



# FDNY

## **Energy Storage System Approval Process**

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# Relevant Codes / Rules/ Guides

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Fire Code 2022 Section FC 608: Stationary Energy Storage Systems (outdoor and indoor)



NFPA 855 as modified by Fire Code 2022 Appendix B



FDNY Rules 3 RCNY Section 608-01: Outdoor Stationary Storage Battery Systems



Energy Storage System (ESS) Equipment Approval and Installation Guide



# Updates to FDNY Requirements

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- The Hazard Mitigation Analysis (HMA) must be done by a NYS Registered Design Professional (RDP) that is signed and sealed.
  - Applicant and the RDP doing the HMA cannot be the same person
  - Engineering firm doing the design of the installation cannot be the same engineering firm doing the HMA
- The NFPA 68/69 analysis provided for TM-2 (COA) application
  - shall be done by a third party
    - Stamped by a Licensed P.E.
    - NRTL
- 9540A 6<sup>th</sup> Edition Released March 13,2026



# Steps in the ESS Installation Approval Process

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## **ESS Product Review & Approval - Certificate of Approval (COA)**



# Background

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- All energy storage systems for stationary installations and mobile systems require a product-specific approval called a Certificate of Approval (COA) from the New York City Fire Department (FDNY).
- To obtain a COA, the applicant (e.g., manufacturer or their authorized agent) must submit an FDNY application form TM-2.
  - The TM-2 form is submitted for FDNY review and approval of the product via the FDNY Business Portal. The application type should be specified as “Certificate of Approval.”

**Note:** Stationary energy storage systems with an individual size of 2 kWh or less for outdoor use do not require a COA.



# Required Documents/ Information

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1. The complete Nationally Recognized Testing Laboratory (NRTL) product and test report based on the following UL standards:
  - a. **UL 1741:** Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources
  - b. **UL 1973:** Batteries for Use in Light Electric Rail (LER) Applications and Stationary Applications
  - c. **UL 9540:** Energy Storage Systems and Equipment
2. Full-scale testing report based on **UL 9540A** (Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems) test method consistent with the UL 9540A test method test report recording requirements.
3. Hazard Mitigation Analysis (HMA) report and the recommended mitigation measures prepared by a New York State Registered Design Professional.
4. A description of the battery technology/chemistry, modes of operation, incorporated safety systems and activation sequences.



# Required Documents/ Information(Continued)

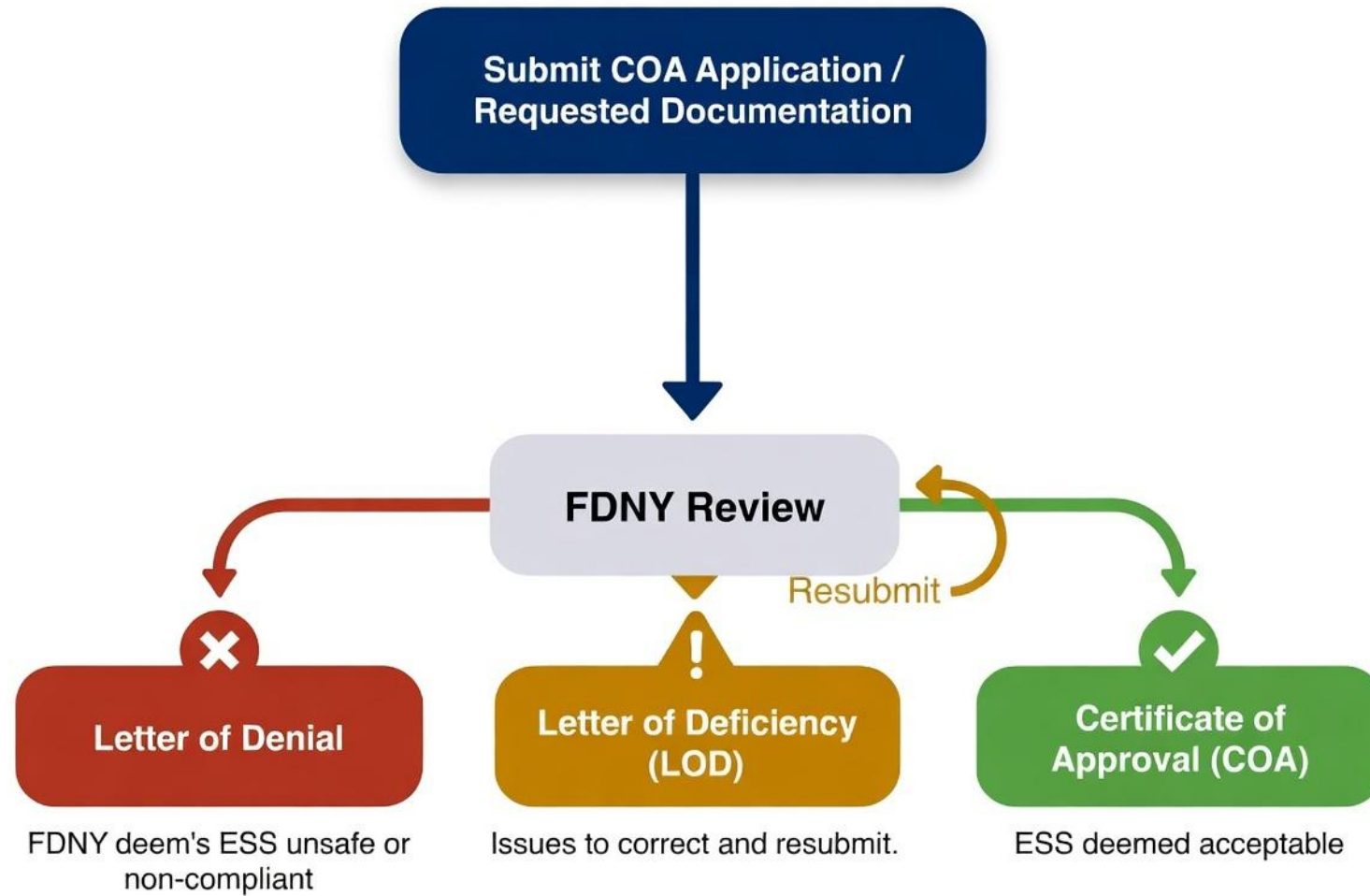
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5. Manufacturer/product specific documents such as installation & operational manuals, Safety Data Sheets (SDS), emergency management/response plan, etc.
6. Maximum energy capacity of each unit/product listed or certified to the UL 9540 standard.
7. A clear notation of whether the product is listed or certified for outdoor, indoor or roof mounted installation.
8. A detailed description of the Energy Storage System remote monitoring capability and technology, including the remote monitoring facility, if any.
9. Use of the ESS/battery unit, such as: grid support, building power, emergency power, Uninterruptible Power Supply (UPS), etc.
10. Tests or simulations to validate safety systems



# Possible Outcomes

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# ESS Plan Review and Installation Approval



# Background

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- All ESS/battery units must have a valid Certificate of Approval (COA) issued by the FDNY to be eligible for plan review and installation approval.
- A DOB construction work permit is required for each stationary ESS installation, regardless of capacity/size.
- The aggregate rated energy capacity per control area of indoor systems must not exceed the limits specified in Fire Code FC Table 608.9.1.1.
  - The design and number of control areas are outlined in Fire Code FC Table 5003.8.3.3.



# Authority having jurisdiction (AHJ)

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| System Type & Size                             | COA Required? | Plan Review | FDNY Permit Required? |
|------------------------------------------------|---------------|-------------|-----------------------|
| Outdoor ( $\leq 2$ kWh individual)             | No            | DOB Only    | No                    |
| Outdoor ( $> 2$ and $\leq 20$ kWh aggregate)   | Yes           | DOB Only    | No                    |
| Outdoor ( $> 20$ and $\leq 250$ kWh aggregate) | Yes           | DOB Only    | Yes<br>No (Group R-3) |
| Outdoor ( $> 250$ kWh aggregate)               | Yes           | DOB + FDNY  | Yes                   |
| Indoor (All Sizes)                             | Yes           | DOB Only    | Yes                   |



# Filings to FDNY

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| Filing Category       | Required Submission                                         | Applicability & Conditions                                                              |
|-----------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| TM-1 Filings          | Engineering plan review for BESS installation (mechanical). | Required for all applicable systems.                                                    |
|                       | Plan review of fire alarm system.                           | Required for medium and large systems                                                   |
|                       | Plan review for NFPA 15 Suppression System.                 | Required specifically for large outdoor Energy Storage Systems.                         |
| Conditional Approvals | Non-Water Based (Alternative) Fire Extinguishing Systems.   | Required depending on the specific site and equipment utilized.                         |
|                       | Fire Apparatus Access.                                      | Required if the installation is not in compliance with FC 503.                          |
|                       | Rooftop Access Variance.                                    | Required if the installation is not in compliance with FC 504.                          |
|                       | Fire Hydrant Plans.                                         | Required based on fire hydrant locations or if a new private hydrant is being installed |



# TM-1 for Installation Approval

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## Required Documents

The TM-1 application must be accompanied by all required documents mentioned in the TM-1 application form, including the following:

1. Plans/drawings signed and sealed by a NYS Registered Design Professional showing the proposed location of BESS installation.
2. Additional drawings such as 100 & 250-foot radii site plans, fire alarm, fire protection plans, etc
3. Narrative of the scope of work including pictures of the proposed site.
4. Installation, operation, maintenance manuals, technical documentations, etc
5. Commissioning and decommissioning plans
6. Emergency Management Plan (EMP)
7. A site-specific hazard mitigation analysis (HMA) signed and sealed by a NYS Registered Design Professional.
8. Other pertinent information (copy of COA, signage, flood zone map, certificate of occupancy, DEP letter for hydrant flow test, UL listing/certificate, etc. as applicable)



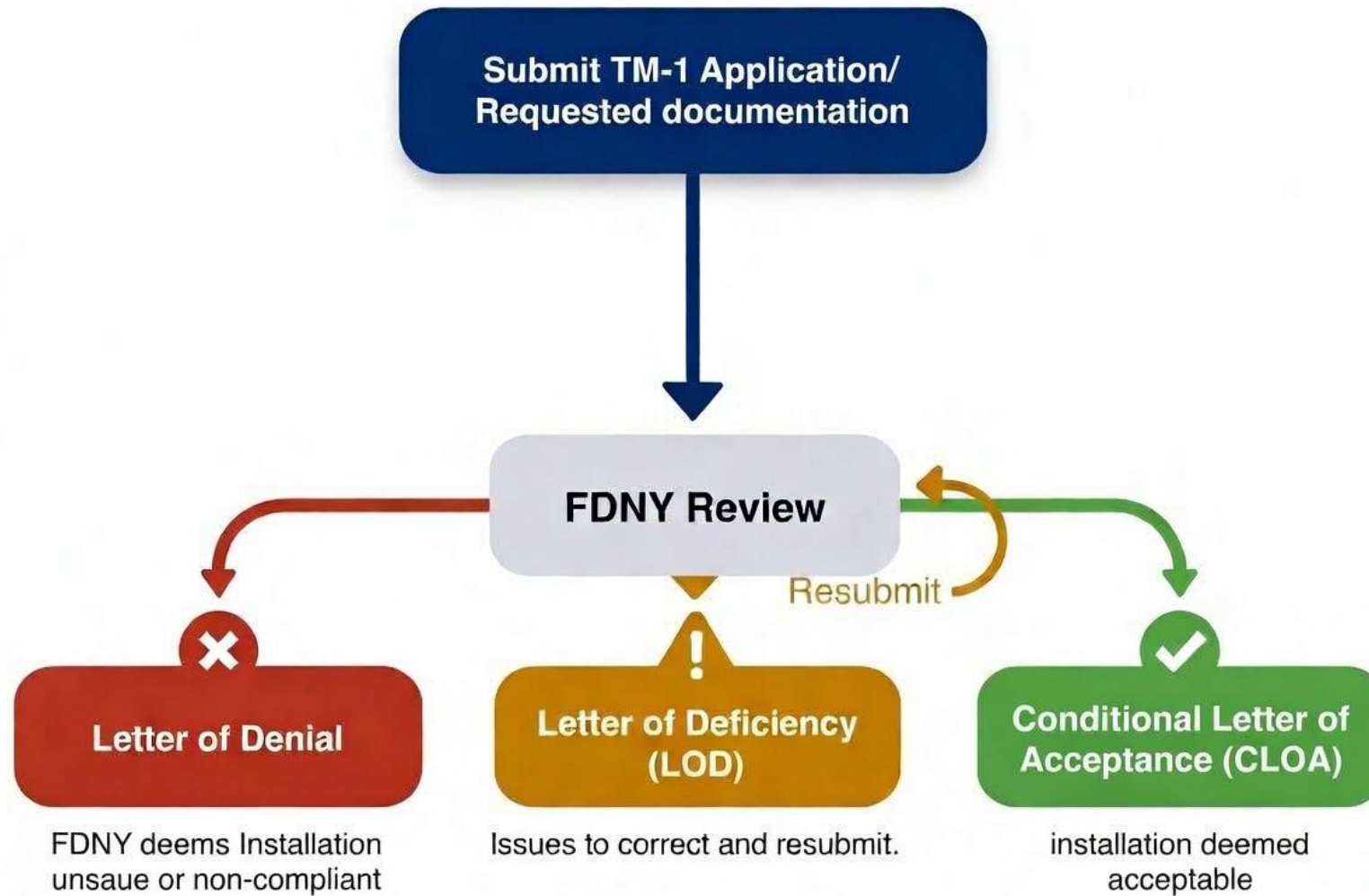
# TM-1 for Installation Approval (Continued)

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9. Information on the Certificate of Fitness (COF) holder, Subject Matter Expert (SME) and remote monitoring facility, etc
10. Information on the fencing construction and design

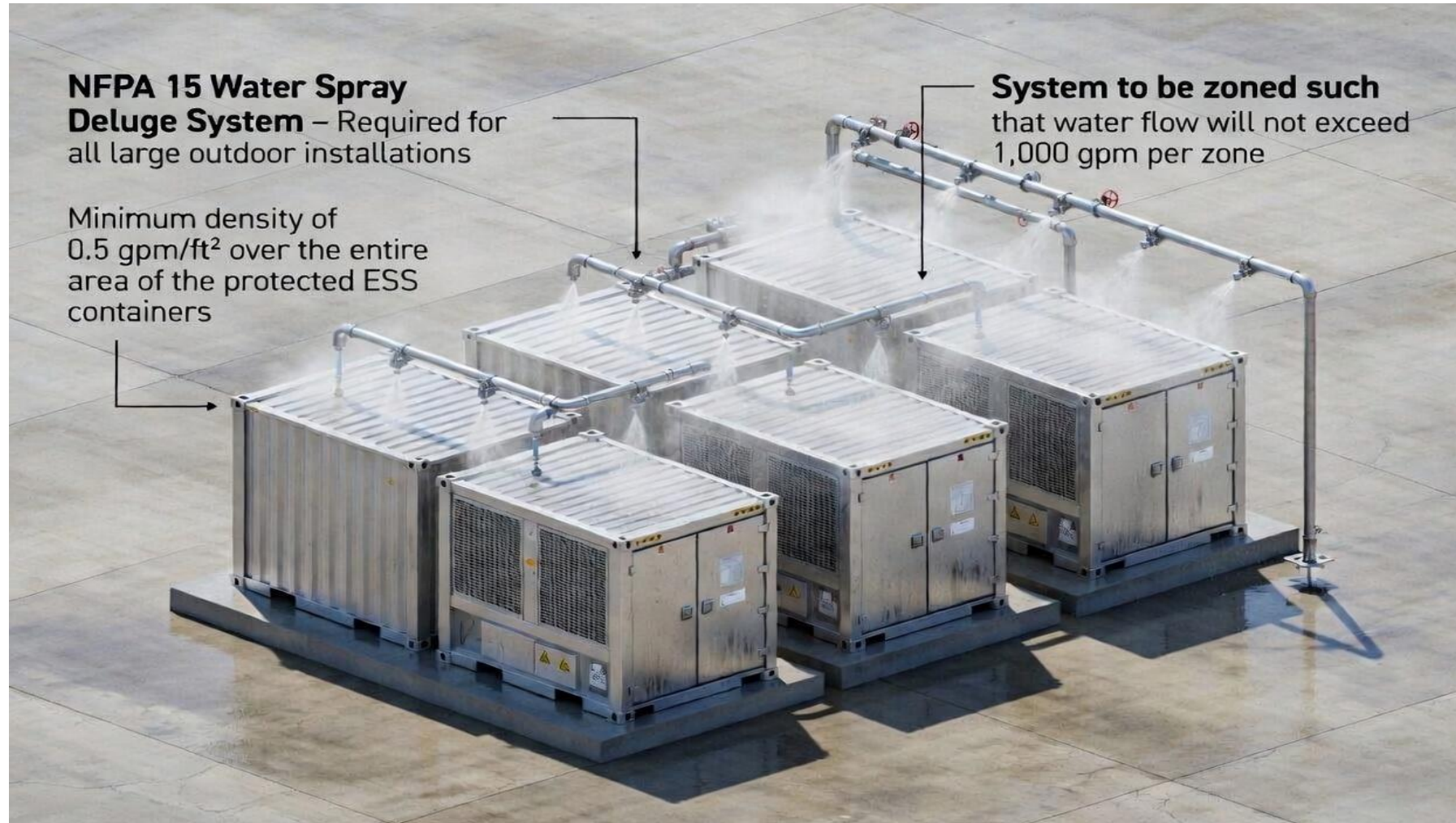


# Possible Outcomes



# NFPA 15 Suppression System for Energy Storage Systems

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# ESS Installation Inspection and Operating Permit



# Background

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To obtain the permit, submit a request for an FDNY Final Emergency Shutdown Test (ESDT)/Permit Inspection.

- Done by Bulk Fuel Safety Unit (BFSU)

Prior to requesting a Final ESDT/Permit Inspection, ensure the following systems are tested and have obtained a Letter of Approval from the respective Fire Department inspection units:

- Fire Alarm inspection Unit
  - Fire alarm system
  - Emergency alarm system
  - Detection system
- Rangehood Inspection Unit
  - Non-water-based (alternative) fire extinguishing systems
  - NFPA 15 Suppression System



# **NFPA 15 Suppression System for Energy Storage Systems Inspection**

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## **Pre-Scheduling**

### **1. Project Authorization:**

- A project authorization shall be requested from the FDNY Technology Management Unit.
- Upon issuing the project authorization, a record ID number will be provided. This record ID will be used for the on-site inspection.

## **Scheduling**

### **1. Initial Email:**

- Send an email to [Rangehood\\_Unit@fdny.nyc.gov](mailto:Rangehood_Unit@fdny.nyc.gov) with the FDNY approved plan and a filled out B45 Inspection request form attached.
- Request a date to check for availability.



# NFPA 15 Suppression System for Energy Storage Systems Inspection (Continued)

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## 2. Online Scheduling:

- Go to **FDNY Business**.
- Navigate to: Begin Application/Request → Public Request → Public Request for Inspections.
- Fill in the address.
- Fill out the Permit/LOA Contact and Billing Contact.
- In the Inspection Request Details section:
  - Add a row.
  - Select "Rangehood".
  - For "Alternate Agent Test", select the type of system and test date.
  - Continue filling out the form until you receive a request number (e.g., 2024-INSP-Request-040444).



# NFPA 15 Suppression System for Energy Storage Systems Inspection (Continued)

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## Inspection

### 1. Preparation:

- Ensure the contact listed on the B45 form and the inspection request is on-site on the day of the inspection.
- Be prepared to present documentation such as:
  - S-12 or S-15 Certificate of Fitness.
  - Affidavit from the manufacturer stating that the nozzle is capable of outdoor use.

**Note:** Hydrostatic testing can only be conducted in non-freezing temperatures. The testing may take up to three hours.



# **NFPA 15 Suppression System for Energy Storage Systems Inspection (Continued)**

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## **Possible Outcomes/Result of Inspection**

The contractor will be notified whether the test has passed or failed upon completion of the inspection.

### **1. Letter of Approval (LOA)**

- Upon passing the inspection, a LOA will be issued within three business days to the applicant on record. The contractor can also obtain the LOA through their NYC account using the record ID number provided when the project authorization was issued.

### **2. Letter of Defects**

- The contractor will receive an email with an attached letter of defects, listing all the issues that need to be fixed.
- Re-testing, re-inspection, or an amended plan will be required.
  - For re-testing or re-inspection, the contractor may start the scheduling process again once the issues are fixed.
  - If an amended plan is required, it must be submitted to the FDNY Technology Management Unit for plan review.



# Final Inspection

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- Applicant may contact the Bulk Fuel Safety Unit (BFSU - Hazard Control Inspection Group) at BFSU@fdny.nyc.gov or 718-999-2461/2463 to request:
  - Pre-commissioning (optional)
  - Commissioning which includes Final Emergency Shutdown Test upon passing permit inspection and LOA
- If directed by BFSU applicants must officially schedule an inspection via the FDNY Business Portal to obtain an inspection request ID number
- An ESS commissioning plan and Emergency Management Plan (EMP) must be submitted when requesting the Final Emergency Shutdown Test/Permit Inspection
- Promptly send notification to Hazmat.EmergingTech@fdny.nyc.gov with “ATTN Familiarization Drill” to schedule drills for their familiarization of the system, its operation, the safety systems incorporated, and actions to take in case of emergency according to the emergency management plan
- An inspection may not be granted until the required documents are submitted



# Final Inspection (continued)

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## Pre-Commissioning Inspection (Optional)

The pre-commissioning inspection may be conducted by the Bulk Fuel Safety Unit (BFSU) following the installation of the Battery Energy Storage System (BESS), including fire protection systems such as the fire alarm system, fire suppression system (e.g., water-based deluge system), and Fire Department Connection (FDC). During this inspection, BFSU will meet with the owner or owner's representative, the Certificate of Fitness (COF) B28 holder, and the designated Subject Matter Expert (SME) to review documentation, inspection, and test requirements. These requirements are outlined in the Technology Management Unit (TMU) Letter of Approval/Acceptance (LOA), Fire Code, Fire Rule, and the relevant NFPA standards.



# Final Inspection (continued)

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## Commissioning Inspection:

The commissioning inspection is conducted by BFSU after the Fire Alarm Inspection Unit (FAIU) completes satisfactory testing of the fire alarm system, and the Rangehood Unit (RHU) completes testing of the suppression system and fire department connections. This inspection includes the emergency shutdown test of the BESS, which involves activating the emergency shutdown switch/button, fire alarm and detection devices (e.g., fire detectors, UV detectors), and manual pull stations to verify the transmission of alarm signals to the BESS remote monitoring station or approved central station as applicable. It also involves testing emergency telephone numbers displayed on required signage.

**BFSU** will require the presence of the owner or representative, B28 COF holder, SME, remote monitoring station representative, and fire alarm technician holding a FDNY's COF(S97/S98) during the inspection. After successful commissioning testing and inspection, BFSU will issue a Letter of Approval and permit.



# Final Inspection (continued)

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The following shall be made available at the inspection site by the owner:

1. DOB work permit
2. Approved plans
3. As-built plans/drawings as applicable
4. Information and documentation about the remote monitoring facility staffed by trained and knowledgeable person(s) retained by the manufacturer or installer of the battery system
5. All approvals for the fire protection systems
6. Copy of the COA for the ESS/battery unit
7. FDNY or DOB variance approvals, if any
8. All required signs posted
9. A decommissioning plan
10. A maintenance plan
11. Site-specific Emergency Management Plan (EMP)



# Final Inspection (continued)

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## Annual Permit Inspection:

The annual permit inspection will be conducted by BFSU on or before the expiration date of the BESS permit. This inspection will repeat the procedures performed during the commissioning and post-commissioning inspections to ensure ongoing compliance and performance of the system.

**Note:** An inspection may be conducted by BFSU after the successful completion of the commissioning of the BESS. This inspection is aimed at monitoring the performance of the BESS and verifying established inspection and maintenance records.

For any BFSU questions/concerns contact [FDNY.Businesssupport@FDNY.nyc.gov](mailto:FDNY.Businesssupport@FDNY.nyc.gov) and/or [BFSU@fdny.nyc.gov](mailto:BFSU@fdny.nyc.gov).



# Final Inspection (continued)

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## Possible Outcomes

1. Upon successful inspection, a Letter of Approval (LOA) and a site permit (valid for one year) will be issued to operate the system.

**Note:** OTCR Final acceptance letter may be required prior to issuance of the FDNY permit.

2. If the inspection has failed due to an administrative issue, a violation order is issued. Applicant may submit corrections/amendments via email ([BFSU@fdny.nyc.gov](mailto:BFSU@fdny.nyc.gov)) to resolve deficiencies.
3. If the inspection has failed due to other reasons such as missing equipment or mechanical issue, a violation order is issued. Applicants must request a reinspection/retest via FDNY Business Support or via email at [BFSU@fdny.nyc.gov](mailto:BFSU@fdny.nyc.gov).





**Thank you!**

