UL 9540.

Add **15.2.3** Large-scale fire testing shall be required in accordance with 4.1.5.

15.4.1 Delete and replace with the following: ESS installed in one- and two-family dwellings shall be commissioned as follows:

(1) Verify that the system is installed in accordance with the approved plans and manufacturer's instructions and is operating properly.

(2) Provide a copy of the manufacturer's installation, operation, and maintenance instructions provided with the listed system.

(3) Provide training on the proper operation and maintenance of the system to the system owner.

(4) Provide a label on the installed system containing the contact information for the qualified maintenance and service providers.

15.4.2 Delete and replace with the following: Where the system is installed in a one- or two-family dwelling that is owned by the developer and has yet to transfer ownership, commissioning shall be conducted as outlined in Section 15.4, and the developer shall then transfer the required information in Section 15.4 to the homeowner when the property ownership is transferred.

Add **15.4.3 Qualifications of the commissioning agent.** The manufacturer's representative or master electrician performing the ESS installation shall serve as the commissioning agent.

15.5 Delete and replace with the following: **ESS Spacing.** Individual ESS units shall be separated from each other by a minimum of 3 ft (914 mm) unless smaller separation distances are documented to be adequate as approved by the AHJ, based on large-scale fire testing complying with 4.1.5.

15.6.1 Delete and replace with the following: ESS shall only be installed above grade in the following locations unless otherwise approved by DOB and FDNY:

(1) In attached garages, wall- or floor-mounted, separated from the dwelling in accordance with 15.7.1 and the Fire Code.

(2) In detached garages, wall- or floor-mounted.

(3) Outdoors, wall-mounted on a non-combustible exterior wall or on a non-combustible protective barrier approved by DOB and FDNY. Installations must be located a minimum of 3 ft (914 mm) from doors and windows.

(4) Outdoors, ground-mounted within 3 ft (914 mm) of a non-combustible exterior wall or a non-combustible protective barrier approved by DOB and FDNY. Installations must be located a minimum of 3 ft (914 mm) from doors and windows.

15.6.1.1 Delete and replace with the following: In any unfinished room or space where an ESS is to be installed, the walls and ceiling of unfinished wood-framed construction shall be protected with not less than 5⁄8 in. Type X gypsum board.

15.6.2 Delete and replace with the following: ESS shall not be installed in living area of dwelling units or in sleeping units.

15.7.1 Delete and replace with the following: The aggregate rating amount for ESS installed outdoors or within a garage shall not exceed the following, unless otherwise approved by DOB and FDNY:

(1) In attached garages, up to 20 kWh requires a minimum one-hour fire rated barrier separating the garage from the dwelling, or up to 40 kWh requires a minimum two-hour fire rated barrier.

(2) In detached garages, up to 40 kWh.

(3) Outdoors, wall-mounted, up to 40 kWh per building.

(4) Outdoors, ground-mounted, up to 40 kWh per building.

(5) Up to 80 kWh total for the entire lot.

(6) The above ratings may be lowered based on conditions in the FDNY Certificate of Approval.

A.15.7.3 Delete and replace with the following: The batteries on electric vehicles should not be included in the aggregate energy capacity limitations in 15.7.1.

15.8 Delete and replace with the following: **Electrical Installation.** ESS shall be installed and inspected in accordance with the Electrical Code.

Add **15.14 Energy Storage Management System (ESMS)**

Add **15.14.1** Where required by the Fire Code or the FDNY rules, an ESMS approved by the AHJ shall be provided for monitoring operating conditions and maintaining voltages, current, and temperatures within the manufacturer's specifications.

This rule has an effective date of 10-26-25

NEW YORK CITY DEPARTMENT OF BUILDINGS

NOTICE OF ADOPTION OF RULE

NOTICE IS HEREBY GIVEN, pursuant to the authority vested in the Commissioner of Buildings by Section 643 of the New York City Charter and in accordance with Section 1043 of the Charter, that the Department of Buildings hereby adopts the addition of new section 101-19 to Subchapter A of Chapter 100 of Title 1 of the Rules of the City of New York and new section 3616-07 to Chapter 3600 of Title 1 of the Official Compilation of the Rules of the City of New York, regarding the installation of electric energy storage systems. This rule was first published on December 24, 2024, and a public hearing thereon was held on January 23, 2025.

Dated: 9-17-2025
New York, New York

James S. Oddo
Commissioner

Statement of Basis and Purpose of Rule

Energy storage systems (ESS) are critical to the energy grid of the future because they balance energy supply with demand for electricity. Energy production, especially from renewable sources such as wind and solar, can be intermittent and is not always aligned with peak demand times. ESS, however, can store excess energy produced during low demand periods and release it during peak demand periods. ESS also enhance grid stability and reliability by providing backup power during outages, frequency regulation, and voltage control. This ensures a consistent and reliable supply of electricity.

ESS facilitate the integration of renewable energy sources by improving their dependability. This makes it easier to incorporate a higher percentage of renewables into the grid without compromising reliability. Additionally, by storing energy when it is cheap (off-peak times) and releasing it when it is expensive (peak times), energy storage can help reduce energy costs for consumers and utilities. Overall, ESS play a crucial role in creating a more flexible, efficient, and sustainable energy grid.

The Department is adding two rules related to ESS. The first rule, section 101-19, establishes the requirements for design, filing, construction, installation, commissioning, operation, maintenance, decommissioning and reporting for ESS. ESS are a relatively new technology. Because of that, the New York City Construction Codes (Construction Codes) currently treat them as an alternative material and do not adequately prescribe the requirements for the design, installation and use of these systems. The second rule, section 3616-07, adopts a modification to the national standard establishing installation requirements for ESS.

Rule 101-19.

Rule 101-19 adopts various national standards to be applied to the design and use of ESS to improve the safety of their installations in several ways. These standards include National Fire Protection Association (NFPA) 855, *Standard for the Installation of Stationary Energy Storage Systems*, Underwriters Laboratories 9540, *Safety of Energy Storage Systems and Equipment*, and Underwriters Laboratories 9540A, *Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems*.

First, these standards establish uniform safety criteria that all ESS installations must meet and ensure a consistent approach to safety across installations, thereby reducing the risk of accidents and failures. Second, these standards require that ESS components and systems undergo rigorous testing and certification processes. This ensures that the products used in installations meet high safety and performance criteria before being deployed in the field. Third, these standards provide detailed guidelines on the proper installation of ESS, including considerations for site selection, system layout, electrical connections, and fire protection measures. Adhering to the guidelines established in these standards will help prevent installation errors that could lead to safety hazards. Fourth, these standards also include protocols for the safe operation and regular maintenance of ESS. This helps ensure that systems are operated within their design limits and maintained properly to avoid deterioration that could lead to unsafe conditions.

The filing, submission and equipment approval process prescribed in rule 101-19 are based on Buildings Bulletin 2019-002 with modifications for consistency with current practice and newly adopted ESS requirements of the 2022 New York City Fire Code. While current Fire Code, agency

rules, and directives permit the installation of ESS within buildings, the Construction Codes do not have adequate requirements to address the unique hazards associated with indoor installations. Rule 101-19 makes indoor installations viable and establishes consistent design, approval and installation requirements, which promote the safe installation of this necessary infrastructure.

Rule 3616-07.

Rule 3616-07 modifies NFPA 855, *Standard for the Installation of Stationary Energy Storage Systems*, which is adopted by rule 101-19, to make it consistent with current Department rules, the New York City Fire Code, and recommendations of a panel of industry experts tasked with analyzing and making recommendations for modifications to this standard for the unique urban environment that is New York City.

The NFPA 855 standard improves safety for ESS by addressing various critical aspects of installation, operation, and maintenance. For example, it enhances safety by establishing where ESS can be located and mandates adequate separation distances between ESS and other critical infrastructure. This reduces the risk of fire spreading to adjacent areas and ensures safe evacuation routes.

The NFPA 855 standard requires appropriate fire detection and suppression systems to be installed alongside ESS. This includes automatic fire suppression systems designed to quickly contain and extinguish fires, minimizing potential damage and hazards. It also mandates proper ventilation and thermal management systems to prevent overheating and accumulation of hazardous gases. Adequate ventilation reduces the risk of thermal runaway in battery systems and the buildup of flammable gases.

The standard also requires the development of comprehensive emergency response plans. These plans include coordination with local fire departments, training for emergency responders, and clear procedures for handling ESS-related incidents, to ensure a swift and effective response in case of emergencies.

NFPA 855 mandates a hazard mitigation analysis to identify potential risks associated with ESS installations. This analysis helps in designing systems and implementing measures to mitigate identified risks, thereby enhancing overall safety. The standard specifies requirements for continuous monitoring of ESS for signs of malfunction, such as temperature fluctuations, gas emissions, and electrical faults. Real-time monitoring allows for prompt detection and intervention to prevent potential incidents.

NFPA 855 provides detailed guidelines for the proper installation and commissioning of ESS, ensuring that systems are installed correctly and function as intended. This includes verifying electrical connections, structural stability, and system integrity. Clear signage and labeling requirements ensure that ESS components are properly marked, providing critical information to operators and emergency responders about the system’s specifications, hazards, and safety procedures.

The standard emphasizes the importance of training for personnel involved in the installation, operation, and maintenance of ESS. Proper training ensures that individuals are aware of safety protocols and can competently handle ESS-related tasks. NFPA 855 mandates regular

inspections and maintenance of ESS to ensure continued safe operation. This includes checking for wear and tear, system degradation, and compliance with safety standards.

By setting out these comprehensive safety measures, NFPA 855 significantly reduces the risk of accidents, enhances the ability to respond effectively to incidents, and ensures the safe integration of energy storage systems into the energy grid.

In response to comments received prior to and at the public hearing, the following changes have been made:

Changes to Section 101-19:

1. **101-19(f)(3)(ii)(A):** Clarified that peer reviewers must have strong expertise in the Construction Codes, Electrical Code, the Fire Code, and FDNY rules, rather than "all applicable laws." This change makes the requirement more precise.

2. **101-19(k):** Clarified that the ESS registration requirement is not intended for lead-acid and nickel-cadmium batteries used for emergency, standby, or uninterruptible power supply. These technologies have been widely used for decades and have established good safety records. Therefore, an exception has been added to exempt such systems from ESS registration.

Changes to Section 3616-07:

1. **Table 1.3:** At FDNY's request, the threshold of lithium-ion and other battery technologies was changed to 1kWh to reflect the potential hazards of these smaller systems and to better align with anticipated changes to the Fire Code.

2. **Section 4.1.5.1:** Vented lead-acid and nickel-cadmium batteries used in standby and emergency applications are now excluded from the large-scale testing requirement. These technologies, predominantly used by the telecom industry for decades, have established strong safety records.

3. **Sections 4.4.4.5 and 4.10.4:** Thermal image fire detection systems were added to align with the most recent technical changes in NFPA 855. These detectors sense heat in the long-wave infrared band with an imager and are well-suited to detecting anomalies in ESS.

4. **Sections 4.12.1.2:** This section was removed at FDNY's request because FC 911 and FC Table 911.1 do not give the DOB discretion to permit cabinets designed for explosion containment in place of those complying with NFPA 68 or NFPA 69.

5. **Section 15.6.1:** Clarified permissible ESS installation locations, including outdoor wall- and ground-mounted configurations, as well as wall- and floor-mounted systems within attached and detached garages, to align with the Fire Code and FDNY rules.

6. **Section 15.7.1:** Clarified the permissible aggregate rated energy capacity of the ESS to align with the Fire Code and FDNY rules. The aggregate rated energy capacity ranges from 20 to 40 kWh.

7. **Section 15.14.1:** Amended to align the energy storage management system requirement with the Fire Code and FDNY rules.

8. Additional changes to other sections were also made to reflect recommendations from FDNY and industry members.

The Department of Buildings' authority for these rules is found in sections 28-104.7.11 and 28-103.19 of the New York City Administrative Code.

New material is underlined.
[Deleted material is in brackets.]
Asterisks (***) indicate unamended text.

"Shall" and "must" denote mandatory requirements and may be used interchangeably in the rules of this department, unless otherwise specified or unless the context clearly indicates otherwise.

Section 1. Subchapter A of Chapter 100 of Title 1 of the Rules of the City of New York is amended by adding a new section 101-19 to read as follows:

§101-19 Energy Storage Systems

(a) Applicability and scope. This section governs the design, filing, construction, installation, commissioning, operation, maintenance, decommissioning of and establishes reporting requirements for the following categories of energy storage systems (ESS):

(1) ESS that exceed the minimum aggregate capacities established in NFPA 855 when installed indoors.

(2) ESS that exceed the minimum aggregate capacities established in the New York City Fire Department's (FDNY) rules when installed outdoors.

(3) Indoor and outdoor ESS installations associated with one- and two-family dwellings.

(b) Definitions. For the purposes of this section, the following terms have the following meanings:

(1) Certificate of Approval (COA). As defined in the New York City Fire Code (Fire Code).

(2) Energy Storage System (ESS). One or more devices that, when assembled together, are capable of storing energy in order to supply electrical energy at a future time to the local power loads, to the utility grid, or for grid support.

(3) NFPA 855. National Fire Protection Association 855 - Amendment Relating to the Standard for the Installation of Stationary Energy Storage Systems – 2020 edition, as amended by the New York City Department of Buildings (DOB).

(c) Codes. All work relating to the design, filing, construction, installation, commissioning, operation, maintenance, decommissioning and reporting of ESS must comply with the requirements of the New York City Construction Codes (Construction Codes) set forth in title 28 of the Administrative Code of the City of New York. All such work must also comply with the requirements of the New York City Electrical Code (Electrical Code), the Fire Code, the New York City Energy Conservation Code, the New York City Zoning Resolution, the FDNY rules, the DOB rules, and any other applicable laws and rules.

(d) General design and installation requirements for ESS.

(1) Indoor ESS systems must comply with the following requirements:

(i) ESS must comply with NFPA 855.

(ii) Equipment listing, testing, evaluation, and certification:

(A) ESS must be listed in accordance with UL 9540, as referenced in section 3616-07 item 2.3.7, unless specifically exempted by NFPA 855.

(B) UL 9540A, as referenced in section 3616-07 item 2.3.7, large-scale fire testing must be performed on all ESS, unless specifically exempted by NFPA 855.

(C) A COA must be obtained, as required by the Fire Code and FDNY rules.

(2) Outdoor ESS systems must comply with the FDNY rules.

(3) ESS installations associated with one- and two-family dwellings must comply with paragraph (1) of this subdivision for indoor ESS installations and paragraph (2) of this subdivision for outdoor installations.

(e) Construction document approval. An application for construction document approval for construction related to an ESS must be filed with DOB. Construction documents filed in connection with the ESS and related construction must comply with the requirements of the Construction Codes. In addition, such applications must include the following information, as applicable:

(1) Plans and specifications associated with the ESS submitted in accordance with NFPA 855.

(2) Zoning analysis demonstrating that the ESS complies with the New York City Zoning Resolution.

Exception: An accessory indoor ESS installation within an existing building envelope that complies with the definition of "accessory use" in the New York City Zoning Resolution does not require a zoning analysis.

(3) For a roof installation, a roof plan demonstrating that the ESS does not obstruct access for firefighting in accordance with the Fire Code and maintenance of roof equipment.

(4) For a site installation, the site plan must show access to energy storage equipment and site buildings for firefighting in accordance with the Fire Code and for maintenance.

(5) Proof of compliance with the flood-resistant construction requirements of the New York City Building Code (Building Code).

(6) When a site-specific approval is required pursuant to subdivision (f) of this section, an Office of Technical Certification and Research (OTCR) conditional acceptance letter.

(7) When a site-specific approval is not required pursuant to subdivision (f) of this section, an application for construction document approval must include:

(i) A COA issued by FDNY for the proposed ESS; and

(ii) Where required by the Fire Code or the FDNY rules, Installation Approval issued by FDNY.

(f) Site-specific review.

(1) Applicability. ESS installations subject to the requirements of this section require site-specific review and approval by OTCR.

Exception: OTCR review and approval are not required for the following:

(i) ESS installations associated with one- and two-family dwellings that comply with the applicable provisions of NFPA 855, provided that the equipment has been approved by the FDNY through a COA or other listing that accounts for thermal runaway conditions approved by DOB and FDNY.

(ii) At the discretion of OTCR, an ESS that has received a COA from the FDNY may not require site specific equipment evaluation and approval.

(2) Site-specific application contents. A submission for site-specific evaluation of the proposed ESS must include:

(i) The OTCR site-specific application form, and all required fees;

(ii) The construction documents required pursuant to subdivision (e) of this section;

(iii) Documentation of peer review as applicable in accordance with paragraph (3) of this subdivision;

(iv) A COA issued by the FDNY for the proposed ESS;

(v) Where required by the Fire Code or the FDNY rules, a letter of conditional acceptance issued by the FDNY; and

(vi) An OTCR conditional acceptance letter and an OTCR final certification letter uploaded to DOB's electronic filing system.

(3) Peer review. Peer review is required for site-specific ESS installations except as directed by DOB. The peer reviewer(s) must review the plans and specifications for compliance with the provisions of NFPA 855.

(i) Peer reviewer. The peer reviewer(s) must be one or more engineers licensed and registered in the state of New York with relevant experience with and knowledge about fire protection engineering and ESS applications and systems. The peer reviewer must also:

(A) Be retained by the owner of the ESS and be approved by DOB prior to commencing the review,

(B) Be independent from the registered design professional of record; and

(C) Avoid conflicts of interest by not engaging in any activities that might compromise their objective judgment and integrity, including but not limited to having a financial or other interest in the design, construction, installation, manufacture or maintenance of the structures or components that they are reviewing.

(ii) During the review, the peer reviewer(s) must verify that:

(A) The proposed design of the ESS and supporting infrastructure complies with the Construction Codes, Electrical Code, the Fire Code and FDNY rules;

(B) The proposed design of the ESS and supporting infrastructure conforms to NFPA 855, UL 9540 listing conditions, and conditions specified under the COA; and

(C) All applicable UL 9540A test data has been interpreted as compliant with the intent of the provisions of the New York City Construction, Electrical, and Fire codes, and safety benchmarks have been established based on such interpretation to mitigate thermal runaway propagation and site-specific hazard conditions.

(iii) The peer reviewer(s) must prepare a report summarizing the findings of the peer review. OTCR will not issue a conditional acceptance letter for the ESS site-specific review in accordance with paragraph (4) of this subdivision until a peer review report has been submitted indicating the ESS design shown on identified plans and specifications complies with the requirements of this section. Such report must be separately signed and sealed by each peer reviewer.

(iv) If a dispute arises between the registered design professional of record and the peer reviewer regarding compliance with the provisions of this section and the parties are unable to resolve the dispute, such dispute must be reported to DOB in the form of a letter from the registered design professional of record. DOB will either resolve the dispute or to allow a change of the peer reviewer(s).

(v) The registered design professional of record for the ESS retains sole responsibility for the design of the ESS. The activities and reports of the peer reviewer(s) do not relieve the registered design professional of record of this responsibility.

(4) Conditional acceptance. Upon demonstration of compliance with the requirements of this section, OTCR will issue a conditional acceptance letter. The applicant must submit the conditional acceptance letter in connection with the application for construction document approval.

(g) Certificate of Occupancy. Where the ESS is not accessory to the principal use on the same zoning lot, a new certificate of occupancy must be issued by DOB to reflect the zoning Use Group of the non-accessory ESS pursuant to Article 118 of Title 28 of the Administrative Code.

(h) Permits. Prior to any work being performed, permits must be obtained for both the construction work and the electrical work.

(1) Where the Construction Codes require the filing of technical reports identifying those responsible for required special, progress and final inspections, such reports must be filed with DOB.

(2) Before commencing any electrical work, an application for an electrical work permit must be filed with DOB in accordance with the Electrical Code, including an electrical plan review as required by the DOB rules. The construction permit for the installation of the energy storage equipment will not be issued until the electrical permit has been issued.

(i) Job sign-off. The registered design professional must take all steps required by DOB for the issuance of a letter of completion, or, if applicable, a certificate of occupancy, pursuant to section 28-116.4 of the Administrative Code, including but not limited to, the completion of the following:

(1) Inspections. Any construction work performed in connection with the construction application, including but not limited to the energy storage equipment, must be inspected in accordance with Administrative Code. The electrical work performed in connection with the energy storage equipment must be completed and inspected in accordance with the Electrical Code.

(2) Commissioning. Where required by NFPA 855, and where required by the Fire Code or the FDNY rules, commissioning must be performed accordingly. A commissioning report must be submitted to DOB as required.

(3) Final acceptance. Where a site-specific approval is required pursuant to subdivision (f) of this section, a registered design professional must submit a final certification attesting that the installed ESS is in compliance with the conditional acceptance letter. OTCR will issue a final acceptance letter upon demonstration of compliance with the requirements of this section.

(j) Operation. An ESS may not be operated until the job sign-off has been completed in accordance with subdivision (i) of this section.

(k) Registration and reporting requirements. All system registrations and notifications must be in a form and manner prescribed by DOB. Registration is not required for lead acid and nickel cadmium batteries used for emergency, standby, or uninterruptable power supply

(1) Where a new ESS is subject to the requirements of this section, building owners and property managers must register each new system with DOB prior to operation.

(2) Where an existing ESS would be subject to the requirements of this section, building owners and property managers must register such existing ESS with DOB within 3 years of the effective date of this section.

(3) Prior to decommissioning a registered ESS, DOB must be notified. All required permits must be obtained prior to decommissioning.

§2. Chapter 3600 of Title 1 of the Rules of the City of New York is amended by adding a new section 3616-07 to read as follows:

§3616-07 National Fire Protection Association (NFPA) 855 Amendment Relating to the Standard for the Installation of Stationary Energy Storage Systems.

Pursuant to section 28-103.19 of the New York City Administrative Code, NFPA 855 (2020 edition) is hereby amended as follows:

1.1 Delete and replace with the following: **Scope.** This standard applies to the design, construction, installation, commissioning, operations, maintenance, and decommissioning of indoor stationary energy storage systems (ESS), including mobile and portable ESS installed in a stationary situation and the storage of lithium metal and lithium ion batteries. Outdoor and rooftop ESS are regulated by the New York City Fire Code (Fire Code) and the New York City Fire Department (FDNY) rules, and as indicated in section 1.3.2.

1.3 Delete and replace with the following: **Application.** This standard applies to indoor ESS exceeding the values shown in Table 1.3 and mobile installations in accordance with section 4.5.

1.3.2 Delete and replace with the following: Indoor and outdoor ESS installations associated with one- and two-family dwellings must comply with Chapter 15 of this title, the Fire Code and the FDNY rules.

1.3.3 Delete and replace with the following: DELETED.

Table 1.3 Delete and replace with the following:

Table 1.3 Threshold Quantities

	Aggregate Capacity[a]	
ESS Technology	**kWh**	**MJ**
Battery ESS		
Lead-acid, all types	70	252
Nickel including Ni-Cad, Ni-MH, and Ni-Zn[b]	70	252
Lithium-ion, all types	1	3.6
Sodium nickel chloride	20	72
Flow batteries[c]	20	72
Other battery technologies	1	3.6
Batteries in one- and two-family dwellings	1	3.6

[a] For ESS units rated in amp-hrs, kWh equals maximum rated voltage multiplied by amp-hr rating divided by 1000.

[b] Nickel battery technologies include nickel cadmium (Ni-Cad), nickel metal hydride (Ni-MH), and nickel zinc (Ni-Zn).

[c] Includes vanadium, zinc-bromine, polysulfide-bromide, and other flowing electrolyte-type technologies.

2.1 Delete and replace with the following: **General.** The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this standard. Reference the New York City Building Code (Building Code) for applicable modifications to documents.

2.2 Delete and replace the item containing NFPA 70 with the following:

***

NFPA 70®, National Electrical Code®, 2020 edition, including the amendments made by the New York City Electrical Code.

***

2.3.7 Delete and replace with the following: **UL Publications.** Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

UL 263, *Fire Tests of Building Construction and Materials*, 14th edition dated June 21, 2011, with revisions through August 5, 2021.

UL 790, *Standard Test Methods for Fire Tests of Roof Coverings*, 8th edition dated April 22, 2004, with revisions through October 19, 2018.

UL 1012, *Power Units Other Than Class 2*, 8th edition dated November 9, 2010, with revisions through March 30, 2021

UL 1741, *Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources*, 1st edition dated January 20, 2010.

UL 1778, *Uninterruptible Power Systems*, 5th edition dated June 13, 2014, with revisions through October 12, 2017.

UL 1973, *Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications*, 2nd edition dated February 7, 2018.

UL 1974, *Evaluation for Repurposing Batteries*, 1st edition dated October 25, 2018.

UL 2900-1, *Software Cybersecurity for Network-Connectable Products, Part 1: General Requirements,* 2nd edition dated December 13, 2023.

UL 9540, *Energy Storage Systems and Equipment*, 2nd edition dated February 27, 2020, with revisions through April 9, 2021.

UL 9540A, *Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems*, 4th edition dated November 12, 2019.

2.4 Delete and replace with the following: **References for Extracts in Mandatory Sections**

NFPA 30, Flammable and Combustible Liquids Code, 2018 edition.

NFPA 70®, National Electrical Code®, 2020 edition, including the amendments made by the New York City Electrical Code.

NFPA 72®, National Fire Alarm and Signaling Code®, 2016 edition, as modified by Appendix Q of the New York City Building Code.

NFPA 101®, Life Safety Code®, 2018 edition.

3.2.2* Delete and replace with the following: **Authority Having Jurisdiction (AHJ).** An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure. In New York City, the AHJ for ESS is the New York City Department of Buildings (DOB) and/or FDNY.

3.3.3 Delete and replace with the following: **Battery Management System (BMS).** A system that monitors performance of one or more battery modules in an ESS. Such system may also control and optimize the operation of the ESS, including the ability to control the disconnection of module(s) from the system in the event of abnormal conditions.

3.3.5 Delete and replace with the following: **Dwelling Unit**. See section 202 of the Building Code for the definition of "Dwelling Unit."

3.3.7* Delete and replace with the following: **Reserved.**

A.3.3.7 Delete and replace with the following: **Reserved.**

3.3.8* Energy Storage Management System (ESMS). A system that monitors, controls, and optimizes the performance of an ESS and has the ability to control the disconnection of the energy storage system in the event of abnormal conditions. This system can control one or more individual management systems such as battery management systems.

A.3.3.8 Delete and replace with the following: **Reserved.**

A.3.3.9 Delete and replace with the following: **Energy Storage Systems (ESS)**. ESS include but are not limited to the following categories:

(1) Chemical: hydrogen storage

(2) Thermal: thermal energy storage

(3) Electrochemical:

(a) Batteries

(b) Flow batteries

(4) Mechanical:

(a) Flywheel

(b) Pumped hydro

(c) Compressed air energy storage (CAES)

(5) Electrical:

(a) Capacitors

(b) Superconducting magnetic energy storage (SMES)

These systems can have ac or dc output for utilization and can include inverters and converters to change stored energy into electrical energy. It is not the intention for ESS to include energy generation systems. It is the intention for ESS to include backup systems facility standby power, emergency power or uninterrupted power supply (UPS).

3.3.10 Delete and replace with the following: **Fire Area**. An area of a building separated from the remainder of the building by construction having a fire resistance as required in 4.3.6 and having all communicating openings properly protected by an assembly having a fire resistance rating as required by code.

3.3.13 Delete and replace with the following**: Large-Scale Fire Testing**. Testing of a representative ESS that induces a significant cascading thermal runaway into the device under test and evaluates whether fire will spread to adjacent energy storage system units, surrounding equipment, or through an adjacent fire-resistance-rated barrier and hazards associated with off-gassing such as explosion control and toxic gas requiring ventilation.

3.3.15 Delete and replace with the following: **Maximum Stored Energy**. The quantity of energy storage, expressed in kWh, permitted in a fire area.

Add **3.3.16.1 Deflagration.** Propagation of a rapid combustion zone creating over-pressure at a velocity that is less than the speed of sound in the unreacted medium, which may be caused by a thermal runaway condition.

3.3.20 Delete and replace with the following: **Thermal Runaway.** The condition when an electro-chemical battery cell increases its temperature through self-heating in an uncontrollable fashion and progresses when the cell's heat generation is at a higher rate than it can dissipate, potentially leading to off-gassing, fire, or deflagration.

Add **3.3.22 Maximum Aggregate Rated Energy Capacity.** The quantity of energy storage, expressed in kWh, permitted in a control area in accordance with the Fire Code.

Add **3.3.23 Module.** A subassembly that is a component of a battery ESS that consists of a group of cells connected together either in a series and/or parallel configuration.

Add **3.3.24 Unit.** A cabinet or enclosure that contains a functional battery ESS including components and subassemblies such as cells, modules, battery management systems, ventilation devices and other ancillary equipment.

4.1 Delete and replace with the following: **General.** The design, construction, and installation of ESS and related equipment shall comply with this Chapter and as supplemented or modified by the technology-specific provisions in Chapter 9.

4.1.2.1.1 Delete and replace with the following: The plans and specifications associated with an ESS and its intended installation, replacement or renewal, commissioning, and use shall be submitted to the AHJ for approval and include, but not be limited to, the following:

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

(2) Details on hourly fire-resistant-rated assemblies provided or relied upon in relation to the ESS.

(3) The quantities and types of ESS units.

(4) Manufacturer's specifications, ratings, and listings of ESS.

(5) Description of energy storage management systems and their operation.

(6) Location and content of required signage.

(7) Details on fire suppression, smoke or fire detection, gas detection, thermal management, ventilation, exhaust, and deflagration venting systems, if provided.

(8) Support arrangement associated with the installation, including any required seismic support.

4.1.2.1.2 Delete and replace with the following: Utility installations are subject to approval of FDNY and must comply with the Fire Code including any exemptions and other applicable law, rules, and regulations.

4.1.2.1.3 Delete and replace with the following: The following test data, evaluation information, and calculations shall be provided in addition to the plans and specifications in 4.1.2.1.1 where required elsewhere in this standard:

(1) Large-scale fire test data in accordance with 4.1.5.

(2) Hazard mitigation analysis in accordance with 4.1.4.

(3) Calculations or modeling data to determine compliance with NFPA 68 and NFPA 69 in accordance with 4.12.

(4) Other test data, evaluation information, or calculations as required elsewhere in this standard.

(5) Peer review as required by section 101-19 of these rules.

4.1.2.3.1 Delete and replace with the following: The operations and maintenance manual shall be prepared prior to final approval of the ESS and be readily accessible to personnel responsible for the ESS, including the Certificate of Fitness holder.

Add **4.1.2.5. Decommissioning Plan.** A decommissioning plan meeting the provisions of Chapter 8 shall be provided to the building owner or their authorized agent and the AHJ.

4.1.3 Delete and replace with the following: **Emergency Management Plan.**

4.1.3.1* Delete and replace with the following: **General.** In accordance with the Fire Code and the FDNY rules, the owner, manufacturer and/or installer of an ESS shall develop and maintain for each ESS installation an emergency management plan that includes the following:

(1) Identification of the remote monitoring facility and contact information for such facility;

(2) Procedures or protocols by which notifications are made to FDNY, the Certificate of Fitness holder who will be responsible for the installation, and a subject matter expert to provide technical assistance to FDNY in the event the system exceeds or appears likely to exceed thresholds at which fire, explosion or other serious adverse consequences may result;

(3) Procedures or protocols by which notifications are made to the building owner and/or building occupants in the event of such an emergency, unless the ESS is also monitored by an attended on-site monitoring station;

(4) Procedures or protocols by which the ESS will be safeguarded after the emergency has been abated, pending repair or removal of the energy storage system from the premises; and

(5) The manner in which any damaged or defective storage batteries or equipment must be removed from the premises and lawfully disposed.

A.4.1.3.1 Delete and replace with the following: **Pre-Incident Planning.** Owners of ESS should develop pre-incident plans to coordinate their own response to emergencies, consistent with the emergency management plan. NFPA 1620 provides criteria for developing pre-incident plans for use by personnel responding to emergencies. NFPA 1620 can be a useful resource to help in the development of pre-incident plans to assist personnel in effectively managing incidents and events for the protection of occupants, responding personnel, property, and the environment. Additional information is published in the FDNY Emergency Management Plan Preparation Guide. Contact FDNY for more information.

The requirement of an emergency management plan is intended to ensure that the various parties who will be installing, owning, operating or maintaining an ESS have agreed upon their respective responsibilities and have made the necessary arrangements to implement those responsibilities in advance of the commissioning of the system.

Timely notification and accurate reporting of the nature of the incident and access to the installer or other subject matter expert will assist FDNY in managing the emergency.

4.1.3.2 through 4.1.3.2.2.2 Delete and replace with the following: **DELETED.**

4.1.4.1* Delete and replace with the following: A hazard mitigation analysis shall be provided to the AHJ for review and approval when any of the following conditions are present:

(1) When technologies not specifically addressed in Table 1.3 are provided.

(2) More than one ESS technology is provided in a room or indoor area where adverse interaction between the technologies is possible.

(3) When required to support a request to increase the maximum aggregate rated energy capacity.

4.1.5.1 Delete and replace with the following: Large-scale fire testing in accordance with 4.1.5 shall be conducted on a representative ESS in accordance with UL 9540A or equivalent test standard approved by DOB and FDNY. Large scale testing shall not be required for vented lead acid and nickel cadmium batteries used in standby and emergency applications. Large scale testing shall not be required for valve regulated lead acid and nickel cadmium batteries used in standby and emergency applications when listed to UL 1973.

Add **4.1.6.6** Combustible storage in working spaces around energy storage systems shall comply with the working spaces requirements of the New York City Electrical Code (Electrical Code).

4.2.3.1 Delete and replace with the following: Retrofitting of ESS shall comply with the following:

(1) Battery systems and modules and capacitor systems and modules shall be listed in accordance with UL 1973.

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

(3) The overall installation shall continue to comply with UL 9540 listing requirements, where applicable. Previously approved unlisted existing battery systems shall be required to obtain listing to UL 9540 when retrofit is performed.

(4) Retrofits shall be documented in the maintenance, testing, and events log required in 4.1.2.3.

(5) Retrofits shall be the same chemistry as the original system and shall result in equivalent fire and off-gas behavior results when compared to the original system tested under UL 9540A.

4.2.3.2 Delete and replace with the following: Changing out or retrofitting existing lead-acid or nickel-cadmium battery systems with other lead-acid or nickel-cadmium battery systems less than 50 V ac, 60 V dc 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 shall be considered repairs when there is no increase in system size or capacity greater than 10 percent from the original design. Such replaced or retrofitted system shall also comply with the Fire Code.

4.2.3.4 Delete and replace with the following: Changing out or retrofitting existing lead-acid batteries with other lead-acid batteries utilized exclusively in uninterruptable power supplies or for standby power applications shall be considered repairs where there is no increase in system size or capacity greater than 10 percent from the original design. Such replacement or retrofitting shall also comply with the Fire Code.

A.4.2.3.3 Delete and replace with the following: **DELETED.**

4.2.5.2 Delete and replace with the following: An increase in maximum aggregate rated energy capacity or power rating to an existing ESS shall be considered a retrofit and comply with 4.2.3.

4.2.7.3 Delete and replace with the following: **DELETED.**
4.2.9.3* Delete and replace with the following: When required by the AHJ, visible annunciation shall be provided on the cabinet exterior or in an approved remote monitoring station(s) at the building's fire command center and/or other approved location to indicate potentially hazard conditions associated with the ESS exist.

4.2.9.4 Delete and replace with the following: **DELETED.**

4.2.9.5* Delete and replace with the following: **DELETED**.

4.2.10.1 Delete and replace with the following: Storage batteries previously used in other applications, such as electric vehicle propulsion, shall not be permitted to be reused or repurposed.

4.2.10.2 Delete and replace with the following: Materials, equipment, and devices, excluding batteries, shall not be reused or reinstalled unless approved by the AHJ.

4.3.1 Delete and replace with the following: **Electrical Installation.** The electrical installation shall be in accordance with the Electrical Code based on the location of the ESS in relation to and its interaction with the electrical grid.

4.3.2* Delete and replace with the following: **Working Space.** At a minimum, ESS equipment shall be provided with working space in accordance with the Electrical Code, as appropriate, for operation, inspection, troubleshooting, maintenance, or replacement.

4.3.5.2* Delete and replace with the following: The signage required in 4.3.5.1 shall be in compliance with ANSI Z535 and include the following information as shown in Figure 4.3.5.2:

(1) "Energy Storage Systems" with symbol of lightning bolt in a triangle

(2) Type of technology associated with the ESS

(3) Special hazards associated as identified in Chapters 9 through 15.

(4) Type of suppression system installed in the area of the ESS

(5) Emergency contact information

(6) Location of E-Stops/controls

(7) Location of manually activated smoke/gas purge system switch.

(8) Battery management system monitoring facility and other emergency contact information

(9) The number or other unique identifier used by the battery management system remote monitoring facility to identify the installation, which firefighters or Department representatives can reference in communications with the monitoring facility.

4.3.6 Delete and replace with the following: **Separation.** Rooms or spaces containing ESS shall be separated from other areas in accordance with the Building Code and the Fire Code.

4.3.7 Delete and replace with the following: **Impact Protection.** Where the battery system is subject to impact by a motor vehicle or other motorized equipment, such as a forklift or other powered industrial trucks, vehicle impact protection shall be provided in accordance with applicable requirements of the Fire Code.

Add **4.3.8.3 Cybersecurity**. Battery systems that are connected to a communication network and have the capability to permit control of any portion of the electrical system shall comply with either of the following:

(1) The ability to control the system is limited to a direct connection through a local non-networked interface.

(2) The battery system is connected through a networked interface complying with associated software certified to IEC 62443 or UL 2900-1.

4.3.9 Delete and replace with the following: **Elevation.** ESS shall be located in control areas on floors in the quantities with maximum aggregate rated energy capacity described by the Fire Code.

4.3.9.1.1 Delete and replace with the following: ESS shall not be installed below the finished floor of the lowest level of exit discharge, except when approved by the FDNY.

Add **4.3.9.1.1.1** ESS installations shall not be installed below the design flood elevation (DFE) as defined by Appendix G of the Building Code.

4.3.9.2 Delete and replace with the following: ESS installations on rooftops shall be in accordance with FDNY rules.

4.3.9.3 Delete and replace with the following: Unless otherwise provided in the Fire Code, the requirements in 4.3.9 shall not apply to the following:

(1) Lead-acid and nickel-cadmium battery systems less than 50 V ac, 60 V dc in telecommunications facilities for installations of communications equipment under the exclusive control of communications utilities and 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 designed in accordance with IEEE C2, 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.

4.3.10.2 Delete and replace with the following: Required means of egress shall be provided with emergency lighting as required by the Building Code.

4.3.12 Delete and replace with the following: **Fire Command Centers.** In buildings containing ESS and equipped with a fire alarm system, the main control panel location shall include signage or readily available documentation that describes the location and type of ESS, operating voltages, and location of electrical disconnects as required by the Electrical Code.

4.4.1 Delete and replace with the following: ESS installed indoors and in open parking garages shall comply with this section.

Table 4.4.2 Delete and replace with the following:

Indoor Stationary ESS Installations

Compliance Required	Dedicated-Use Buildings[a]	Non-Dedicated-Use Buildings[b]	Reference
Administrative	Yes	Yes	Chapters 1-3
General	Yes	Yes	Sections 4.1 – 4.3
Size and Separation	Yes[c]	Yes	Section 4.6
Maximum aggregate rated energy capacity	Yes	Yes	Section 4.8
Elevation	Yes	Yes	Section 4.3.9
Separation	NA	Yes	Section 4.3.6
Smoke and fire detection	Yes[d]	Yes	Section 4.10
Fire control and suppression	Yes[c]	Yes	Section 4.11
Water Supply	Yes[c]	Yes	Section 4.13
Signage	Yes	Yes	Section 4.3.5
Occupied work centers	Not allowed	Not allowed	Section 4.7 (Reserved) NA
Technology-specific protection	Yes	Yes	Chapters 9-13

NA: Not applicable.

[a]See 4.4.2.1

[b]See 4.4.2.2

[c]Reserved

[d]When approved by the AHJ, alarm signals are not required to be transmitted to an approved location when local fire alarm annunciation is provided and trained personnel are always present.

4.4.2.1 Delete and replace with the following: **Dedicated-Use Buildings.** Dedicated-use ESS buildings shall be constructed in accordance with the New York City Construction Codes (Construction Codes) and comply with all the following:

(1) The building shall only be used for energy storage, energy generation, and other electrical grid-related operations.

(2) Occupants in the rooms and areas containing ESS shall be 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 incidental-use areas within the buildings that do not contain ESS, provided the following:

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

(b) The areas are separated from the ESS and other rooms and areas containing ESS by 2-hour fire barriers and 2-hour fire resistance-rated horizontal assemblies constructed in accordance with the Building Code, as appropriate.

(c) A means of egress is provided from the incidental use areas to a public way that does not require occupants to traverse through areas containing ESS or other energy systems.

Add **4.4.2.1.1** An energy storage system in a dedicated use building as defined herein is an indoor system. This definition shall not apply to outdoor structures that are not buildings, including shipping containers, sheds, chemical storage buildings, prefabricated storage units, and other such structures or enclosures whether or not specifically designed to house energy storage systems. Such structures are regulated as outdoor installations pursuant to the FDNY rules.

4.4.3 Delete and replace with the following: **DELETED.**

4.4.3.1 through 4.4.3.10.2 Delete and replace with the following: **DELETED**

Table 4.4.4 Delete and replace with the following:

Open Parking Garage ESS Installations

Compliance Required	Open Parking Garages**	Reference
Administrative	Yes	Chapters 1-3
General	Yes	Sections 4.1 – 4.3
Maximum size	Yes	Section 4.4.3.2
Means of egress separation	Yes	Section 4.4.3.4
Walk-in units	Yes	Section 4.4.3.5
Enclosures	Yes	Section 4.4.3.7
Clearances to exposures	Yes	Section 4.4.4.2
Fire suppression and control	Yes	Section 4.11
Open parking garages	Yes	Section 4.4.4.5
Size and separation	Yes	Section 4.6
Maximum aggregate rated capacity	Yes	Section 4.8
Elevation	Yes	Section 4.3.9

Smoke and fire detection	Yes	Section 4.10
Signage	Yes	Section 4.3.5
Occupied work centers	Not allowed	Section 4.7 (Reserved) NA
Open rack installations	Not allowed	Section 4.3.11
Technology-specific protection	Yes	Chapters 9-13

**See 4.4.4.1(2).

4.4.4.2.1 Delete and replace with the following: Rooftop installations shall comply with applicable FDNY requirements for rooftop clearances to exposures. ESS located in open parking garages shall be separated by a minimum 10 ft (3048 mm) from the following exposures:

(1) Buildings, except the portion of the building on which rooftop ESS is mounted

(2) Lot lines

(3) Public ways

(4) Stored combustible materials

(5) Locations where motor vehicles can be parked

(6) Hazardous materials

(7) Other exposure hazards

4.4.4.2.2 Delete and replace with the following: Clearances in open parking garages shall be permitted to be reduced based on large-scale fire tests in accordance with 4.1.5, the FDNY Certificate of Approval, and requirements for electrical equipment separation in accordance with the Electrical Code.

4.4.4.3.1 Delete and replace with the following: ESS located in walk-in enclosures in open parking garages shall be provided with automatic fire control and suppression systems within the ESS enclosure in accordance with 4.11.

4.4.4.4 Delete and replace with the following: **DELETED.**

4.4.4.4.1 Delete and replace with the following: **DELETED.**

4.4.4.4.2 Delete and replace with the following: **DELETED.**

4.4.4.5 Delete and replace with the following: **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 ft (15.3 m) of air inlets for building HVAC systems. When approved, this distance is permitted to be reduced to 25 ft (7.6 m) if the

automatic fire alarm system monitoring the thermal image fire detection or radiant energy sensing detectors can shut down the ventilation system connected to the air intakes and close intake and exhaust dampers upon detection of fire.

(2) ESS shall not be located within 25 ft (7.6 m) of exits leading from the attached building when located on a covered level of the parking structure not directly open to the sky above. When approved, the separation distance is permitted to be reduced to 10 ft (3 m) based on largescale fire testing conducted in accordance with 4.1.5.

(3) ESS located in open parking garages shall be separated from any means of egress component as required by the AHJ to ensure safe egress under fire conditions.

(4) A thermal image fire detection or radiant energy-sensing fire detection system complying with 4.10 shall be provided to protect the ESS.

(5) An approved fence with a locked gate or other approved barrier shall be provided to keep the general public at least 5 ft (1.5 m) from the outer enclosure of the ESS.

4.5.4 Delete and replace with the following: **Deployment Documents.** The following information shall be provided to the AHJ with any locally required operational permit applications for mobile ESS deployments:

(1) Relevant information for the mobile ESS equipment and protection measures in the construction documents required by 4.1.2.

(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.

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

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

(9) Contact information for certificate of fitness holders who are responsible for general supervision of maintaining and servicing the equipment and responding to emergencies.

4.5.6.1 Delete and replace with the following: Electrical connections shall be permitted to be made using temporary wiring complying with the manufacturer's instructions, the UL 9540 listing, and the Electrical Code.

4.5.7 Delete and replace with the following: **Deployed Mobile ESS Requirements.** Deployed mobile ESS equipment and operations shall comply with this section and applicable FDNY requirements.

Table 4.5.7 Delete and replace with the following: DELETED.

4.5.7.1 Delete and replace with the following: Mobile operations on wheeled vehicles or trailers shall not be required to comply with seismic protection requirements in 4.3.3.

4.5.7.5.1.1 Delete and replace with the following: Required separation distances shall be permitted to be reduced when approved by the AHJ.

4.5.7.6 Delete and replace with the following: **Electrical Connections.** Electrical connections shall be made in accordance with the manufacturer's instructions and the Electrical Code.

4.5.7.6.1 Delete and replace with the following: Temporary wiring for electrical power connections shall comply with the Electrical Code.

4.5.7.8.1 Delete and replace with the following: An approved fence with a locked gate or other approved barrier shall be provided to keep the general public at least 10 ft (3 m) from the outer enclosure of a deployed mobile ESS.

4.6.1 Delete and replace with the following: ESS in the following locations shall comply with 4.6.2 and 4.6.3 unless otherwise permitted by 4.6.4 or 4.6.5.

(1) Indoor ESS installations in non-dedicated-use buildings in accordance with 4.4.2.

(2) Open parking garage installations.

4.6.7 Delete and replace with the following: Sections 4.6.2 and 4.6.3 shall not apply to 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. Batteries must be listed and labeled in accordance with UL 1973.

4.7 Delete and replace with the following: **Occupied Work Centers**. Reserved.

4.8 Delete and replace with the following: **Maximum Aggregate Rated Energy Capacity.** Comply with the Fire Code.

4.8.1 through **4.8.5** Delete and replace with the following: DELETED.

4.9.1 Delete and replace with the following: **General.** Exhaust and ventilation requirements for control areas must comply with the Fire Code and the FDNY rules.

4.9.2 through **4.9.3.2** Delete and replace with the following: DELETED.

4.10.4 Delete and replace with the following: When approved by the AHJ, the smoke detection system is permitted to be replaced with a radiant energy-sensing detection system installed in accordance with NFPA 72, or thermal image fire detection system installed in accordance with NFPA 72-2025, on rooftops, and in open parking garages and similar occupancies where conditions negatively impact the use of smoke detection technologies.

Add **4.10.6** When approved by FDNY, alarm signals are not required to be transmitted to an approved location when local fire alarm annunciation is provided and trained personnel are always present.

4.11 Delete and replace with the following: **Fire Control and Suppression.** Comply with the Fire Code.

4.11.1* Delete and replace with the following: Where required elsewhere in this standard, fire control and suppression for ESS shall be provided in accordance with the Fire Code and the FDNY rules.

4.11.2 Delete and replace with the following: **Indoor installations.** The indoor installation of ESS shall only be permitted in buildings fully protected throughout by a sprinkler system, except lead-acid battery systems, and nickel-cadmium battery systems as otherwise provided in the Fire Code. Control areas housing stationary ESS shall be fully protected throughout by a sprinkler system designed in accordance with NFPA 15, except as may otherwise be approved based on equipment listings and testing results pursuant to the Fire Code.

4.11.2.1 through 4.11.9 Delete and replace with the following: **DELETED**.

4.12 Delete and replace with the following: **Explosion Control.** Where required elsewhere in this standard and the Fire Code, explosion prevention or deflagration venting shall be provided in accordance with this section.

4.12.1 Delete and replace with the following: ESS installed within a room, building, ESS cabinet, or ESS walk-in unit shall be provided with one of the following:

(1) Explosion prevention systems designed, installed, operated, maintained, and tested in accordance with NFPA 69.

(2) Deflagration venting installed and maintained in accordance with NFPA 68.

4.12.2 Delete and replace with the following: Explosion prevention and deflagration venting shall not be required where approved by DOB and FDNY based on large scale testing in accordance with 4.1.5 and a deflagration hazard study that demonstrates that flammable gas concentrations in the room, building, ESS cabinet, or ESS walk-in unit cannot exceed 25 percent of the LFL.

4.13.1* Delete and replace with the following: Sites where nonmechanical ESS are installed shall be provided with a permanent source of water for fire protection.

4.13.2 Delete and replace with the following: **DELETED.**

4.13.4 Delete and replace with the following: Fire hydrants installed on private fire service mains shall be installed in accordance with NFPA 24 and the NYC Fire Code.

4.13.5 Delete and replace with the following: Normally unoccupied, remote stand-alone telecommunications structures with a gross floor area of less than 1500 ft^2 (139 m^2) with lead-acid and nickel-cadmium battery systems less than 50 V ac, 60 V dc that are in telecommunications facilities for installations of communications equipment under the exclusive control of communications utilities and located outdoors that are in compliance with NFPA 76 shall not be required to have a fire water supply.

4.13.6* Delete and replace with the following: Lead-acid and nickel-cadmium battery systems that are designed in accordance with IEEE C2, 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 shall not be required to have a fire water supply.

4.15.1* Delete and replace with the following: An approved method to neutralize and absorb spills from ESS with free-flowing electrolyte shall be provided.

5.1* Delete and replace with the following: **General.** All electrical connections and wiring to and from an ESS or the components of an ESS shall be in accordance with the Electrical Code or IEEE C2 based on the location of the ESS in relation to and its interaction with the electrical grid.

5.3 through 5.3.7 Delete and replace with the following: **DELETED.**

6.1.1 Delete and replace with the following: ESS shall be evaluated and confirmed for proper operation by the system owner or their designated agent in accordance the manufacturer's specifications and with a commissioning plan prepared in accordance with 6.1.2, 6.1.3, and 6.1.5. The certificate of fitness holder, as required by the Fire Code and the FDNY rules, shall be present during the evaluation.

6.1.1.1 Delete and replace with the following: **DELETED.**

6.1.1.2* Delete and replace with the following: **DELETED.**

6.1.2 Delete and replace with the following: System commissioning shall be conducted in accordance with 6.1.2.1 and 6.1.2.2 after the installation is complete but prior to final inspection and approval. System commissioning shall also be conducted after the installation of approved fire protection, smoke control and smoke purge, and hazard mitigation systems.

6.1.2.1 Delete and replace with the following: ESS shall be evaluated for their proper operation by the system installer or commissioning agent in accordance with the commissioning plan developed under 6.1.1. The commissioning agent shall be a qualified person as defined in 3.3.19 of this rule. A commissioning report documenting the commissioning process shall be prepared in accordance with 6.1.6.

6.1.2.2 Delete and replace with the following: The commissioning results in accordance with 6.1.3 shall be provided by the system installer or commissioning agent to the system owner and FDNY

and DOB prior to final inspection and approval. A copy of the commissioning results shall be retained by the certificate of fitness holder.

6.1.3.2 Delete and replace with the following: The report shall include the final commissioning plan, the results of the commissioning process, as well as a copy of the approved plans and specifications associated with the as-built system design and installation.

6.1.3.3 Delete and replace with the following: The report shall include any issues identified during commissioning and the measures taken to resolve them. A root cause analysis shall be performed for any identified issues.

6.1.3.4 Delete and replace with the following: A corrective action plan acceptable to FDNY and DOB shall be developed for any open or continuing issues that are allowed to be continued after commissioning.

6.1.4 Delete and replace with the following: **DELETED.**

6.1.5 Delete and replace with the following: The commissioning plan shall include, but should not be limited to, the following information:

(1) An overview of the commissioning process developed specifically for the ESS to be installed and narrative description of the activities to be conducted;

(2) Roles and responsibilities for all those involved in the design, commissioning construction, installation, or operation of the system(s);

(3) Means and methods whereby the commissioning plan will be made available during the implementation of the ESS project(s);

(4) Plans and specifications necessary to understand the installation and operation of the ESS and all associated operational controls and safety systems;

(5) A detailed description of each activity to be conducted during the commissioning process, who will perform each activity, and at what point in time the activity is to be conducted;

(6) Procedures to be used in documenting the proper operation of the ESS and all associated operational controls and safety systems;

(7) Testing for any required fire detection or suppression and thermal management, ventilation, or exhaust systems associated with the installation and verification of proper operation of the safety controls;

(8) Means and methods necessary to document and verify that the system and its associated controls and safety systems are in proper working condition;

(9) Guidelines and format for a commissioning checklist and relevant operational testing forms and necessary commissioning logs and progress reports;

(10) Means and methods whereby facility operating and maintenance staff will be trained on the system;

(11) Identification of personnel who are qualified to service and maintain the system and respond to incidents involving each system; and

(12) A decommissioning plan meeting the provisions of 8.1 that covers the removal of the system from service and from the facility in which it is located and information on disposal of materials associated with each ESS.

6.1.6.1 Delete and replace with the following: ESS shall be evaluated for their proper operation by the system installer in accordance with the manufacturer's instructions, the commissioning plan, and the requirements of this section after the installation is complete but prior to final approval. System testing shall also be conducted after the installation of approved fire protection, smoke control and smoke purge, and hazard mitigation systems. The certificate of fitness holder shall be present during system testing.

6.1.6.2 Delete and replace with the following: A report documenting the commissioning process and the results shall be prepared by the entity commissioning the system and a copy provided to FDNY and Department of Buildings prior to final inspection and approval and included in the manual required by 4.1.2.3.

6.3.1 Delete and replace with the following: Operations and maintenance documentation shall be provided to the Certificate of Fitness Holder.

7.1 Delete and replace with the following: **System Operation.** All ESS shall be operated in accordance with the manufacturer's instructions, the operation and maintenance documentation, and FDNY requirements.

7.1.6 Delete and replace with the following: The operations record shall be kept in a readily accessible location, or a sign indicating where the record is located shall be posted adjacent to the system. The FDNY Certificate of Fitness holder shall maintain the operations record.

7.1.6.2 Delete and replace with the following: The operations record shall be permitted to be made available electronically when approved by the AHJ.

7.2 Delete and replace with the following: **System Maintenance.** The ESS shall be maintained in accordance with its listing and the system manufacturer's instructions.

8.1 Delete and replace with the following: **Decommissioning Plan.** Prior to decommissioning, the owner's designated agent(s) shall prepare a written decommissioning plan in accordance with the manufacturer's specification and complying with 8.1.3 that provides the organization, documentation requirements, and methods and tools necessary to indicate how the safety

systems as required by this standard and the ESS and its components will be decommissioned and the ESS removed from the site. The designated agent is the certificate of fitness holder as prescribed in the Fire Code.

8.1.3* Delete and replace with the following: The decommissioning plan shall include the following information:

(1) An overview of the decommissioning process developed specifically for the ESS that are to be decommissioned;

(2) Roles and responsibilities for all those involved in the decommissioning of the ESS and their removal from the site;

(3) Means and methods whereby the decommissioning plan will be made available at a point in time corresponding to the decision to decommission the ESS;

(4) Plans and specifications necessary to understand the ESS and all associated operational controls and safety systems, as built, operated, and maintained;

(5) A detailed description of each activity to be conducted during the decommissioning process and who will perform that activity and at what point in time;

(6) Procedures to be used in documenting the ESS and all associated operational controls and safety systems that have been decommissioned;

(7) Guidelines and format for a decommissioning checklist and relevant operational testing forms and necessary decommissioning logs and progress reports;

(8) A description of how any changes to the surrounding areas and other systems adjacent to the ESS, such as but not limited to structural elements, building penetrations, means of egress, and required fire detection and suppression systems, will be protected during decommissioning and confirmed as being acceptable after the system is removed; and

(9) A description of hazards associated with ESS decommissioning and plans for mitigation of such hazards.

Add **8.1.4** Those involved in the decommissioning of the ESS shall be trained and knowledgeable in accordance with 3 RCNY 608-01.

8.2.1 Delete and replace with the following: DOB and FDNY shall be notified prior to decommissioning an ESS and in accordance with the Fire Code and the FDNY rules.

8.2.2 Delete and replace with the following: The ESS shall be decommissioned by the owner of the ESS and their designated agent(s) in accordance with the decommissioning plan.

8.3 Delete and replace with the following: **Decommissioning Report.** A decommissioning report shall be prepared by the ESS owner or their designated agent and summarize the decommissioning process of the system and associated operational controls and safety systems. The report shall be supplied to DOB upon request.

Table 9.2 Delete and replace with the following:

Electrochemical ESS Technology-Specific Requirements

	Battery Technology						
Compliance Required	Lead-Acid	Nickel[a]	Lithium-Ion	Flow	Sodium Nickel Chloride	Other Electrochemical ESS and Battery Technologies[b]	Reference
Exhaust ventilation	Yes	Yes[c]	No	Yes	No	Yes	Section 4.9
Spill control	Yes[d]	Yes[d]	No	Yes	No	Yes	Section 4.14
Neutralization	Yes[d]	Yes[d]	No	Yes	No	Yes	Section 4.15
Safety caps	Yes	Yes	No	No	No	Yes	Section 9.4
Thermal runaway	Yes[e]	Yes	Yes[f]	No	Yes[f]	Yes[f]	Section 9.3
Explosion control	Yes[g]	Yes[g]	Yes	No	Yes	Yes	Section 4.12
Size and separation	Yes	Yes	Yes	Yes	Yes	Yes	Section 4.6

[a]Nickel battery technologies covered in this column include nickel cadmium (Ni-Cad), nickel metal hydride (Ni-MH), and nickel zinc (Ni-Zn).

[b]The protection in this column is not required if documentation acceptable to the AHJ, including a hazard mitigation analysis complying with 4.1.4, provides justification that the protection is not necessary based on the technology used.

[c]Exhaust ventilation is not required for nickel metal hydride batteries.

[d]Applicable only to vented- (i.e., flooded-) type nickel and lead-acid batteries.

[e]Thermal runway protection is not required for vented (e.g., flooded) lead-acid batteries.

[f]The thermal runaway protection as described in 9.3 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 or UL 9540.

[g]Explosion control is not required for the following:

(1) Lead-acid and nickel-cadmium battery systems less than 50 V ac, 60 V dc in telecommunications facilities for installations of communications equipment under the exclusive control of communications utilities located in building spaces or walk-in units used exclusively for such installations that are in compliance with NFPA 76.

(2) Lead-acid and nickel-cadmium battery systems designed in accordance with IEEE C2 and 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.

(3) 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.

(4) Lead-acid and Ni-Cad battery systems listed and labeled in accordance with UL 1973, utilized for standby power applications.

9.3 Delete and replace with the following: * **Thermal Runaway Protection.** Where required by Table 9.2, a listed device evaluated as part of the ESS or other approved method shall be provided to manage charging and discharging during normal operation of the ESS to maintain batteries within their safe operating parameters and preclude thermal runaway.

Add **A.9.3** A component of the thermal runaway protection might be integrated within the ESS battery management system or ESS management system that controls the charging and discharging to keep the ESS within its normal and safe operating limits when that device has been evaluated with the batteries or capacitors as part of the listing to UL 1973 or UL 9540, as applicable. The device might also initiate appropriate hazard mitigation as required elsewhere in this standard when the ESS is in an abnormal state such as overheating or off-gassing.

Chapter 10 Delete and replace with the following: **DELETED**.

Chapter 11 Delete and replace with the following: **DELETED**.

Chapter 12 Delete and replace with the following: **DELETED**.

Chapter 15 Delete and replace the title of Chapter 15 as follows: **One- and Two-Family Dwellings**

15.1* Delete and replace as follows: **General**. ESS installations associated with one- or two-family dwellings shall comply with the requirements of this chapter and the Fire Code.

15.2 Delete and replace with the following: **Equipment Listings and Large-Scale Fire Testing Requirements.**

15.2.1 Delete and replace with the following: Permanently wired ESS greater than 1 kWh in maximum aggregate rated energy capacity shall be listed and labeled in accordance with UL 9540.

Add **15.2.3** Large-scale fire testing shall be required in accordance with 4.1.5.

15.4.1 Delete and replace with the following: ESS installed in one- and two-family dwellings shall be commissioned as follows:

(1) Verify that the system is installed in accordance with the approved plans and manufacturer's instructions and is operating properly.

(2) Provide a copy of the manufacturer's installation, operation, and maintenance instructions provided with the listed system.

(3) Provide training on the proper operation and maintenance of the system to the system owner.

(4) Provide a label on the installed system containing the contact information for the qualified maintenance and service providers.

15.4.2 Delete and replace with the following: Where the system is installed in a one- or two-family dwelling that is owned by the developer and has yet to transfer ownership, commissioning shall be conducted as outlined in Section 15.4, and the developer shall then transfer the required information in Section 15.4 to the homeowner when the property ownership is transferred.

Add **15.4.3 Qualifications of the commissioning agent.** The manufacturer's representative or master electrician performing the ESS installation shall serve as the commissioning agent.

15.5 Delete and replace with the following: **ESS Spacing.** Individual ESS units shall be separated from each other by a minimum of 3 ft (914 mm) unless smaller separation distances are documented to be adequate as approved by the AHJ, based on large-scale fire testing complying with 4.1.5.

15.6.1 Delete and replace with the following: ESS shall only be installed above grade in the following locations unless otherwise approved by DOB and FDNY:

(1) In attached garages, wall- or floor-mounted, separated from the dwelling in accordance with 15.7.1 and the Fire Code.

(2) In detached garages, wall- or floor-mounted.

(3) Outdoors, wall-mounted on a non-combustible exterior wall or on a non-combustible protective barrier approved by DOB and FDNY. Installations must be located a minimum of 3 ft (914 mm) from doors and windows.

(4) Outdoors, ground-mounted within 3 ft (914 mm) of a non-combustible exterior wall or a non-combustible protective barrier approved by DOB and FDNY. Installations must be located a minimum of 3 ft (914 mm) from doors and windows.

15.6.1.1 Delete and replace with the following: In any unfinished room or space where an ESS is to be installed, the walls and ceiling of unfinished wood-framed construction shall be protected with not less than 5⁄8 in. Type X gypsum board.

15.6.2 Delete and replace with the following: ESS shall not be installed in living area of dwelling units or in sleeping units.

15.7.1 Delete and replace with the following: The aggregate rating amount for ESS installed outdoors or within a garage shall not exceed the following, unless otherwise approved by DOB and FDNY:

(1) In attached garages, up to 20 kWh requires a minimum one-hour fire rated barrier separating the garage from the dwelling, or up to 40 kWh requires a minimum two-hour fire rated barrier.

(2) In detached garages, up to 40 kWh.

(3) Outdoors, wall-mounted, up to 40 kWh per building.

(4) Outdoors, ground-mounted, up to 40 kWh per building.

(5) Up to 80 kWh total for the entire lot.

(6) The above ratings may be lowered based on conditions in the FDNY Certificate of Approval.

A.15.7.3 Delete and replace with the following: The batteries on electric vehicles should not be included in the aggregate energy capacity limitations in 15.7.1.

15.8 Delete and replace with the following: **Electrical Installation.** ESS shall be installed and inspected in accordance with the Electrical Code.

Add **15.14 Energy Storage Management System (ESMS)**

Add **15.14.1** Where required by the Fire Code or the FDNY rules, an ESMS approved by the AHJ shall be provided for monitoring operating conditions and maintaining voltages, current, and temperatures within the manufacturer's specifications.