OTCR Battery Application Checklist: Required Submittal Information

The following information is required for all Battery Energy Storage Systems (BESS) submitted to the Department of Buildings for evaluation. Please contact the Office of Technical Certification and Research (OTCR) at **OTCR@buildings.nyc.gov** **prior to submitting the required information**.

1. Project Information

- ☐ Location/Address
- ☐ Contact Information (Name, address, telephone# and email)
  - Registered Design Professional
  - Integrator or Manufacturer
  - Building Owner
- ☐ Incentive program. Provide program name and number (if applicable)
- ☐ Construction Application for Permit. Provide NYC Department of Buildings Job# (required prior to issuance of OTCR Conditional Acceptance Letter)
- ☐ Electrical Permit - Provide NYC Department of Buildings Permit# (required prior to issuance of OTCR Conditional Acceptance Letter)
- ☐ Installation conditions
  - Location/Indoor, outdoor, rooftop
  - Application/Solar PV Storage, Load shedding;
  - Energy Source/Solar array, utility supplied, etc.)
- ☐ Building Information
  - Construction classification and description of materials (steel frame, corrugated steel and concrete, etc.)
  - Occupancy Classification
  - Special flood hazard area
  - Fire district

2. ESS Properties and Characteristics

- ☐ Narratives
  - Equipment Description
  - System Description
- ☐ Battery Information
  - General Information (Make/model#; Product literature; Cabinet, rack or container)
  - Chemistry (Lithium-Ion, VRLA, etc.)
  - Physical Properties (length, height, width and weight for cells, modules, and cabinets/racks)
  - Electrical (electrical capacity in kWh)
  - Lifespan
- ☐ Inverter Information
  - Make/model#
- ☐ Electrical Interconnection

3. Specific Risks/Concerns

☐ Corrosive spills/electrolyte leakage. Does the ESS have free electrolyte? If so, provide the electrolyte volume and containment volume (cu. Yd.).

4. Construction Documents

☐ Required information. Confirm the following information is provided on construction documents:

1. Location and layout diagram of the room or area in which the ESS is to be installed (included distances to adjacent construction, nearby equipment, egress features, FDNY access to site, dunnage (if applicable), security features such as fencing, bollards, etc.)
2. Details on the hourly fire-resistance ratings of assemblies enclosing the ESS.
3. The quantities and types of ESS to be installed.
4. Manufacturer's specifications, ratings and listings of each ESS.
5. Description of energy (battery) management systems and their operation.
6. Location and content of required signage.
7. Details on fire suppression, smoke or fire detection, thermal management, ventilation, exhaust and deflagration venting systems, if provided.
8. Support arrangement associated with the installation, including any required seismic restraint.

☐ Provide the following plans:

- General Notes
- Site
- Architectural
- Fire suppression
- Electrical (provide single line diagram of the BESS including connection to renewal energy system and premises' electrical system)
- Structural

5. Proposed Design Features

☐ Fire separation (provide hourly rating for indoor installations)

☐ Rooftop construction (Confirm minimum Class B per BC 1505, identify roofing material)

☐ Fire suppression (NFPA 13 or NFPA 15 for outdoor Li-Ion installations)

☐ Venting (confirm room complies with MC 502.4 (rooms) and MC 502.5 (cabinet enclosures) where applicable)

☐ Structural (Confirm dunnage complies with BC Chapter 16 and Chapter 22, Confirm concrete pad complies with BC Chapter 16 and 19)

☐ Electrical (Confirm compliance with 2011 NYC Electrical Code)

☐ Fire Protection (Indicate if automatic fire alarm is provided, indicate if central station monitoring is provided)

☐ Peer review (Indicate if peer review is suggested)

☐ Storage of hazardous material report. For storage systems with hazardous materials, a copy of the report filed in accordance with BC 414.1.3 shall be provided.

6. Certification and Testing

☐ BESS

- UL 9540. Provide copy of listing and web link from certification database.
- UL 9540A Testing. Provide a copy of the report.

7. System Monitoring

☐ Report if 24/7 remote monitoring is provided. Provide identification for service provider and submit monitoring contract.

☐ Battery management system (BMS). Literature must detail communication protocols, auxiliary outputs (for controlling/signaling output), auxiliary inputs (for fire alarm connection/emergency power off), capability of disconnecting individual battery/string of batteries under emergency shutdown, 24/7 remote monitoring for early warning.

8. Operating Manuals

☐ Incident Training Manual including

- Material Safety Data Sheet (MSDS), Safety Data Sheet (SDS)
- Employee hazardous material training document
- Emergency shutdown procedures
- Emergency first-aid requirements
- Emergency Response Plan
- Operation and training program and manual
- Safety and Handling Guidelines
- Safety and Warning Signage

☐ Maintenance plan including

- Details for replacement
- Compatibility of replacement parts

☐ Recycling plan including

- Recycling details
- Decommissioning plan

9. Additional Requirements

☐ Zoning Analysis prepared by NYS PE/RA. For outdoor installations, including rooftop. Must submit for plan review. Submit DOB-approved Zoning Analysis prior to permit.

☐ Code Analysis (prepared and signed by NYS PE/RA). A code analysis shall be presented in tabular format. Supporting documentation shall be provided to substantiate the analysis. This analysis should include, but not be limited to comparison of requirements for standby power, emergency power or uninterrupted power supplies and hazardous classifications.

- MC 502.4 & MC 502.5 (Exhaust Requirements)
- BC 509 (Separation of incidental use areas)

- BC 903 (Automatic sprinkler detection)
- BC 904 (Alternative automatic fire-extinguishing systems)
- BC 907. 2 (Fire alarm and detection systems)
- FC 608 (Requirements for battery storage systems)
- BC 307 (High-hazard Group H occupancy)

☐ Risk Analysis (prepared and signed by NYS PE). The Risk Analysis shall include a tabulated summary of hazards as indicated below and detailed mitigation measures used to lower the severity level of the hazard. The analysis shall include the following:

- Identification of Hazards. A table shall be provided that identifies Hazard Modes as it pertains to the battery technology proposed and shall include, but not limited to, the following:
  - Electrical; External Short-Circuit, Internal Cell Fault, Abnormal Charge, Overcharge, Over-Discharge, Soft Short
  - Thermal; External and Internal Fire, Elevated Temperature, Energetic Failures (Thermal Runaway), Thermal Abuse
  - Mechanical; Crush, Nail Intrusion, Shock, Drop, Poor Cell Design, Vibration
  - System; Contactors Fail Closed, Loss of HV Continuity, Chassis Fault, BMS Fault
- Severity Levels of Hazards (EUAR).
- Likelihood Levels
- Hazard Modes and Risk Mitigation Analysis
- Battery Safety Gap Analysis

The Risk Analysis shall be prepared in accordance with ISO.IEC 31010 *Risk Management − Risk Assessment Techniques*. The Risk Analysis is prepared on a site-specific basis.