RESILIENT SOLAR (SOLAR + BATTERY STORAGE)

FDNY Filing Procedures

March 20th, 2024
Yash Patel
Assistant Chemical Engineer, Sustainability Unit
# List of Approved BESS for NYC

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Product Name</th>
<th>Model Number</th>
<th>Certificate of Approval Number</th>
<th>Expiration Date</th>
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<tbody>
<tr>
<td>Tesla</td>
<td>Tesla Megapack</td>
<td>1462965-XX-Y</td>
<td>8000</td>
<td>March 2, 2027</td>
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<tr>
<td>ELM</td>
<td>Fieldsight</td>
<td>MG500 MG500-13</td>
<td>8001</td>
<td>March 28, 2025</td>
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<td>SimpliPhi</td>
<td>AccESS Sol-Ark 12k</td>
<td>A-XPHI-SA</td>
<td>8002</td>
<td>May 5, 2025</td>
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<tr>
<td>SimpliPhi</td>
<td>AccESS Sol-Ark 12k</td>
<td>A-XPHI-SA; A-XPHI-2SA-SP; A-XPHI-3SA-SP; A-XPHI-3SA-3P</td>
<td>8003</td>
<td>May 30, 2025</td>
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<td>Tesla</td>
<td>Tesla Mega Pack 2</td>
<td>1748844-XX-Y</td>
<td>8004</td>
<td>November 8, 2025</td>
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<td>Sungrow</td>
<td>PowerTitan</td>
<td>STXSUX-X6UD-MV-US</td>
<td>8005</td>
<td>April 17, 2026</td>
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<tr>
<td>Tesla</td>
<td>Tesla Megapack 2 XL</td>
<td>1848844-XX-Y</td>
<td>8006</td>
<td>May 2, 2026</td>
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<td>Fluence Energy</td>
<td>Gen 6 Cube</td>
<td>06-01-0031-08, 06-01-0031-16, 06-01-0036-08, 06-01-0036-16, 06-01-0061-08, 06-01-0061-16</td>
<td>8007</td>
<td>September 5, 2026</td>
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<td>LS Energy Solutions</td>
<td>Schneider Electric</td>
<td>BESS 250Q-QMMA9944</td>
<td>8008</td>
<td>November 19, 2026</td>
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</table>
New York Fire Department Fire Code 2022

• Allows BESS installation for indoor commercial use and R-3 occupancies
  • The allowed installations and conditions will be noted on the certificate of approval (CoA) for the BESS

• Requires the BESS to be listed to UL 9540 2\textsuperscript{nd} edition (2020)
  • Can be listed to UL 9540 1\textsuperscript{st} edition (2016), if BESS got listed prior to FC 2022 and is tested to 9540A 4\textsuperscript{th} edition (2019)
FILING AN APPLICATION
CERTIFICATE OF APPROVAL – NEW EQUIPMENT

TM-2 Application

- $625 examination fee
- Narrative that describes the BESS, modes of operation, any incorporated safety system and activation sequence
- Data sheet + cut-sheets of system components or documentation showing how system components work
- MSDS (Material Safety Data Sheet) for the chemical components within the BESS
- Installation and operational manuals
- UL listings and certifications (Listing to UL 9540, UL 1973, UL 1741 and other pertinent UL certifications)
- UL 9540A testing results and hazard mitigation analysis (HMA) or a failure modes and effects analysis done by a New York State licensed design professional (PE/RA), preferably a fire protection engineer.
- BESS manufacturers emergency response plan
BESS Description

• System size (kWh and kW)
• Applicable product standards met (ex UL, Intertek, NFPA)
• Battery specific:
  • Number of battery cells
  • Battery chemistry
  • Voltage
  • Cascading protection (ex fuses/circuit breakers)
INFORMATION AND SUPPORTING DOCUMENTATION

• Battery Encasement:
  • Cabinet information
  • Ventilation for off gassing (if required)
  • Deflagration venting (if required)

• Inverter:
  • Size
  • Type
  • UL Listing
  • Monitors for: over current, over temperature, etc.
• Battery Management System (BMS):
  • Description of system
  • Monitors for: battery voltages, temperatures, current, etc.
  • Explain how software detects malfunctions and the thresholds

• Safety measures:
  • Additional safety monitors not captured in the system description
    ➢ Ex. Hydrogen sensors, ground fault protection, etc.
  • Sequence of events if malfunction happens at battery or system level
  • Arc Fault Protection as per NEC (NFPA 70)
TM-2 Filing Procedure

For the equipment approval (Certificate of Approval)
Go to FDNY Business:
1. Select Design and Installation Application;
2. Select Technology Management Application;
3. Select Certificates of Approval Application
   New/Renewal/Amendment
4. Pay fee and upload all necessary documents

* If there is any questions or concerns, please direct them to FDNY.businesssupport@FDNY.nyc.gov
* Link to FDNY business portal provided on reference slide
TM-1 Application

- $420 + $525 ($945 total) examination fee
- Plans signed and sealed by a NYS licensed design professional (PE/RA) showing proposed location of BESS installation
- Narrative or scope of work
- Installation manuals and technical documentations
- Commissioning and decommissioning plans
- UL Listings
- Other pertinent information (CoA approval, signage, flood plan map, certificate of occupancy, etc.)
- Certificate of Fitness (CoF) holder information
INFORMATION AND SUPPORTING DOCUMENTATION

- Signed and Sealed Drawings by NYS licensed design professional (PE/RA)
  - Shows location of BESS and auxiliary equipment, Hydrant, FDC (if required), and smoke purge activation switch (if required)
- Process to shut down system
  - Rapid Shutdown for solar array as per NEC (NFPA 70)
  - E-Stop as per NFPA 79 and 3RCNY 608-01 (g)(3)(C)
  - Location of Rapid Shutdown Switch + E-Stop
  - Use of software to shut down system
  - List who has access to these systems (remote or physically)
- Specify any existing dangers
  - Ex. Isolation of the system does not remove any charge present in the batteries.
- Commissioning and decommissioning plans
  - NFPA 855 for guidance
- Emergency Management Plan
  - Detailed plan of action in the event of failure as per FC 608.8
Building Information

- Building construction type (Non-Combustible)
- Building use and occupancy
- Description of where BESS will be located (indoor, outdoor etc.)
- Available FDNY access to BESS
- Description of ventilation system for entire building and HVAC intakes in the vicinity of proposed BESS location
- Standpipe hose outlet locations near installation
- Emergency exit locations
TM-1 Filing Procedure

For the site-specific approval
Go to FDNY Business:
1. Select Design and Installation Application;
2. Select Technology Management Application;
3. Select Engineering Application/Amendment, Category Stationary (Battery) Energy Storage System
4. Pay fee and upload all necessary documents

For the Fire Alarm portion
FDNY Business:
1. Select Design and Installation Application;
2. Select Technology Management Application;
3. Select Fire Alarm Application New/Amendment
4. Pay fee and upload all necessary documents

If system is provided with Internal Clean Agent System:
Go to FDNY Business:
1. Select Design and Installation Application;
2. Select Technology Management Application;
3. Select Engineering Application/Amendment, Category Non-water fire extinguishing systems (FC904), Sub-category Clean agent systems (FC904)
4. Pay fee and upload all necessary documents

For the Water-Based Fire Extinguishing System (NFPA 15)**
FYI the design density of the water-based system (NFPA 15) shall be 0.5 gpm/ft^2 **
Go to FDNY Business:
1. Select Design and Installation Application;
2. Select Technology Management Application;
3. Select Engineering Application/Amendment Category Other
4. Pay fee and upload all necessary documents

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* Link to FDNY business portal provided on reference slide
TYPES OF INSTALLATIONS

• Outdoors
  • Roof top is considered outdoor
• Indoor commercial use
• R-3 Occupancies
  • Attached garage
  • Detached garage
  • Mount on exterior wall

* All installations require BESS to have a valid CoA and follow conditions stipulated in the CoA

*Notice to the Department shall be made in accordance with FC 608.10.3 and 3 RCNY 608-01 (f)(3) for all installations.
BESS Size Limit
• Attached garage (20 kWh per dwelling unit)
• Detached garage / Exterior wall (40 kWh per dwelling unit)

Installation Requirements
If BESS has CoA
• Follow FC 608.13 and conditions in CoA. If compliance to FC and CoA cannot be met, file TM-1 for installation approval.

If BESS doesn’t have CoA, file a TM-2, Installation not allowed without CoA
OUTDOOR INSTALLATION

**BESS**
- Characterized as Small, Medium, Large as per 3 RCNY 608-01 Table 1

**Installation Requirements**
If BESS has CoA
- Based on BESS size follow requirements in 3 RCNY 608-01 Table 2
- File TM-1 for site specific installation approval
- File TM-1 based on 3 RCNY 608-01 for:
  - Fire Alarm system
  - Non-water based fire suppression (if included in BESS)
  - NFPA 15 designed water spray system

If BESS doesn’t have CoA, file a TM-2, Installation not allowed without CoA
BESS Size Limit
• Follows FC Table 608.9.1.1
  • Control areas limitations set forth in FC 5003.8.3.3

Installation Requirements
If BESS has CoA
• Installation parameters within CoA, requirements of FC 608.9.1, and manufacturer requirements
  • No need to file TM-1 with FDNY and only needs DOB approval
  • Installation parameters not within CoA, requirements of FC 608.9.1, and manufacturer requirements
    • File TM-1 for site specific installation approval

If BESS doesn’t have CoA, file a TM-2, Installation not allowed without CoA
THINGS TO CONSIDER

Things that need to be considered:

- Size (what’s needed and what hazards that would pose)
- All nearby exposures as defined by 3RCNY 608-01 (g)(1)(C)
- Gas Hazards (Toxicity and Deflagration)
- Fire Protection Systems
- FDNY connections?
- FDNY response? (clean agent and water)
- Certificate of Fitness holder and subject matter expert (SME)
- Emergency Response
  - Shutdown
  - Emergency signals
  - Actual emergencies
- Vehicles
- Disposal of the BESS
REVIEW PROCESS

Applicant submits all required paperwork

Once submitted, the application will be reviewed by FDNY and if any information is required a letter of deficiency will be issued through the FDNY portal

If needed FDNY will contact the applicant to set up a joint site visit, conducted by Tech-Management and HazMat

FDNY will notify applicant of decision; if approved, a Letter of Acceptance (LOA) or Conditional Letter of Acceptance (CLOA) will be issued

*Approval shall be obtained from NYC Department of Buildings (DOB) and all other agencies having jurisdiction

*As of now please allow 12 weeks for plan review and response
Kam Chan, Director of Technology Management, Kam.Chan@fdny.nyc.gov

Mamadou Wade, Assistant Deputy Director, Mamadou.Wade@fdny.nyc.gov

Ratan Roy, P.E, Sustainability Unit, Ratan.Roy@fdny.nyc.gov

Yash Patel, Sustainability Unit, Yash.Patel@fdny.nyc.gov

Ningshengjie Gao, Sustainability Unit, Ningshengjie.Gao@fdny.nyc.gov

Erik Perez, Sustainability Unit, Erik.Perez@fdny.nyc.gov
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<td><strong>FDNY Fire Code 2022</strong>&lt;br&gt;(<a href="https://www1.nyc.gov/site/fdny/codes/fire-code/proposed-fire-code.page">https://www1.nyc.gov/site/fdny/codes/fire-code/proposed-fire-code.page</a>)</td>
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<td><strong>List of approved BESS for use in NYC</strong>&lt;br&gt;(<a href="https://www.nyc.gov/assets/fdny/downloads/pdf/business/coa-energy-storage-systems.pdf">https://www.nyc.gov/assets/fdny/downloads/pdf/business/coa-energy-storage-systems.pdf</a>)</td>
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