PERMITTING ESS IN NYC
Overview of Code & Zoning Requirements
Daniella Leifer, Distributed Generation Ombudsman
Sustainable CUNY Smart DG Hub

May 24, 2022
Sustainable CUNY - Smart DG Hub

• Lead the integration of Distributed Generation pathways in partnership with NYC

• Partner with Industry, Government, Utilities and Stakeholders to drive the market through grants, research and projects

• Develop Tools, Resources and provide Technical Assistance

[www.smartdghub.com](http://www.smartdghub.com)
## Timeline: ESS Permitting in NYC and National Standards

### 2017-2018

<table>
<thead>
<tr>
<th>NYC</th>
<th>National Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 2017 NYC Outdoor permitting initiative</td>
<td>• 2017 IFC 2018 published</td>
</tr>
<tr>
<td>• 2018 NYC outdoor permitting guide 1st Ed.</td>
<td>• 2017 NFPA 855 1st draft</td>
</tr>
<tr>
<td></td>
<td>• 2018 UL 9540A 2nd edition</td>
</tr>
<tr>
<td></td>
<td>• 2018 UL 9540A 3rd edition</td>
</tr>
<tr>
<td></td>
<td>• 2018 NFPA 855 2nd draft</td>
</tr>
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### 2019-2020

<table>
<thead>
<tr>
<th>NYC</th>
<th>National Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 2019 Bulletin 2019-002</td>
<td>• 2020 UL 9540 2nd Ed.</td>
</tr>
<tr>
<td>• 2019 3RCNY Rule 608-01 Outdoor ESS</td>
<td>• 2019 UL 9540A 4th Ed.</td>
</tr>
<tr>
<td>• 2020 NYC Outdoor Permitting Guide 2nd Ed.</td>
<td></td>
</tr>
<tr>
<td>• 2020 NYC UL 9540A Data Utilization Guide &amp; Flow Charts</td>
<td></td>
</tr>
<tr>
<td>• 2020 DOB NFPA 855 Working Group launch</td>
<td></td>
</tr>
<tr>
<td>• 2020 FDNY Fire Code revision launch</td>
<td></td>
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<tr>
<td>• 2020 Bulletin 2020-023</td>
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</table>

### 2021

<table>
<thead>
<tr>
<th>NYC</th>
<th>National Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NYC Zoning for Coastal Flood Resilience Amendment</td>
<td>• NFPA 855 2nd Ed. draft released for public comment</td>
</tr>
<tr>
<td>• FDNY Fire Code revision conclusion</td>
<td></td>
</tr>
</tbody>
</table>

### 2022

<table>
<thead>
<tr>
<th>NYC</th>
<th>National Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 2022 FC update – Ch. 608</td>
<td>• UL 1973 3rd Ed.</td>
</tr>
<tr>
<td>• NYC 2022 Building Code adoption</td>
<td></td>
</tr>
<tr>
<td>• DOB NFPA 855 Working Group conclusion</td>
<td></td>
</tr>
<tr>
<td>• DOB Rule adopting NFPA 855 with NYC Modifications (anticipated)</td>
<td></td>
</tr>
<tr>
<td>• DG Hub NYC Outdoor Permitting Guide 3rd Ed. (pending)</td>
<td></td>
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</tbody>
</table>
NYC ESS Codes & Regulations

<table>
<thead>
<tr>
<th>Fire</th>
<th>DOB/Construction</th>
<th>Zoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>2022 FC Ch. 608</td>
<td>OTCR Battery Application Checklist</td>
<td>Buildings Bulletin 2020-023</td>
</tr>
<tr>
<td></td>
<td>(Anticipated) NFPA 855 with NYC Modifications</td>
<td>Zoning for Coastal Flood Resilience</td>
</tr>
</tbody>
</table>
NYC Codes & Regs (COA & OTCR)

- Indoor/Outdoor
- Rooftop/Ground-Mount
- Lithium-Ion/VRLA/Other
- Size (kWh)

Requirements for Installation, Siting, Safety, etc.
FDNY Requirements: Certificate of Approval (COA)

- “TM-2” Application + $625 examination fee

- UL 9540A testing results and hazard mitigation analysis (HMA) or a failure modes and effects analysis done by New York licensed fire protection engineer.

- UL listing and certification (Listing to UL 9540, UL 1973, UL 1741 and other pertinent UL certifications)

- Narrative that describes the BESS, modes of operation, any incorporated safety system and activation sequence

- Data sheet & cutsheets of system components

- MSDS for the chemical components within the BESS

- Installation and operational manuals

- Emergency response plan (optional)

- Establishes terms & conditions for...
  Locations • Fire Protections/Mitigations • Deflagration Protection • Spacing/Clearances • Etc.

https://www1.nyc.gov/site/fdny/business/all-certifications/certificates-of-approval.page
DOB Requirements: OTCR Battery Application Checklist

1. Project Information
2. ESS Properties & Characteristics
3. Specific Risks/Concerns
4. Construction Documents
   - Conditional Letter of Acceptance requires DOB c/e job #
5. Proposed Design Features
   - Fire Protection; Fire Suppression NFPA 13 or NFPA 15
6. Certifications & Testing
   - UL 9540 cert and UL 9540A test report for all submissions
7. System Monitoring
8. Operating Manuals
9. Additional Requirements
   - Zoning Analysis, Code Analysis, Risk Analysis

https://www1.nyc.gov/assets/buildings/pdf/OTCR_battery_app_checklist
FDNY Requirements – Outdoor Systems: Rule 3RCNY 608-01

- **Scope:** requirements and procedures for design & installation for FDNY approval; **outdoor** systems only (no UPS, emergency/backup systems)

- **Applicability:** requirements vary depending on
  - System size (kWh) – S/M/L categories
  - Battery chemistry

- Requirements outlined under:
  (c) General Provisions: permit, supervision, obligations, listing/testing standards
  (d) Installation approval (for “large” systems)
  (e) Equipment approval (COA)
  (f) Commissioning and decommissioning
  (g) General design & installation requirements
  (h) Enclosure design & installation requirements
  (i) O&M requirements
  (j) Recordkeeping requirements

### Table 1
Stationary Storage Battery System Size Thresholds

<table>
<thead>
<tr>
<th>Battery Technology</th>
<th>Aggregate Rated Energy Capacity</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Acid Battery</td>
<td>&lt;70 kWh</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Ni-Cd Battery</td>
<td>&gt;70 kWh and &lt; 500 kWh</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>NiMH Battery</td>
<td>&gt; 500 kWh</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Li-ion Battery</td>
<td>&lt;20 kWh</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>&gt; 20 kWh and &lt; 250 kWh</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>&gt; 250 kWh</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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### Table 2
Stationary Storage Battery System Compliance Requirements

<table>
<thead>
<tr>
<th>Section</th>
<th>Compliance Requirement</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>(c) General Provisions</td>
<td></td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>(c)(4) Permit</td>
<td></td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>(c)(5) Supervision (Certificate of Fitness)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>(c)(6) Obligations of Owner and Operator</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>(c)(7) Listing and Full-Scale Testing Standards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c)(7)(A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Listing</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>• Ni-Cd or NiMH Battery</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>• Li-Ion Battery</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td></td>
<td>• Flow Battery</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>(c)(7)(B)</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>• Full-Scale Testing</td>
<td>No</td>
<td>No</td>
<td>No*</td>
</tr>
<tr>
<td></td>
<td>• Lead Acid Battery</td>
<td>No</td>
<td>No</td>
<td>No*</td>
</tr>
<tr>
<td></td>
<td>• Ni-Cd Battery</td>
<td>No</td>
<td>No</td>
<td>No*</td>
</tr>
</tbody>
</table>

https://www1.nyc.gov/site/fdny/codes/fire-department-rules/fire-dept-rules.page
FDNY Requirements – Indoor Systems: 2022 NYC Fire Code Chapter 608

- Revised Chapter 608 - primarily indoor systems, including UPS, emergency/backup power.
- Applicability of requirements varies depending on system size, battery chemistry type and use. Not the same S/M/L categories as Rule.
- Many requirements established via COA. Permits required for all systems. Site-specific installation review required for projects outside of COA parameters
- Specific section on 1-2 family (Group R-3) buildings (608.15).

Enactment of the 2022 NYC Fire Code

On December 15, 2021, the New York City Council passed Intro 2430-A amending and updating the New York City Fire Code. The bill thereafter became law as Local Law No. 47 of 2022. The newly-revised code will be known as the 2022 New York City Fire Code. The 2022 Fire Code will take effect on April 15, 2022.

The Fire Code local law, Local Law No. 47 of 2022, can be viewed here:

- New York City Fire Code Local Law (PDF)

Deletions from the existing (2014) New York City Fire Code are shown by [brackets]. New text is underlined.

The 2022 New York Fire Code will be published in a convenient paperback publication version (without brackets and underlines) by the International Code Council (ICC) and will be available for purchase on the Citystore and ICC websites. The 2022 Fire Code will also posted on this website in chapter format.

https://www1.nyc.gov/site/fdny/codes/fire-code/proposed-fire-code.page

- Outlines filing and submittal requirements, approval process for DOB standard permits and OTCR special approval.
- References **OTCR Battery Application Checklist**, Required Submittal Information for OTCR approval.
- Applies to specified battery chemistry types: lithium-ion, flow batteries, lead acid, and VRLA; indoor and outdoor.

NYC Zoning

3 separate releases/adoptions:

- **Buildings Bulletin 2019-007**: non-accessory ESS
- **Buildings Bulletin 2020-023**: accessory ESS - definition of & siting allowances
- **Zoning for Coastal Flood Resilience Amendment**: incorporation of ESS into zoning text & expansion of siting allowances
Navigating the NYC Code/Regulatory/Permitting Landscape for ESS...
NYC Outdoor Lithium Ion Permitting Guide

### Construction Permit for Battery Storage Technologies

| Required Submission Documents | Electrical Permit
|--------------------------------|----------------------------------------------|
| PWS - Pre | Form 15
| PWS - Post | Equipment
| PWS - Inspect | A single inspector
| PWS - Test Progress | Note: Paperwork for special inspection

### Electrical Permit for Battery Storage Technologies

| Required Submission Documents | OTCR Approval
|--------------------------------|----------------------------------------------|
| PWS - Inspect | Site-specific note: The application (PFRA, and)
| PWS - Test Progress | All applicable agency

### DOB OTCR Process for Material Acceptance of Battery Storage Technologies

| Required Submission Documents | FDNY Application Process for ESS
|--------------------------------|----------------------------------------------|
| PWS - Test Progress | TM-2 form (Certificate of Approval for new equipment)
| PWS - Inspect | TM-2 form(s) (Application for Plan Examination)

### FDNY Application Process for ESS

| Required Submission Documents | How to Submit
|--------------------------------|----------------------------------------------|
| PWS - Test Progress | In-person application before submitting

### Timeline

- **Fee**: $600 per OTCR
- **Summary of key steps**
  1. Application
  2. Install Code, Accept
  3. Applic
  4. Inspect

### Contact

- Electrical permit

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Permitting Process Flowchart: Large/medium systems

**STEP 1:** These submissions initiate the permitting process.
- **DOB Submission**
- **Site Inspection**
- **OTCR Review**
- **Conditional Acceptance Letter**

- **FDNY Submission(s)**
- **TM Review(s)**
- **Approval Letter**

- **Con Edison Submission**
- **Plan Review**
- **CESHP Review**

**STEP 2:** These submissions occur after OTCR conditional approval. Submissions may be made in parallel. Construction may begin after the permits below are obtained.
- **Electrical Submission**
- **Electrical Permit**
- **Construction Submission**
- **Construction Permit**

**STEP 3:** These steps occur during ESS installation. Inspections may occur in parallel.
- **Utility Upgrades**
- **Con Ed Inspection**
- **Interconnection**
- **Multiple Inspections may be required - see Key Terms p. 23**
- **Construction and Electrical Perm & OTCR Final Acceptance**
- **Sign-off**
- **DOB and FDNY final approvals after installation**

**STEP 4:** These steps begin after project sign-off and continue for the life of the system.
- **Yearly Inspection**
- Projects >20kW require annual inspections from FDNY to ensure the site’s designated Certificate of fitness holder is properly trained
Smart DG Hub NYC Permitting Resources: Recent Releases

**NYC ESS Zoning Guide**
- Comprehensive summary of all ESS zoning releases
- Zoning treatment of both Accessory & Non-Accessory ESS
- Provisions applicable to rooftop and yard/open space sitings

**Site Plan Checklist**
- Pertinent to the FDNY *Installation Approval* for Large ESS
- Detailed guidance on content needed for Site Plans and associated visual aids for installation approval

**Developer Guidance Document: Emergency Management Plan**
- Outlined summary of information and details to include in the Emergency Management Plan, a required component of the permitting package for outdoor Large and Medium ESS projects

**Developer Guidance Document: Conceptual Design Meeting Prep Checklist**
- Provides a checklist of information suggested to prepare for initial meetings with AHJs
https://nysolarmap.com/resources/reports-and-guides/solarplusstorage/
Thank you!

Questions? Comments?
Contact us at SmartDGhub@cuny.edu
www.smartdghub.org

We welcome your feedback