FIELD INSPECTION REFERENCE – 2017 NEC

Energy Storage

The field inspection resource is used by Energy Storage's third-party QA Contractor to evaluate the quality of the battery installation. Participating contractors are encouraged to reference this resource throughout the installation process for each project to ensure compliance with the Energy Storage Program rules and requirements.

		Requirement	Defect Category	Code Reference
Overall Observations	Program	Program compliant means is present for customer to verify system electricity generation.	Minor	Energy Storage System Program
		As built system capacity must match the submitted and approved plan.	Incidental	Energy Storage System Program
		As built system capacity must match the submitted and approved plan.	Incidental	Energy Storage System Program
		Existing Service Panel is not a split bus (FPE Stab-Lok, Push-O-Matic etc.,).	Critical	Energy Storage System Program
		All Material and equipment must be new and undamaged, per NY Sun program requirements.	Major	Energy Storage System Program
		Installed Battery manufacturer shall match Program records.	Incidental	Energy Storage System Program
		Installed Battery model number shall match Program records.	Incidental	Energy Storage System Program
		Installed Battery quantity shall match Program records.	Incidental	Energy Storage System Program
		As per Program requirements, any roof damage must be repaired prior to installation.	Minor	Energy Storage System Program
		Site address must match site address submitted.	Critical	Energy Storage System Program
		Current Transformers are installed and meet Program requirements.	Major	Energy Storage System Program
		Energy Storage System Discharge Test is required.	Major	Energy Storage System Program
		Battery storage system includes a manual (system description, operating and safety instructions, maintenance requirements, safe battery handling requirements and recommendations).	Minor	Energy Storage System Program

		Requirement	Defect Category	Code Reference
AC Combiner	Conductors	Conductor insulation type is properly rated for temperature and environmental conditions.	Major	NEC Articles 300.9, 310.10, 310.15(A)(3) and 334.12(B)(4)
		AC Combiner circuit conductors are properly sized for expected current load.	Critical	NEC Article 310.15
		Grounded (neutral) conductor is properly identified.	Incidental	NEC Article 200.6(A)&(B)
		Ungrounded conductor properly identified.	Incidental	NEC Article 200.7
		Grounded conductor(s) are insulated from metal enclosure surfaces and the ground terminal inside combiner box.	Major	[NEC Article 250.24(A)(5)]
		Wire cannot be bent at a tighter radius than 5x the diameter of the conductor.	Minor	NEC Article 338.24
		Single conductor(s) connected correctly to the terminal or lug in accordance with its listing.	Minor	NEC Article 110.3(B) and 110.12
		Conductors entering boxes, conduit bodies, or fittings shall be protected from abrasion.	Minor	NEC Article 314.17
		In exposed work, conductors are protected from physical damage.	Major	NEC Article 334.15(B)
		The length of the free conductors within the enclosure shall meet or exceed 6" requirement.	Minor	NEC Article 300.14
		The neutral conductor is connected at its own dedicated terminal isolated from metal enclosure.	Minor	NEC Article 408.41
		Conductors are properly sized for rated terminals.	Minor	NEC Article 110.3(B)
	Conduit	Conduit fittings and connectors are designed and listed for this use.	Minor	NEC Articles 110.3(B), 300.15 and (LFMC-350.6, PVC-352.6, LFNC-356.6, EMT-358.6)
		AC conduit is adequately supported.	Minor	NEC Articles (LFMC-350.30, PVC-352.30, EMT-358.30, Metal Trough-376.30)
		Conduit below grade is installed with provisions for movement.	Minor	NEC Article 300.5(J)
		Conduit penetrations internally sealed to prevent condensation between conditioned and unconditioned environment.	Incidental	NEC Article 300.7(A)
		Conduit thermal expansion fitting is properly installed to allow for movement.	Minor	NEC Articles 300.7(B), 352.44 and tables 352.44 and 355.44
		The conduit is grounded (when required).	Major	NEC Articles 250.4(A)(3)
		Conduit does not meet the conditions to be used as conductor support.	Incidental	NEC Article 300.11(C)
	Electrical	AC Combiner is suitable for environment.	Major	NEC Articles 314.15 and 110.3(B)
		Dissimilar metals must not be in contact and prevented from undergoing galvanic reaction.	Minor	NEC Article 110.14 (for conductors/ splice components), NEC Article 344.14 (for RMC) and NEC Article 358.14 (for EMT) for conduit and surrounding materials
		Equipment must be installed in accordance with it's listing and manufacturers instructions.	Minor	NEC Article 110.3(B)
		Equipment must be sufficiently rated for expected voltage and/or current.	Critical	NEC Article 110.3(B)
		Unused openings of electrical equipment shall be properly sealed.	Minor	NEC Articles 110.12(A) or 408.7

		Requirement	Defect Category	Code Reference
AC Combiner (continued)	Grounding	Where operating voltage is 250V or greater and enclosure knockouts are not listed to carry fault current, metallic conduit is properly bonded to maintain electrical continuity around eccentric and concentric knockouts.	Major	NEC Articles 250.4(A)(5) and 250.64(E). Ground fault path cannot include eccentric or concentric knockouts, per NEC Article 250.97
		Grounded conductor(s) terminal lug is properly installed.	Major	NEC Articles 110.3(B) and 250.4
		Grounding electrode conductor is continuous.	Major	NEC Article 250.64(C)
		Grounding electrode conductor is sufficiently sized.	Major	NEC Articles 250.66 and 250.166
		AC Combiner is properly grounded.	Major	NEC Articles 250.4, 250.8 and 250.12
	Labeling	The sum of the ampere ratings of all overcurrent devices on panel boards, both load and supply devices, excluding the rating of the overcurrent device protecting the busbar, shall not exceed the ampacity of the busbar. The rating of the overcurrent device protecting the busbar shall not exceed the rating of the busbar. Permanent warning labels shall be applied to distribution equipment.	Incidental	[NEC Articles 110.21(B) and 705.12(B)(2)(3)(c)]
		Every circuit and circuit modification shall be legibly identified as to it's clear, evident and specific purpose or use. The identification shall include an approved degree of detail that allows each circuit to be distinguished from all others.	Incidental	NEC Articles 110.21(B) and 408.4(A)
		The manufacturers name, trademark or other descriptive markings must be visible on all electrical equipment and, where required by the code, markings such as voltage, current, wattage or other ratings must be provided. All markings must have sufficient durability to withstand the environment involved.	Incidental	NEC Article 110.21
	OCPD	AC Combiner Overcurrent protection is sufficient.	Critical	NEC Article 240.4
		Energy Storage System Backfed breaker is properly sized at, or above 125% of inverter output current	Major	NEC Article 240.4
		Circuit Breaker shall be installed and used in accordance with any instruction included in the listing or labeling.	Major	NEC Article 110.3(B)
	Structural	Equipment shall be firmly secured to the surface on which it is mounted and used in accordance with any instruction included in the listing or labeling.	Major	NEC Articles 110.3(B), 110.12 and 110.13(A)
		Combiner box is installed with the appropriate clearances.	Minor	NEC Articles 110.26 and NEC 110.27(A)

		Requirement	Defect Category	Code Reference
AC Disconnect	Conductors	Conductor insulation type is properly rated for temperature and environmental conditions.	Major	NEC Articles 300.9, 310.10, 310.15(A)(3) and 334.12(B)(4)
		ESS AC output conductors are appropriately sized for expected current load.	Critical	NEC Article 310.15
		Grounded (neutral) conductor is properly identified.	Incidental	NEC Article 200.6(A)&(B)
		Ungrounded conductor properly identified.	Incidental	NEC Article 200.7
		Grounded conductors are isolated from enclosure and ground terminal.	Major	NEC Article 250.24(A)(5)
		Wire cannot be bent at a tighter radius than 5x the diameter of the conductor.	Minor	NEC Article 338.24
		Single conductor(s) connected correctly to the terminal or lug in accordance with its listing.	Minor	NEC Article 110.3(B) and 110.12
		Conductors entering boxes, conduit bodies, or fittings shall be protected from abrasion.	Minor	NEC Article 314.17
		All conductors of the same circuit shall be contained within the same raceway.	Minor	NEC Article 300.3(B)
		In exposed work, conductors are protected from physical damage.	Major	NEC Article 334.15(B)
		The length of the free conductors within the enclosure shall meet or exceed 6" requirement.	Minor	NEC Article 300.14
		The neutral conductor is connected at its own dedicated terminal insulated from metal enclosure.	Minor	NEC Article 408.41
		Conductors are properly sized for rated terminals.	Minor	NEC Article 110.3(B)
	Conduit	Conduit fittings and connectors are designed and listed for this use.	Minor	NEC Articles 110.3(B), 300.15 and (LFMC-350.6, PVC-352.6, LFNC-356.6, EMT-358.6)
		Circuit conduit or raceway is properly supported and secured.	Minor	NEC Articles (LFMC-350.30, PVC-352.30, EMT-358.30, Metal Trough-376.30)
		Conduit below grade is installed with provisions for movement.	Minor	NEC Article 300.5(J)
		Conduit penetrations internally sealed to prevent condensation between conditioned and unconditioned environment	Incidental	NEC Article 300.7(A)
		Conduit thermal expansion fitting is properly installed to allow for movement.	Minor	NEC Articles 300.7(B), 352.44 and tables 352.44 and 355.44
		The conduit is grounded (when required).	Major	NEC Article 250.4(A)(3)
		Conduit does not meet the conditions to be used as conductor support.	Incidental	NEC Article 300.11(C)
		The service entrance Flexible Metal Conduit (FMC) or Liquid tight Flexible Metal Conduit (LFMC) shall not exceed 6 feet.	Minor	NEC Article 230.43(15)

		Requirement	Defect Category	Code Reference
AC Disconnect (continued)	Electrical	AC Disconnect enclosure is suitable for environment.	Major	NEC Articles 314.15 and 110.3(B)
		Disconnect terminals are properly wired.	Minor	NEC Article 110.3(B), (and 240.40 if fusible)
		Dissimilar metals must not be in contact and prevented from undergoing galvanic reaction.	Minor	NEC Article 110.14 (for conductors/ splice components), NEC Article 344.14 (for RMC) and NEC Article 358.14 (for EMT) for conduit and surrounding materials
		Equipment must be installed in accordance with it's listing and manufacturers instructions.	Minor	NEC Article 110.3(B)
		AC Disconnect is properly rated for expected current load.	Critical	NEC Articles 110.3(B), 705.60 (125% of the inverter output) and 705.65(OCP), 706.7 and 706.21
		Unused openings of electrical equipment shall be properly sealed.	Minor	NEC Articles 110.12(A) or 408.7
		A disconnecting means shall be provided for all ungrounded conductors derived from an energy storage system.	Major	NEC Articles 706.7(A)
		Service disconnect is properly rated for the application.	Major	NEC Article 230.79(D)
		Service Disconnects are properly grouped.	Minor	NEC Article 230.72
	Grounding	Where operating voltage is 250V or greater and enclosure knockouts are not listed to carry fault current, metallic conduit is properly bonded to maintain electrical continuity around eccentric and concentric knockouts.	Major	NEC Articles 250.4(A)(5) and 250.64(E). Ground fault path cannot include eccentric or concentric knockouts, per NEC Article 250.97
		Grounded conductor(s) terminal lug is properly installed.	Major	NEC Articles 110.3(B) and 250.4
		Grounding electrode conductor must be continuous.	Major	NEC Article 250.64(C)
		Grounding electrode conductor is properly bonded to the main premises grounding electrode system.	Major	NEC Article 250.64
		Grounding electrode conductor is sufficiently sized.	Major	NEC Articles 250.66, and 250.166
		AC Disconnect is grounded.	Major	NEC Articles 250.4, 250.8 and 250.12
		Equipment grounding conductor is properly sized.	Major	NEC Article 250.122
	Labeling	A permanent plaque or directory denoting all electric power sources on or in the premises shall be installed at each service equipment location and at locations of all electric power production sources capable of being interconnected. Exception: Installations with large numbers of power production sources shall be permitted to be designated by groups. (B) Facilities with Stand-Alone Systems. Any structure or building with an ESS that is not connected to a utility service source and is a stand-alone system shall have a permanent plaque or directory installed on the exterior of the building or structure at a readily visible location acceptable to the authority having jurisdiction. The plaque or directory shall indicate the location of system disconnecting means and that the structure contains a stand-alone electrical power system.	Incidental	NEC Article 110.21(B) and 706.11

		Requirement	Defect Category	Code Reference
AC Disconnect (continued)	OCPD	Conductors shall be protected against overcurrent in accordance with their ampacity.	Critical	NEC Article 240.4 and 706.21(B)
		The AC OCPD is properly sized for the expected output current of the ESS system.	Major	NEC Article 706.21(B)
		Fused AC Disconnect shall be installed and used in accordance with any instruction included in the listing or labeling and Fuses are present.	Major	NEC Article 110.3(B)
		No overcurrent device shall be connected in series with any conductor that is intentionally grounded.	Major	NEC Article 240.22
		Fuses are present and installed in accordance with any instruction included in the listing or labeling.	Major	NEC Article 110.3(B)
		Equipment intended to interrupt current at fault levels shall have an interrupting rating sufficient for the current that is available at the line terminals of the equipment.	Major	NEC Articles 110.9, 110.10 and 230.82
		The service overcurrent device shall be an integral part of the service disconnecting means or shall be located immediately adjacent.	Critical	NEC Articles 230.91 and/ or 110.3(B)
	Structural	AC disconnect is installed in accordance with its listing and installation instructions.	Major	NEC Articles 110.3(B), 110.12 and 110.13(A)
		AC Disconnect is installed with the appropriate clearances and protection measures.	Minor	NEC Articles 110.26 and NEC 110.27(A)

		Requirement	Defect Category	Code Reference
DC Combiner	Conductors	Conductor insulation type is properly rated for temperature and environmental conditions.	Major	NEC Articles 300.9, 310.10, 310.15(A)(3) and 334.12(B)(4)
		DC Combiner splice components are rated for environment.	Major	NEC Articles 110.3(B), 110.11, and 110.14
		DC Combiner splices and connections are secure and of high integrity.	Major	NEC Article 110.14
		DC conductors are sized properly.	Critical	NEC Article 310.15
		Ungrounded conductor properly identified.	Incidental	NEC Article 200.7
		Wire cannot be bent at a tighter radius than 5x the diameter of the conductor.	Minor	NEC Article 338.24
		Single conductor(s) connected correctly to the terminal or lug in accordance with its listing.	Minor	NEC Article 110.3(B) and 110.12
		Conductors entering boxes, conduit bodies, or fittings shall be protected from abrasion.	Minor	NEC Article 314.17
		The length of the free conductors within the enclosure shall meet or exceed 6" requirement.	Minor	NEC Article 300.14
		Conductors are properly sized for rated terminals.	Minor	NEC Article 110.3(B)
	Conduit	Conduit fittings and connectors are designed and listed for this use.	Minor	NEC Articles 110.3(B), 300.15 and (LFMC-350.6, PVC-352.6, LFNC-356.6, EMT-358.6)
		Circuit conduit or raceway is properly supported and secured.	Minor	NEC Articles (LFMC-350.30, PVC-352.30, EMT-358.30, Metal Trough-376.30)
		Conduit below grade is installed with provisions for movement.	Minor	NEC Article 300.5(J)
		Conduit penetrations internally sealed to prevent condensation between conditioned and unconditioned environment.	Incidental	NEC Article 300.7(A)
		Conduit thermal expansion fitting is properly installed to allow for movement.	Minor	NEC Articles 300.7(B), 352.44 and tables 352.44 and 355.44
		The conduit is grounded (when required).	Major	NEC Article 250.4(A)(3)
		Conduit does not meet the conditions to be used as conductor support.	Incidental	NEC Article 300.11(C)
	Electrical	Combiner box is suitable for environment.	Major	NEC Articles 314.15 and 110.3(B)
		Dissimilar metals must not be in contact and prevented from undergoing galvanic reaction.	Minor	NEC Article 110.14 (for conductors/ splice components), NEC Article 344.14 (for RMC) and NEC Article 358.14 (for EMT) for conduit and surrounding materials
		Equipment must be installed in accordance with it's listing and manufacturers instructions.	Minor	NEC Article 110.3(B)
		Enclosure rating is sufficient for expected current load in accordance with its listing.	Critical	NEC Article 110.3(B)
		DC Combiner is properly identified and listed.	Major	NEC Articles 110.3(B)
		Unused openings of electrical equipment shall be properly sealed.	Minor	NEC Articles 110.12(A) or 408.7

		Requirement	Defect Category	Code Reference
DC Combiner (continued)	Grounding	Where not routed with circuit conductors, equipment grounding conductors smaller than 6AWG shall be protected from physical damage.	Minor	NEC Article 250.120(C)
		Equipment grounding conductor is identified as bare, green, or green with continuous yellow stripe(s).	Incidental	NEC Article 250.119
		Where operating voltage is 250V or greater and enclosure knockouts are not listed to carry fault current, metallic conduit is properly bonded to maintain electrical continuity around eccentric and concentric knockouts.	Major	NEC Articles 250.4(A)(5) and 250.64(E). Ground fault path cannot include eccentric or concentric knockouts, per NEC Article 250.97
		Grounded conductor(s) terminal lug is properly installed.	Major	NEC Articles 110.3(B) and 250.4
		DC Combiner box is grounded.	Major	NEC Articles 250.4, 250.8 and 250.12
		Equipment grounding conductor is properly sized.	Major	NEC Article 250.122
	Labeling	The manufacturers name, trademark or other descriptive markings must be visible on all electrical equipment and, where required by the code, markings such as voltage, current, wattage or other ratings must be provided. All markings must have sufficient durability to withstand the environment involved.	Incidental	NEC Article 110.21
	OCPD	Overcurrent devices used in any DC portion of the ESS shall have the appropriate voltage, current and interrupt ratings.	Major	[NEC Article 706.21(C)]
		No overcurrent device shall be connected in series with any conductor that is intentionally grounded.	Major	NEC Article 240.22
		Energy storage system circuit conductors shall be protected.	Critical	NEC Article 706.21(A)
	Structural	Combiner box is properly secured in place.	Major	NEC Articles 110.3(B), 110.12 and 110.13(A)
		Combiner box is installed with the appropriate clearances.	Minor	NEC Articles 110.26 and NEC 110.27(A)

		Requirement	Defect Category	Code Reference
DC Disconnect	Conductors	Conductor insulation type is properly rated for temperature and environmental conditions.	Major	NEC Articles 300.9, 310.10, 310.15(A)(3) and 334.12(B)(4)
		DC circuit conductors are properly sized for expected current load.	Critical	NEC Article 310.15
		Ungrounded conductor properly identified.	Incidental	NEC Article 200.7
		Wire cannot be bent at a tighter radius than 5x the diameter of the conductor.	Minor	NEC Article 338.24
		Single conductor(s) connected correctly to the terminal or lug in accordance with its listing.	Minor	NEC Article 110.3(B) and 110.12
		Conductors entering boxes, conduit bodies, or fittings shall be protected from abrasion.	Minor	NEC Article 314.17
		All conductors of the same circuit shall be contained within the same raceway.	Minor	NEC Article 300.3(B)
		The length of the free conductors within the enclosure shall meet or exceed 6" requirement.	Minor	NEC Article 300.14
		Conductors are properly sized for rated terminals.	Minor	NEC Article 110.3(B)
	Conduit	Conduit fittings and connectors are designed and listed for this use.	Minor	NEC Articles 110.3(B), 300.15 and (LFMC-350.6, PVC-352.6, LFNC-356.6, EMT-358.6)
		Circuit conduit or raceway is properly supported and secured.	Minor	NEC Articles (LFMC-350.30, PVC-352.30, EMT-358.30, Metal Trough-376.30)
		Conduit below grade is installed with provisions for movement.	Minor	NEC Article 300.5(J)
		Conduit penetrations internally sealed to prevent condensation between conditioned and unconditioned environment.	Incidental	NEC Article 300.7(A)
		Conduit thermal expansion fitting is properly installed to allow for movement.	Minor	NEC Articles 300.7(B), 352.44 and tables 352.44 and 355.44
		The conduit is grounded (when required).	Major	NEC Article 250.4(A)(3)
		Conduit does not meet the conditions to be used as conductor support.	Incidental	NEC Article 300.11(C)
	Electrical	DC Disconnect enclosure is suitable for environment.	Major	NEC Articles 314.15 and 110.3(B)
		Disconnect is properly wired to ensure that fuses can be de-energized for service.	Minor	NEC Article 110.3(B) (and 240.40 if fusible)
		Dissimilar metals must not be in contact and prevented from undergoing galvanic reaction.	Minor	NEC Article 110.14 (for conductors/ splice components), NEC Article 344.14 (for RMC) and NEC Article 358.14 (for EMT) for conduit and surrounding materials
		Equipment must be installed in accordance with it's listing and manufacturers instructions.	Minor	NEC Article 110.3(B)
		Equipment must be sufficiently rated for expected voltage and/or current.	Critical	NEC Article 110.3(B)
		Disconnect is listed for DC use.	Critical	NEC Article 110.3(B)
		Unused openings of electrical equipment shall be properly sealed.	Minor	NEC Articles 110.12(A) or 408.7
		A disconnecting means shall be provided for all ungrounded conductors derived from an Energy Storage System.	Major	NEC Articles 706.7(A)

		Requirement	Defect Category	Code Reference
DC Disconnect (continued)	Grounding	Where not routed with circuit conductors, equipment grounding conductors smaller than 6AWG shall be protected from physical damage.	Minor	NEC Article 250.120(C)
		Equipment grounding conductor is identified as bare, green, or green with continuous yellow stripe(s).	Incidental	NEC Article 250.119
		Where operating voltage is 250V or greater and enclosure knockouts are not listed to carry fault current, metallic conduit is properly bonded to maintain electrical continuity around eccentric and concentric knockouts.	Major	NEC Articles 250.4(A)(5) and 250.64(E). Ground fault path cannot include eccentric or concentric knockouts, per NEC Article 250.97
		Grounded conductor(s) terminal lug is properly installed.	Major	NEC Articles 110.3(B) and 250.4
		DC Disconnect is properly grounded.	Major	NEC Articles 250.4, 250.8 and 250.12
		Equipment grounding conductor is properly sized.	Major	NEC Article 250.122
	Labeling	A directory is required at each dc PV system disconnecting means, ac disconnecting means for mini- and micro-inverters, and service disconnecting means showing the location of all dc and ac PV system disconnecting means in the building/ structure.	Incidental	NEC Article 110.21(B) and 705.10
		The manufacturers name, trademark or other descriptive markings must be visible on all electrical equipment and, where required by the code, markings such as voltage, current, wattage or other ratings must be provided. All markings must have sufficient durability to withstand the environment involved.	Incidental	NEC Article 110.21
	OCPD	Disconnect is rated for nominal voltage and current.	Critical	NEC Article 110.3(B)
		Disconnect fuses are DC rated and properly sized for system voltage.	Critical	NEC Article 110.3(B)
	Structural	Disconnect is properly secured in place.	Major	NEC Articles 110.3(B), 110.12 and 110.13(A)
		Disconnect is installed with the appropriate clearances.	Minor	NEC Articles 110.26 and NEC 110.27(A)

		Requirement	Defect Category	Code Reference
Feeder Tap Connection	Conductors	Conductor insulation type is properly rated for temperature and environmental conditions.	Major	NEC Articles 300.9, 310.10, 310.15(A)(3) and 334.12(B)(4)
		Feeder conductors are properly sized for expected current load.	Critical	NEC Article 310.15
		Grounded (neutral) conductor is properly identified.	Incidental	NEC Article 200.6(A)&(B)
		Conductors are properly spliced.	Major	NEC Articles 110.3(B) and 110.14
		Ungrounded conductor(s) are properly identified.	Incidental	NEC Article 200.7
		Wire cannot be bent at a tighter radius than 5x the diameter of the conductor.	Minor	NEC Article 338.24
		Single conductor(s) connected correctly to the terminal or lug in accordance with its listing.	Minor	NEC Article 110.3(B) and 110.12
		Conductors entering boxes, conduit bodies, or fittings shall be protected from abrasion.	Minor	NEC Article 314.17
		All conductors of the same circuit shall be contained within the same raceway.	Minor	NEC Article 300.3(B)
		In exposed work, conductors are protected from physical damage.	Major	NEC Article 334.15(B)
		Conductors are properly sized for rated terminals.	Minor	NEC Article 110.3(B)
	Conduit	Conduit fittings and connectors are designed and listed for this use.	Minor	NEC Articles 110.3(B), 300.15 and (LFMC-350.6, PVC-352.6, LFNC-356.6, EMT-358.6)
		AC conduit is adequately supported.	Minor	NEC Articles (LFMC-350.30, PVC-352.30, EMT-358.30, Metal Trough-376.30)
		Conduit below grade is installed with provisions for movement.	Minor	NEC Article 300.5(J)
		Conduit penetrations internally sealed to prevent condensation between conditioned and unconditioned environment.	Incidental	NEC Article 300.7(A)
		Conduit thermal expansion fitting is properly installed to allow for movement.	Minor	NEC Articles 300.7(B), 352.44 and tables 352.44 and 355.44
		The conduit is grounded (when required).	Major	NEC Article 250.4(A)(3)
		Conduit does not meet the conditions to be used as conductor support.	Incidental	NEC Article 300.11(C)
		The service entrance Flexible Metal Conduit (FMC) or Liquid tight Flexible Metal Conduit (LFMC) shall not exceed 6 feet.	Minor	NEC Article 230.43(15)
	Electrical	Boxes, conduit bodies and fittings installed in wet locations shall be listed for use in wet locations.	Major	NEC Articles 314.15 and 110.3(B)
		Disconnect is properly wired to ensure that fuses can be de-energized for service.	Minor	NEC Article 110.3(B) (and 240.40 if fusible)
		Dissimilar metals must not be in contact and prevented from undergoing galvanic reaction.	Minor	NEC Article 110.14 (for conductors/ splice components), NEC Article 344.14 (for RMC) and NEC Article 358.14 (for EMT) for conduit and surrounding materials
		Equipment must be installed in accordance with it's listing and manufacturers instructions.	Minor	NEC Article 110.3(B)
		Equipment must be sufficiently rated for expected voltage and/or current.	Critical	NEC Article 110.3(B)
		Unused openings of electrical equipment shall be properly sealed.	Minor	NEC Articles 110.12(A) or 408.7

		Requirement	Defect Category	Code Reference
Feeder Tap Connection (contiued)	Grounding	Grounded conductor(s) terminal lug is properly installed.	Major	NEC Articles 110.3(B) and 250.4
		Grounding electrode conductor is properly bonded to the main premises grounding electrode system.	Major	NEC Article 250.64
		Grounding electrode conductor is present and sufficiently sized.	Major	NEC Articles 250.66, and 250.166
		Enclosure is properly grounded.	Major	NEC Articles 250.4, 250.8 and 250.12
		When a metal water pipe is used as a grounding electrode, there must be a ground jumper present across water meter/filter.	Major	NEC Article 250.53(D)(1)
		The ground rod (electrode) is protected from physical damage or is below/flush with the ground (8ft in contact with the soil).	Minor	NEC Article 250.53(G)
		A metal underground water pipe shall be supplemented by an additional electrode.	Major	NEC Article 250.53(D)(2)
		Water pipe electrode supplemented by other electrode.	Major	NEC Article 250.53(D)(2)
	Labeling	A directory is required at each dc PV system disconnecting means, ac disconnecting means for mini- and micro-inverters, and service disconnecting means showing the location of all dc and ac PV system disconnecting means in the building/ structure.	Incidental	NEC Article 110.21(B) and 705.10
		The manufacturers name, trademark or other descriptive markings must be visible on all electrical equipment and, where required by the code, markings such as voltage, current, wattage or other ratings must be provided. All markings must have sufficient durability to withstand the environment involved.	Incidental	NEC Article 110.21
	Structural	Feeder connection is installed with the appropriate clearances.	Minor	NEC Articles 110.26 and NEC 110.27(A)

		Requirement	Defect Category	Code Reference
Junction Box	Conductors	Conductor insulation type is properly rated for temperature and environmental conditions.	Major	NEC Articles 300.9, 310.10, 310.15(A)(3) and 334.12(B)(4)
		Junction Box circuit conductors are properly sized for expected current load.	Critical	NEC Article 310.15
		Junction Box splice components are rated for environment.	Major	NEC Articles 110.3(B), 110.11, and 110.14
		Junction Box splices and connections are secure and of high integrity.	Major	NEC Article 110.14
		Grounded (neutral) conductor is properly identified.	Incidental	NEC Article 200.6(A)&(B)
		Ungrounded conductor properly identified.	Incidental	NEC Article 200.7
		Grounded conductor(s) are insulated from metal enclosure surfaces and the ground terminal inside Junction Box.	Minor	[NEC Article 250.24(A)(5)]
		Circuit conductors are properly supported and protected.	Minor	NEC Article 334.30
		Wire cannot be bent at a tighter radius than 5x the diameter of the conductor.	Minor	NEC Article 338.24
		Conductors entering boxes, conduit bodies, or fittings shall be protected from abrasion.	Minor	NEC Article 314.17
		In exposed work, conductors are protected from physical damage.	Major	NEC Article 334.15(B)
		The length of the free conductors within the enclosure shall meet or exceed 6" requirement.	Minor	NEC Article 300.14
	Conduit	Conduit fittings and connectors are designed and listed for this use.	Minor	NEC Articles 110.3(B), 300.15 and (LFMC-350.6, PVC-352.6, LFNC-356.6, EMT-358.6)
		Conduit is adequately supported.	Minor	NEC Articles (LFMC-350.30, PVC-352.30, EMT-358.30, Metal Trough-376.30)
		Conduit below grade is installed with provisions for movement.	Minor	NEC Article 300.5(J)
		Conduit penetrations internally sealed to prevent condensation between conditioned and unconditioned environment.	Incidental	NEC Article 300.7(A)
		Conduit thermal expansion fitting is properly installed to allow for movement.	Minor	NEC Articles 300.7(B), 352.44 and tables 352.44 and 355.44
		The conduit is grounded (when required).	Major	NEC Article 250.4(A)(3)
		Conduit does not meet the conditions to be used as conductor support.	Incidental	NEC Article 300.11(C)
	Electrical	Junction Box is suitable for environment.	Major	NEC Articles 314.15 and 110.3(B)
		Dissimilar metals must not be in contact and prevented from undergoing galvanic reaction.	Minor	NEC Article 110.14 (for conductors/ splice components), NEC Article 344.14 (for RMC) and NEC Article 358.14 (for EMT) for conduit and surrounding materials
		Junction Box is properly identified and listed.	Major	NEC Articles 110.3(B)
		Unused openings of electrical equipment shall be properly sealed.	Minor	NEC Articles 110.12(A) or 408.7

		Requirement	Defect Category	Code Reference
Junction Box (continued)	Grounding	Where not routed with circuit conductors, equipment grounding conductors smaller than #6 AWG shall be protected from physical damage.	Minor	NEC Article 250.120(C)
		Grounded conductor(s) terminal lug is properly installed.	Major	NEC Articles 110.3(B) and 250.4
		Listed means used to ground enclosure.	Major	NEC Articles 250.4, 250.8 and 250.12
		Equipment grounding conductor is properly sized.	Major	NEC Article 250.122
	Labeling	The manufacturers name, trademark or other descriptive markings must be visible on all electrical equipment and, where required by the code, markings such as voltage, current, wattage or other ratings must be provided. All markings must have sufficient durability to withstand the environment involved.	Incidental	NEC Article 110.21
	Structural	Equipment shall be firmly secured to the surface on which it is mounted and used in accordance with any instruction included in the listing or labeling.	Major	NEC Articles 110.3(B), 110.12 and 110.13(A)
		Junction Box is installed with the appropriate clearances.	Minor	NEC Articles 110.26 and NEC 110.27(A)
		Roof penetrations are properly sealed and flashed.	Major	NYS Uniform Building Code and NEC Article 110.3(B)

		Requirement	Defect Category	Code Reference
Load Side Connection	Conductors	Conductor insulation type is properly rated for temperature and environmental conditions.	Major	NEC Articles 300.9, 310.10, 310.15(A)(3) and 334.12(B)(4)
		Conductors are appropriately sized for expected current load.	Critical	NEC Article 310.15
		Grounded (neutral) conductor is properly identified.	Incidental	NEC Article 200.6(A)&(B)
		Ungrounded conductor(s) are properly identified.	Incidental	NEC Article 200.7
		The Neutral (grounded conductor(s)) shall be routed with the ungrounded conductors to each service disconnecting means and shall be connected to each disconnecting means grounded conductor(s) terminal or bus.	Major	NEC Article 300.20
		Wire cannot be bent at a tighter radius than 5x the diameter of the conductor.	Minor	NEC Article 338.24
		Single conductor(s) connected correctly to the terminal or lug in accordance with its listing.	Minor	NEC Article 110.3(B) and 110.12
		Conductors entering boxes, conduit bodies, or fittings shall be protected from abrasion.	Minor	NEC Article 314.17
		All conductors of the same circuit shall be contained within the same raceway.	Minor	NEC Article 300.3(B)
		In exposed work, conductors are protected from physical damage.	Major	NEC Article 334.15(B)
		The neutral conductor is connected at its own dedicated terminal insulated from metal enclosure.	Minor	NEC Article 408.41
		Conductors are properly sized for rated terminals.	Minor	NEC Article 110.3(B)
	Conduit	Conduit fittings and connectors are designed and listed for this use.	Minor	NEC Articles 110.3(B), 300.15 and (LFMC-350.6, PVC-352.6, LFNC-356.6, EMT-358.6)
		Circuit conduit or raceway is properly supported and secured.	Minor	NEC Articles (LFMC-350.30, PVC-352.30, EMT-358.30, Metal Trough-376.30)
		Conduit below grade is installed with provisions for movement.	Minor	NEC Article 300.5(J)
		Conduit penetrations internally sealed to prevent condensation between conditioned and unconditioned environment.	Incidental	NEC Article 300.7(A)
		Conduit thermal expansion fitting is properly installed to allow for movement.	Minor	NEC Articles 300.7(B), 352.44 and tables 352.44 and 355.44
		The conduit is grounded (when required).	Major	NEC Article 250.4(A)(3)
		Conduit does not meet the conditions to be used as conductor support.	Incidental	NEC Article 300.11(C)
	Electrical	Dissimilar metals must not be in contact and prevented from undergoing galvanic reaction.	Minor	NEC Article 110.14 (for conductors/ splice components), NEC Article 344.14 (for RMC) and NEC Article 358.14 (for EMT) for conduit and surrounding materials
		Unused openings of electrical equipment shall be properly sealed.	Minor	NEC Articles 110.12(A) or 408.7

		Requirement	Defect Category	Code Reference
Load Side Connection (continued)	Labeling	A directory is required at each dc PV system disconnecting means, ac disconnecting means for mini- and micro-inverters, and service disconnecting means showing the location of all dc and ac PV system disconnecting means in the building/structure.	Incidental	NEC Article 110.21(B) and 705.10
		Every circuit and circuit modification shall be legibly identified as to it's clear, evident and specific purpose or use. The identification shall include an approved degree of detail that allows each circuit to be distinguished from all others.	Incidental	NEC Articles 110.21(B) and 408.4(A)
		The manufacturers name, trademark or other descriptive markings must be visible on all electrical equipment and, where required by the code, markings such as voltage, current, wattage or other ratings must be provided. All markings must have sufficient durability to withstand the environment involved.	Incidental	NEC Article 110.21
	OCPD	Main panel overcurrent protection is sufficient.	Critical	NEC Article 240.4
		ESS Backfed breaker is properly sized at, or above 125% of inverter output current.	Major	NEC Article 240.4 and 706.21(C)
		Back-fed plug in devices shall be secured in place by additional fastener.	Minor	NEC Article 408.36(D)
		Circuit Breaker shall be installed and used in accordance with any instruction included in the listing or labeling.	Major	NEC Article 110.3(B)
		Where two sources, one a primary source and the other another source are located at opposite ends of a busbar that contains loads, the sum of 125 percent of the power device protecting the busbar shall not exceed 120 percent of the ampacity of the busbar.	Major	NEC Article 705.12(B)(2)(3)(b)
	Structural	Equipment shall be firmly secured to the surface on which it is mounted and used in accordance with any instruction included in the listing or labeling.	Major	NEC Articles 110.3(B), 110.12 and 110.13(A)
		Main Panel is installed with the appropriate clearances.	Minor	NEC Articles 110.26 and NEC 110.27(A)

		Requirement	Defect Category	Code Reference
Production Meter	Conductors	Conductor insulation type is properly rated for temperature and environmental conditions.	Major	NEC Articles 300.9, 310.10, 310.15(A)(3) and 334.12(B)(4)
		ESS AC output conductors are appropriately sized for expected current load.	Critical	NEC Article 310.15
		Grounded (neutral) conductor is properly identified.	Incidental	NEC Article 200.6(A)&(B)
		Ungrounded conductor(s) are properly identified.	Incidental	NEC Article 200.7
		Grounded conductor(s) are insulated from metal enclosure surface and ground terminal inside meter enclosure.	Minor	[NEC Article 250.24(A)(5)]
		Wire cannot be bent at a tighter radius than 5x the diameter of the conductor.	Minor	NEC Article 338.24
		Single conductor(s) connected correctly to the terminal or lug in accordance with its listing.	Minor	NEC Article 110.3(B) and 110.12
		Conductors entering boxes, conduit bodies, or fittings shall be protected from abrasion.	Minor	NEC Article 314.17
		Conductors are properly sized for rated terminals.	Minor	NEC Article 110.3(B)
	Conduit	Conduit fittings and connectors are designed and listed for this use.	Minor	NEC Articles 110.3(B), 300.15 and (LFMC-350.6, PVC-352.6, LFNC-356.6, EMT-358.6)
		Circuit conduit or raceway is properly supported and secured.	Minor	NEC Articles (LFMC-350.30, PVC-352.30, EMT-358.30, Metal Trough-376.30)
		Conduit below grade is installed with provisions for movement.	Minor	NEC Article 300.5(J)
		Conduit penetrations internally sealed to prevent condensation between conditioned and unconditioned environment.	Incidental	NEC Article 300.7(A)
		Conduit thermal expansion fitting is properly installed to allow for movement.	Minor	NEC Articles 300.7(B), 352.44 and tables 352.44 and 355.44
		The conduit is grounded (when required).	Major	NEC Article 250.4(A)(3)
		Conduit does not meet the conditions to be used as conductor support.	Incidental	NEC Article 300.11(C)
	Electrical	Meter enclosure is suitable for environment.	Major	NEC Articles 314.15 and 110.3(B)
		Dissimilar metals must not be in contact and prevented from undergoing galvanic reaction.	Minor	NEC Article 110.14 (for conductors/ splice components), NEC Article 344.14 (for RMC) and NEC Article 358.14 (for EMT) for conduit and surrounding materials
		Meter is installed in accordance with its listing and manufacturer instructions.	Minor	NEC Article 110.3(B)
		Meter is rated for expected current load.	Critical	NEC Article 110.3(B)
	Grounding	Grounding means for enclosure installed.	Major	NEC Articles 250.4, 250.8 and 250.12
	Structural	Meter Enclosure is properly suited for conditions and mounted to maintain listing.	Major	NEC Articles 110.3(B), 110.12 and 110.13(A)
		Meter is installed with the appropriate clearances.	Minor	NEC Articles 110.26 and NEC 110.27(A)

		Requirement	Defect Category	Code Reference
Subpanel	Conductors	Conductor insulation type is properly rated for temperature and environmental conditions.	Major	NEC Articles 300.9, 310.10, 310.15(A)(3) and 334.12(B)(4)
		ESS AC conductors are appropriately sized for expected current load.	Critical	NEC Article 310.15
		Grounded (neutral) conductor is properly identified.	Incidental	NEC Article 200.6(A)&(B)
		Ungrounded conductor(s) are properly identified.	Incidental	NEC Article 200.7
		Grounded conductor(s) are insulated from metal enclosure surface and ground terminal inside meter enclosure.	Minor	NEC Article 250.24(A)(5)
		Wire cannot be bent at a tighter radius than 5x the diameter of the conductor.	Minor	NEC Article 338.24
		Single conductor(s) connected correctly to the terminal or lug in accordance with its listing.	Minor	NEC Article 110.3(B) and 110.12
		Conductors entering boxes, conduit bodies, or fittings shall be protected from abrasion.	Minor	NEC Article 314.17
		All conductors of the same circuit shall be contained within the same raceway.	Minor	NEC Article 300.3(B)
		In exposed work, conductors are protected from physical damage.	Major	NEC Article 334.15(B)
		The neutral conductor is connected at its own dedicated terminal insulated from metal enclosure.	Minor	NEC Article 408.41
		Conductors are properly sized for rated terminals.	Minor	NEC Article 110.3(B)
	Conduit	Conduit fittings and connectors are designed and listed for this use.	Minor	NEC Articles 110.3(B), 300.15 and (LFMC-350.6, PVC-352.6, LFNC-356.6, EMT-358.6)
		Circuit conduit or raceway is properly supported and secured.	Minor	NEC Articles (LFMC-350.30, PVC-352.30, EMT-358.30, Metal Trough-376.30)
		Conduit below grade is installed with provisions for movement.	Minor	NEC Article 300.5(J)
		Conduit penetrations internally sealed to prevent condensation between conditioned and unconditioned environment.	Incidental	NEC Article 300.7(A)
		Conduit thermal expansion fitting is properly installed to allow for movement.	Minor	NEC Articles 300.7(B), 352.44 and tables 352.44 and 355.44
		The conduit is grounded (when required).	Major	NEC Article 250.4(A)(3)
		Conduit does not meet the conditions to be used as conductor support.	Incidental	NEC Article 300.11(C)
	Electrical	Boxes, conduit bodies and fittings installed in wet locations shall be listed for use in wet locations.	Major	NEC Articles 314.15 and 110.3(B)
		Dissimilar metals must not be in contact and prevented from undergoing galvanic reaction.	Minor	NEC Article 110.14 (for conductors/ splice components), NEC Article 344.14 (for RMC) and NEC Article 358.14 (for EMT) for conduit and surrounding materials
		Equipment must be sufficiently rated for expected voltage and/or current.	Critical	NEC Article 110.3(B)
		Unused openings of electrical equipment shall be properly sealed.	Minor	NEC Articles 110.12(A) or 408.7
		A Ground Fault Circuit Interrupting (GFCI) Wet Rated (WR) receptacle is required to be installed in a wet/damp location.	Minor	NEC Articles 110.3(B), 210.8(A)(3) and 406.9(B)

		Requirement	Defect Category	Code Reference
Subpanel (continued)	Grounding	Grounded conductor(s) terminal lug is properly installed.	Major	NEC Articles 110.3(B) and 250.4
		Subpanel is properly grounded.	Major	NEC Articles 250.4, 250.8 and 250.12
	Labeling	The sum of the ampere ratings of all overcurrent devices on panel boards, both load and supply devices, excluding the rating of the overcurrent device protecting the busbar, shall not exceed the ampacity of the busbar. The rating of the main overcurrent device protecting the busbar shall not exceed the rating of the busbar. Permanent warning labels shall be applied to distribution equipment.	Incidental	[NEC Articles 110.21(B) and 705.12(B)(2)(3)(c)]
		Every circuit and circuit modification shall be legibly identified as to it's clear, evident and specific purpose or use. The identification shall include an approved degree of detail that allows each circuit to be distinguished from all others.	Incidental	NEC Articles 110.21(B) and 408.4(A)
		The manufacturers name, trademark or other descriptive markings must be visible on all electrical equipment and, where required by the code, markings such as voltage, current, wattage or other ratings must be provided. All markings must have sufficient durability to withstand the environment involved.	Incidental	NEC Article 110.21
	OCPD	Subpanel Overcurrent protection is sufficient.	Critical	NEC Article 240.4
		ESS Backfed breaker is properly sized at, or above 125% of inverter output current.	Major	NEC Article 240.4 and 706.21(C)
		Back-fed plug in devices shall be secured in place by additional fastener.	Minor	NEC Article 408.36(D)
		Circuit Breaker shall be installed and used in accordance with any instruction included in the listing or labeling.	Major	NEC Article 110.3(B)
	Structural	Equipment shall be firmly secured to the surface on which it is mounted and used in accordance with any instruction included in the listing or labeling.	Major	NEC Articles 110.3(B), 110.12 and 110.13(A)
		Subpanel is installed with the appropriate clearances.	Minor	NEC Articles 110.26 and NEC 110.27(A)

		Requirement	Defect Category	Code Reference
Supply Side Connection	Conductors	Conductor insulation type is properly rated for temperature and environmental conditions.	Major	NEC Articles 300.9, 310.10, 310.15(A)(3) and 334.12(B)(4)
		ESS AC conductors are appropriately sized for expected current load.	Critical	NEC Article 310.15
		Grounded (neutral) conductor is properly identified.	Incidental	NEC Article 200.6(A)&(B)
		Service entrance conductors are properly spliced.	Major	NEC Articles 110.3(B) and 110.14
		Ungrounded conductor(s) are properly identified.	Incidental	NEC Article 200.7
		Wire cannot be bent at a tighter radius than 5x the diameter of the conductor.	Minor	NEC Article 338.24
		Single conductor(s) connected correctly to the terminal or lug in accordance with its listing.	Minor	NEC Article 110.3(B) and 110.12
		Conductors entering boxes, conduit bodies, or fittings shall be protected from abrasion.	Minor	NEC Article 314.17
		In exposed work, conductors are protected from physical damage.	Major	NEC Article 334.15(B)
	Conduit	Conduit fittings and connectors are designed and listed for this use.	Minor	NEC Articles 110.3(B), 300.15 and (LFMC-350.6, PVC-352.6, LFNC-356.6, EMT-358.6)
		Circuit conduit or raceway is properly supported and secured.	Minor	NEC Articles (LFMC-350.30, PVC-352.30, EMT-358.30, Metal Trough-376.30)
		Conduit below grade is installed with provisions for movement.	Minor	NEC Article 300.5(J)
		Conduit penetrations internally sealed to prevent condensation between conditioned and unconditioned environment.	Incidental	NEC Article 300.7(A)
		The conduit is grounded (when required).	Major	NEC Article 250.4(A)(3)
		Conduit does not meet the conditions to be used as conductor support.	Incidental	NEC Article 300.11(C)
		The service entrance Flexible Metal Conduit (FMC) or Liquid tight Flexible Metal Conduit (LFMC) shall not exceed 6 feet.	Minor	NEC Article 230.43(15)
	Electrical	Disconnect is properly wired to ensure that fuses can be de-energized for service.	Minor	NEC Article 110.3(B) (and 240.40 if fusible)
		Dissimilar metals must not be in contact and prevented from undergoing galvanic reaction.	Minor	NEC Article 110.14 (for conductors/ splice components), NEC Article 344.14 (for RMC) and NEC Article 358.14 (for EMT) for conduit and surrounding materials
		Equipment must be installed in accordance with it's listing and manufacturers instructions.	Minor	NEC Article 110.3(B)
		Unused openings of electrical equipment shall be properly sealed.	Minor	NEC Articles 110.12(A) or 408.7
		Service disconnect is properly rated for the application.	Major	NEC Article 230.79(D)
		Service Disconnects are properly grouped.	Minor	NEC Article 230.72

		Requirement	Defect Category	Code Reference
Supply Side Connection (continued)	Grounding	Where operating voltage is 250V or greater and enclosure knockouts are not listed to carry fault current, metallic conduit is properly bonded to maintain electrical continuity around eccentric and concentric knockouts.	Major	NEC Articles 250.4(A)(5) and 250.64(E). Ground fault path cannot include eccentric or concentric knockouts, per NEC Article 250.97
		Grounded conductor(s) terminal lug is properly installed.	Major	NEC Articles 110.3(B) and 250.4
		Grounding electrode conductor is properly bonded to the main premise grounding electrode system.	Major	NEC Article 250.64(C)
		Grounding electrode conductor is sufficiently sized.	Major	NEC Articles 250.66, and 250.166
		Disconnect enclosure is properly grounded using a listed grounding method.	Major	NEC Articles 250.4, 250.8 and 250.12
		When a metal water pipe is used as a grounding electrode, there must be a ground jumper present across water meter/filter.	Major	NEC Article 250.53(D)(1)
		The ground rod (electrode) is protected from physical damage or is below/flush with the ground. (8ft in contact with the soil).	Minor	NEC Article 250.53(G)
		A metal underground water pipe shall be supplemented by an additional electrode.	Major	NEC Article 250.53(D)(2)
		Water pipe electrode supplemented by other electrode.	Major	NEC Article 250.53(D)(2)
	Labeling	A directory is required at each dc PV system disconnecting means, ac disconnecting means for mini- and micro-inverters, and service disconnecting means showing the location of all dc and ac PV system disconnecting means in the building/structure.	Incidental	NEC Article 110.21(B) and 705.10
		The manufacturers name, trademark or other descriptive markings must be visible on all electrical equipment and, where required by the code, markings such as voltage, current, wattage or other ratings must be provided. All markings must have sufficient durability to withstand the environment involved.	Incidental	NEC Article 110.21
	OCPD	The AC OCPD is properly sized for the expected output current of the ESS system.	Major	NEC Article 706.21(B)
		Fused AC Disconnect shall be installed and used in accordance with any instruction included in the listing or labeling and Fuses are present.	Major	NEC Article 110.3(B)
		No overcurrent device shall be connected in series with any conductor that is intentionally grounded.	Major	NEC Article 240.22
		Fuses are present and installed in accordance with any instruction included in the listing or labeling.	Major	NEC Article 110.3(B)
		Equipment intended to interrupt current at fault levels shall have an interrupting rating sufficient for the current that is available at the line terminals of the equipment.	Major	NEC Articles 110.9, 110.10 and 230.82
		The service overcurrent device shall be an integral part of the service disconnecting means or shall be located immediately adjacent thereto.	Critical	NEC Articles 230.91 and/ or 110.3(B)
	Structural	Equipment shall be firmly secured to the surface on which it is mounted and used in accordance with any instruction included in the listing or labeling.	Major	NEC Articles 110.3(B), 110.12 and 110.13(A)
		Equipment is installed with the appropriate clearances.	Minor	NEC Articles 110.26 and NEC 110.27(A)

		Requirement	Defect Category	Code Reference
Energy Storage	Counductors	Conductor insulation type is properly rated for temperature and environmental conditions.	Major	NEC Articles 300.9, 310.10, 310.15(A)(3) and 334.12(B)(4)
		Ungrounded conductor properly identified.	Incidental	NEC Article 200.7
		Energy storage system conductors are protected from accidental contact.	Major	NEC Articles 110.27 and 706.10(B)
		Wire cannot be bent at a tighter radius than 5x the diameter of the conductor.	Minor	NEC Article 338.24
		Conductors entering boxes, conduit bodies, or fittings shall be protected from abrasion.	Minor	NEC Article 314.17
		Correct flexible cables are used for battery interconnections.	Major	NEC Article 706.32
		Battery DC conductors are properly sized for expected current load.	Major	NEC Article 706.32
		Installed DC Battery cables are properly terminated.	Major	NEC Article 706.32
	Conduit	Conduit fittings and connectors are designed and listed for this use.	Minor	NEC Articles 110.3(B), 300.15 and (LFMC-350.6, PVC-352.6, LFNC-356.6, EMT-358.6)
		Conduit is adequately supported.	Minor	NEC Articles (LFMC-350.30, PVC-352.30, EMT-358.30, Metal Trough-376.30)
		The conduit is grounded (when required).	Major	NEC Article 250.4(A)(3)
		Conduit does not meet the conditions to be used as conductor support.	Incidental	NEC Article 300.11(C)
	Electrical	Dissimilar metals must not be in contact and prevented from undergoing galvanic reaction.	Minor	NEC Article 110.14 (for conductors/ splice components), NEC Article 344.14 (for RMC) and NEC Article 358.14 (for EMT) for conduit and surrounding materials
		Equipment must be installed in accordance with it's listing and manufacturers instructions.	Minor	NEC Article 110.3(B)
		A disconnecting means shall be provided for all ungrounded conductors derived from an Energy Storage System.	Major	NEC Articles 706.7(A)
		Working clearances around battery bank shall be maintained.	Minor	NEC Articles 110.26 and 480.10(C)
		Batteries are properly ventilated.	Critical	NEC Article 480.10(A)
		Batteries must be installed on non-conductive supports.	Minor	NEC Article 480.9
		Energy storage system charge controller(s) properly regulate the battery charging process.	Major	NEC Article 706.23
		Where battery connections are mating dissimilar metals, antioxidant material specified by the battery manufacturers installation instructions shall be used to prevent galvanic reaction/corrosion.	Major	NEC Article 110.3(B) and 480.4(A)
		Electrical connections do not put mechanical strain on battery.	Major	NEC Articles 706.31(C) and 110.14(A)
		Charge Controller shall be compatible with the Energy Storage manufacturer's electrical ratings and charging specifications.	Major	NEC article 110.3(B) and IFC 2018, 1206.2.4

		Requirement	Defect Category	Code Reference
Energy Storage (continue)	Grounding	Equipment grounding conductor is identified as bare, green, or green with continuous yellow stripe(s).	Incidental	NEC Article 250.119
		Where operating voltage is 250V or greater and enclosure knockouts are not listed to carry fault current, metallic conduit is properly bonded to maintain electrical continuity around eccentric and concentric knockouts.	Major	NEC Articles 250.4(A)(5) and 250.64(E). Ground fault path cannot include eccentric or concentric knockouts, per NEC Article 250.97
		Grounded conductor(s) terminal lug is properly installed.	Major	NEC Articles 110.3(B) and 250.4
		Battery enclosure is properly grounded.	Major	NEC Articles 250.4, 250.8 and 250.12
	Labeling	The manufacturers name, trademark or other descriptive markings must be visible on all electrical equipment and, where required by the code, markings such as voltage, current, wattage or other ratings must be provided. All markings must have sufficient durability to withstand the environment involved.	Incidental	NEC Article 110.21
		The disconnecting means shall be legibly marked in the field and shall include Nominal Energy Storage System Voltage, Maximum Available Short Circuit Current and The Date The Short-Circuit Calculation Was Performed.	Incidental	NEC Articles 110.21(B) and 480.7(D)
	Structural	Charge controllers and related components mounted/installed in accordance with its listing and manufacturer instructions.	Major	NEC Articles 110.3(B), 110.12 and 110.13(A)
		Battery Bank is mounted in accordance with its listing and manufacturer instructions.	Major	NEC Articles 110.26 and NEC 110.27(A)
		Verify that the attachment of the energy storage unit to the wall or floor is per the approved plans. If the wall or floor construction differs from the approved plans a revision is required prior to inspection.	Major	Program requirement
		Rooms or spaces containing energy storage systems shall be separated from other areas of the building by fire barriers with a minimum fire resistance rating of two hours and horizontal assemblies with a minimum fire resistance rating of two hours constructed IAW NY State Uniform Building Code, local laws and ordinances.	Major	IFC 2018 1206.2.8.2, NFP 855 Section 4.3.6

		Requirement	Defect Category	Code Reference
Energy Storage Tier 1	NYS Residential Building Code	Energy storage systems shall be installed in accordance with the manufacturer's instructions and their listing.	Major	NYS 2019 Code Suplement R327.3
		Individual energy storage system units shall be separated from each other by at least 3 feet of space unless smaller separation distances are documentedto be adequate based on largescale fire testingcomplying with Section 608.6 of the International Fire Code (as amended by the 2019 Energy Storage System Supplement).	Major	NYS 2019 Code Suplement R327.3.1
		Energy storage systems shall only be installed in the following locations: 1. Detached garages and detached accessory structures. 2. Attached garages separated from the dwelling unit living space and sleeping units in accordance with Section R302 of this code. 3. Outdoors on exterior walls located a minimum 3 ft. from doors and windows. 4. Utility closets and storage or utility spaces within dwelling units and sleeping units	Major	NYS 2019 Code Suplement R327.4
		Individual energy storage system units shall have a maximum rating of 20 kWh. The aggregate rating shall not exceed: 1. 40 kWh within utility closets and storage or utility spaces 2. 80 kWh in attached or detached garages and detached accessory structures 3. 80 kWh on exterior walls 4. 80 kWh outdoors on the ground	Major	NYS 2019 Code Suplement R327.5
		Energy storage systems shall be installed in accordance with NFPA 70. Inverters shall be listed and labeled in accordance with UL 1741 or provided as part of the UL 9540 listing. Systems connected to the utility grid shall use inverters listed for utility interaction.	Major	NYS 2019 Code Suplement R327.6
		Rooms and areas in which energy storage systems are installed shall be protected by smoke alarms in accordance with Section R314. A heat detector or heat alarm listed and interconnected to the smoke alarms shall be installed in locations where smoke alarms cannot be installed based on their listing.	Major	NYS 2019 Code Suplement R327.7
		Rooms and areas containing energy storage systems shall be protected on the system side by no less than 5/8-inch Type X gypsum board or equivalent, installed on the walls and ceiling of the room or area. Attached garages containing energy storage systems shall be protected on the system side by fire-resistant construction in accordance with Section R302.	Major	NYS 2019 Code Suplement R327.8
		Energy storage systems installed in a location subject to vehicle damage shall be protected by approved barriers.	Major	NYS 2019 Code Suplement R327.9
		Indoor installations of energy storage systems that include batteries that produce hydrogen or other flammable gases during charging shall be provided with exhaust ventilation in accordance with Section 608.13.1 of the International Fire Code (as amended by the 2019 Energy Storage System Supplement).	Major	NYS 2019 Code Suplement R327.10

		Requirement	Defect Category	Code Reference
Energy Storage Teir 1 (continued)	NYS Residential Building Code	Energy storage systems that have the potential to release toxic or highly toxic gas during charging, discharging and normal use conditions shall not be installed within one- and two-family dwellings and townhouses.	Major	NYS 2019 Code Suplement R327.11
		The temporary use of an owner or occupant's electric powered vehicle to power a dwelling unit or sleeping unit while parked in an attached or detached garage or outside shall comply with the vehicle manufacturer's instructions and NFPA 70. The batteries on electric vehicles shall not contribute to the aggregate energy limitations in Section R327.5.	Major	NYS 2019 Code Suplement R327.12
Energy Storage Tier 2 & 3	Operations & Maintenance Manual	**Operation and Maintenance Manual:** An Operation and Maintenance Manual (O&M) shall be provided to both the energy storage system owner or their authorized agent and to the energy storage system operator before the energy storage system is put into operation. The energy storage system shall be operated and maintained in accordance with the manual. A copy of the manual shall be retained at an approved onsite location and be available to the fire code official. The O&M shall include all items listed in NYS 2019 Code supplement 608.9.2(1) thru 608.9.2(7)	Minor	NYS 2019 Code Supplement 608.9.2
		Operation and Maintenance Manual: Battery energy storage system Operations Plan shall include design, construction, installation, testing, and commissioning information associated with the battery.	Minor	Program requirement
	Emergency Operations Plan	**Emergency Operations Plan:** An emergency operations plan should be given to the owner and a copy placed in an approved location to be accessible to facility personnel, fire code officials, and emergency responders.	Minor	Program requirement
	Equipment	**Energy Storage Management System:** Where required by the energy storage system listing, an approved energy storage management system shall be provided that monitors and balances cell voltages, current, and temperatures within manufacturers specifications, the system shall disconnect electrical connections to the BESS or otherwise place in a safe condition if potentially hazardous temperatures or other conditions such as short circuits , over voltage, or under voltage are detected.	Major	NYS 2019 Code Supplement 608.10.4 and Manufacturers Listing

		Requirement	Defect Category	Code Reference
Energy Storage Tier 2 & 3 (continued)	General Installation Requirements	**Electrical Disconnects:** Where the energy storage system disconnecting means is not within sight of the main electrical service disconnecting means, placards or directories shall be installed at the location of the main electrical service disconnecting means indicating the location of stationary storage battery system disconnecting means, in accordance with NFPA 70. **Exception:** Electrical disconnects for lead-acid and nickel-cadmium battery systems at facilities under the exclusive control of communications utilities and operating at less than 50 VAC and 60 VDC shall be permitted to have electrical disconnects signage in accordance with NFPA 76.	Incidental	NYS 2019 Code Supplement 608.11.1 NFPA 70; 2017 NEC Article 706.11
		Working Clearances: Access and working space shall be provided and maintained about all electrical equipment to permit ready and safe operation and maintenance of such equipment, in accordance with NFPA 70 and the manufacturer's instructions.	Minor	NYS 2019 Code Supplement 608.11.2 NFPA 70; 2017 NEC 706.33, 706.10(C) and 110.26
		Fire-resistance Rated Construction: Rooms and other indoor areas containing energy storage systems shall be separated from other areas of the building in accordance with Section 608.14.4 and Chapter 7 of this code. Energy storage systems shall be permitted to be in the same room as the equipment they support.	Major	NYS 2019 Code Supplement 608.11.3
		Seismic and Structural Design: Stationary energy storage systems shall comply with the seismic design requirements in Chapter 16 of the International Building Code and shall not exceed the floor loading limitation of the building.	Major	NYS 2019 Code Supplement 608.11.4 and IBC Chapter 16
		Vehichle Impact Protection: Where energy storage systems are subject to impact by a motor vehicle, including fork lifts, vehicle impact protection shall be provided in accordance with Section 312 of the NYS 2019 Code Supplement.	Major	NYS 2019 Code Supplement 608.11.5
		Combustible Storage: Combustible materials shall not be stored in Energy Storage System rooms, areas, or walk-in Energy Storage System units. Combustible materials in occupied work centers covered by Section 608.11.10 are stored at least 3 feet (914mm) from Energy Storage System cabinets.	Major	NYS 2019 Code Supplement 608.11.6
		Toxic and Highly Toxic Gases: Energy storage systems installed indoors and that have the potential to release toxic and highly toxic gas during charging, discharging and normal use conditions shall be provided with a hazardous exhaust system in accordance with Section 502.8 of the International Mechanical Code.	Critical	NYS 2019 Code Supplement 608.11.7 andIMC Section 502.8
		Signage: Approved signs shall be provided on or adjacent to all entry doors to energy storage system rooms or areas, to walk-in energy storage system units located outdoors, on rooftops, or in open parking garages, and on enclosures of energy storage system cabinets. Signs shall be designed to meet both the requirements of this section and of NFPA 70. The signage shall include the following or equivalent. "Energy Storage System", "Battery Storage System", "Capacitor Energy Storage System", or the equivalent.	Incidental	NYS 2019 Code Supplement 608.11.8(1) and NFPA 70

		Requirement	Defect Category	Code Reference
Energy Storage Tier 2 & 3 (continued)	General Installation Requirements	**Signage:** Approved signs shall be provided on or adjacent to all entry doors to energy storage system rooms or areas, to walk-in energy storage system units located outdoors, on rooftops, or in open parking garages, and on enclosures of energy storage system cabinets. Signs shall be designed to meet both the requirements of this section and of NFPA 70. The signage shall include the following or equivalent. The identification of the electrochemical energy storage system technology present and its rated capacity.	Incidental	NYS 2019 Code Supplement 608.11.8(2) and NFPA 70
		Signage: Approved signs shall be provided on or adjacent to all entry doors to energy storage system rooms or areas, to walk-in energy storage system units located outdoors, on rooftops, or in open parking garages, and on enclosures of energy storage system cabinets. Signs shall be designed to meet both the requirements of this section and of NFPA 70. The signage shall include the following or equivalent. "Energized Electrical Circuits"	Incidental	NYS 2019 Code Supplement 608.11.8(3) andNFPA 70
		Signage: Approved signs shall be provided on or adjacent to all entry doors to energy storage system rooms or areas, to walk-in energy storage system units located outdoors, on rooftops, or in open parking garages, and on enclosures of energy storage system cabinets. Signs shall be designed to meet both the requirements of this section and of NFPA 70. The signage shall include the following or equivalent. If water-reactive electrochemical BESS are present, "APPLY NO WATER"	Incidental	NYS 2019 Code Supplement 608.11.8(4) and NFPA 70
		Signage: Approved signs shall be provided on or adjacent to all entry doors to energy storage system rooms or areas, to walk-in energy storage system units located outdoors, on rooftops, or in open parking garages, and on enclosures of energy storage system cabinets. Signs shall be designed to meet both the requirements of this section and of NFPA 70. The signage shall include the following or equivalent. Current contact information including phone number, for personnel with the technical knowledge of the system who is authorized to service the equipment and for any fire mitigation personnel required by Section 608.7.1 of the NYS 2019 Code Supplement	Incidental	NYS 2019 Code Supplement 608.11.8(5) and NFPA 70
		Security of Installations: Rooms, areas and walk-in energy storage system units in which electrochemical energy storage systems are located shall be secured against unauthorized entry and safeguarded in an approved manner. Security barriers, fences, landscaping, and other enclosures shall not inhibit the required air flow to or exhaust from the electrochemical energy storage system and its components.	Minor	NYS 2019 Code Supplement 608.11.9

		Requirement	Defect Category	Code Reference
Energy Storage Tier 2 & 3 (continued)	General Installation Requirements	**Occupied Work Centers:** Electrochemical energy storage systems located in rooms or areas occupied by personnel not directly involved with maintenance, service and testing of the systems shall comply with the following: Electrochemical energy storage systems located in occupied work centers shall be housed in locked noncombustible cabinets or other enclosures to prevent access by unauthorized personnel.	Major	NYS 2019 Code Supplement 608.11.10.1
		Occupied Work Centers: Electrochemical energy storage systems located in rooms or areas occupied by personnel not directly involved with maintenance, service and testing of the systems shall comply with the following: Electrochemical energy storage systems contained in cabinets in occupied work centers, shall be within 10 feet (3,048mm) of the equipment they support.	Minor	NYS 2019 Code Supplement 608.11.10.2
		Occupied Work Centers: Electrochemical energy storage systems located in rooms or areas occupied by personnel not directly involved with maintenance, service and testing of the systems shall comply with the following: Cabinets shall include signage complying with Section 608.11.8.	Incidental	NYS 2019 Code Supplement 608.11.10.3
		Emergency Egress Doors: A personnel door(s) intended for entrance to and egress from rooms designed as BESS rooms shall open in the direction of egress and shall be equipped with listed panic hardware.		2017 NEC Article 706.10(D)
		Enclosures: Enclosures of energy storage systems are of noncombustible construction.	Major	2017 NEC Article 480.9
	EESS Protection	**Size and seperation:** Electrochemical energy storage systems shall be segregated into groups not exceeding 50 kWh (180 Mega joules). Each group shall be separated a minimum 3 feet (914 mm) from other groups and from walls in the storage room or area. The storage arrangements shall comply with Chapter 10 of this code. Not applicable to remote installations, see Table 608.15. **Exceptions:** 1. Lead-acid and nickel-cadmium battery systems in facilities under the exclusive control of communications utilities and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76. 2. Larger capacities or smaller separation distances shall be permitted based on large scale fire testing complying with Section 608.6.	Major	NYS 2019 Code Supplement 608.12.1
		Maxium Allowable Quantities: Where rooms, areas and walk-in energy storage system units contain different types of electrochemical energy technologies, the total aggregate quantities of the systems shall be determined based on the sum of percentages of each technology type quantity divided by the maximum allowable quantity of each technology type. The sum of the percentages shall not exceed 100 percent of the maximum allowable quantity. Not applicable to remote installations, see Table 608.15.	Major	NYS 2019 Code Suplement 608.12.2.1

		Requirement	Defect Category	Code Reference
Energy Storage Tier 2 & 3 (continued)	EESS Protection	**Elevation:** Electrochemical energy storage systems shall not be located where the floor is located more than 75 feet (22,860 mm) above the lowest level of fire department vehichle access OR where the floor is located below the lowest level of exit discharge. See Exception NYS 2019 Code Supplement 608.12.3 Exceptions 1-3. Not applicable to remote installations, see Table 608.15.	Major	NYS 2019 Code Supplement 608.12.3 and NFPA 76
		Fire Detection: An approved automatic smoke detection system or radiant energy–sensing fire detection system complying with Section 907 shall be installed in rooms, indoor areas, and walk-in energy storage system units containing electrochemical energy storage systems. An approved radiant energy–sensing fire detection system shall be installed to protect open parking garage and rooftop installations. Alarm signals from detection systems shall be monitored by an approved supervising station in accordance with NFPA 72.	Critical	NYS 2019 Code Suplement 608.12.4, NFPA 72 and IFC 907.2.23
		Fire Suppression System: Rooms and areas within buildings and walk-in energy storage system units containing electrochemical energy storage systems shall be protected by an automatic fire suppression system designed and installed in accordance with one of the following found in NYS 2019 Code Supplement 608.12.5 (1 thru 3).	Critical	NYS 2019 Code Suplement 608.12.5 (1-3)
		Fire Suppression System: Where an electrochemical energy storage system that utilizes water reactive materials is approved based on large-scale fire testing complying with Section 608.6, it shall be protected by an approved alternative automatic fire extinguishing system in accordance with Section 904.	Critical	NYS 2019 Code Supplement 608.12.5.1
		Maximum Enclosure Size: Outdoor walk-in energy storage system units housing energy storage systems shall not exceed 4,028 cubic feet, not including bolt-on HVAC and related equipment, as approved. Outdoor walk-in energy storage system units exceeding these limitations shall be considered indoor installations and comply with the requirements in Section 608.14.	Major	NYS 2019 Code Supplement 608.12.6
		Vegetation Control: Areas within 10 feet (3 m) on each side of outdoor energy storage system shall be cleared of combustible vegetation and other combustible growth. Single specimens of trees, shrubbery, or cultivated ground cover such as green grass, ivy, succulents, or similar plants used as ground covers shall be permitted, provided that they do not form a means of readily transmitting fire. Exception: A reduced clearance to combustible vegetation shall be permitted based on large scale fire testing complying with Section 608.6	Major	NYS 2019 Code Supplement 608.12.7
		Means of Egress Seperation: Energy storage systems located outdoors and in open parking garages shall be separated from any means of egress to ensure safe egress under fire conditions by no less than 10 feet (3048 mm). Exception: The fire code official may approve a reduced separation distance if large scale fire testing complying with Section 608.6 is provided that shows that a fire involving the energy storage system will not adversely impact occupant egress.	Major	NYS 2019 Code Supplement 608.12.8

		Requirement	Defect Category	Code Reference
Energy Storage Tier 2 & 3 (continued)	EESS Technology Specific Protection	**Exhaust Ventilation:** Where required by Table 608.13 or elsewhere in this code, exhaust ventilation shall be provided for rooms, areas, and walk-in energy storage system units containing electrochemical energy storage systems in accordance with the International Mechanical Code and Section 608.13.1.1 or 608.13.1.2	Critical	NYS 2019 Code Supplement 608.13.1, Table 608.13 and IMC Table 1206.6
		Exhaust Ventilation: The exhaust ventilation system shall be designed to limit the maximum concentration of flammable gas to 25% of the Lower Flammable Limit (LFL) of the total volume of the room, area, or walk-in Energy Storage System unit during the worst-case event of simultaneous charging of batteries at the maximum charge rate, in accordance with nationally recognized standards. *Applies to all Electrochemical BESS except Lithium-Ion.*	Critical	NYS 2019 Code Supplement 608.13.1.1
		Exhaust Ventilation: Mechanical exhaust ventilation shall be provided at a rate of no less than 1 ft3/ minute/sq. Ft of floor area of the room, area, or walk-in unit. The ventilation shall be either continuous or shall be activated by a gas detection system. *Applies to all Electrochemical BESS except Lithium-Ion.*	Critical	NYS 2019 Code Supplement 608.13.1.2
		Exhaust Ventilation: Mechanical exhaust ventilation shall be provided with a minimum of two hours of standby power in accordance with Section 604.2.17. *Applies to all Electrochemical BESS except Lithium-Ion.*	Critical	NYS 2019 Code Supplement 608.13.1.2.1
		Exhaust Ventilation: Required mechanical exhaust ventilation systems shall be supervised by an approved supervising station in accordance with NFPA 72. *Applies to all Electrochemical BESS except Lithium-Ion.*	Major	NYS 2019 Code Supplement 608.13.1.2.3 and NFPA 72
		Exhaust Ventilation: Where required by Section 608.13.1.2, rooms, areas, and walk-in energy storage system units containing energy storage systems shall be protected by an approved continuous gas detection system that complies with Section 916 of this code and with the following: *Applies to all Electrochemical BESS except Lithium-Ion.* 1. The gas detection system shall be designed to activate the mechanical ventilation system when the level of flammable gas in the room, area, or walk-in energy storage system unit exceeds 25 percent of the LFL. 2. The mechanical ventilation system shall remain on until the flammable gas detected is less than 25 percent of the LFL. 3. The gas detection system shall be provided with a minimum of 2 hours of standby power in accordance with requirements for emergency and standby power systems for gas detection systems in Section 916 of this code. 4. Failure of the gas detection system shall annunciate a trouble signal at an approved supervising station in accordance with NFPA 72.	Major	NYS 2019 Code Supplement 608.13.1.2.4

		Requirement	Defect Category	Code Reference
Energy Storage Tier 2 & 3 (continued)	EESS Technology Specific Protection	**Spill Control and Neutralization:** Where required by NYS 2019 Code Supplement Table 608.13 or elsewhere in this code, areas containing free-flowing liquid electrolyte or hazardous materials shall be provided with spill control and neutralization. ***Applies to all Electrochemical BESS except Lithium-Ion.***	Major	NYS 2019 Code Supplement 608.13.2
		Spill Control and Neutralization: Spill control shall be provided to prevent the flow of liquid electrolyte or hazardous materials to adjoining rooms or areas. The method shall be capable of containing a spill from the single largest battery or vessel. ***Applies to all Electrochemical BESS except Lithium-Ion.***	Major	NYS 2019 Code Supplement 608.13.2.1
		Spill Control and Neutralization: An approved method to neutralize spilled liquid electrolyte shall be provided that is capable of neutralizing a spill from the largest battery or vessel to a pH between 5.0 and 9.0. ***Applies to all Electrochemical BESS except Lithium-Ion.***	Major	NYS 2019 Code Supplement 608.13.2.2
		Explosion Control: Where required by Table 608.13 or elsewhere in this code, explosion control complying with Section 911 shall be provided for rooms, areas or walk-in energy storage system units containing electrochemical energy storage system technologies. ***Applies to all Electrochemical BESS except Flow Batteries. Outdoor Cabinets are not specifically addressed under the current version.*** **Exceptions:** 1. Where approved by the fire code official, explosion control may be waived based on large scale fire testing complying with Section 608.6 which demonstrates that flammable gases are not liberated from electrochemical energy storage system cells or modules. 2. Where approved by the fire code official, explosion control may be waived based on documentation provided that demonstrates that the electrochemical energy storage system technology to be used does not have the potential to release flammable gas concentrations in excess of 25 percent of the LFL anywhere in the room, area, walk-in energy storage system unit or structure under thermal runaway or other fault conditions.	Critical	NYS 2019 Code Suplement 608.13.3 and UL 9540A
		Safety Caps: Where required by NYS 2019 Code Supplement Table 608.13 or elsewhere in this code, vented batteries and other energy storage systems shall be provided with flame arresting safety caps. ***Applies to all Electrochemical BESS except Lithium-Ion and Flow Batteries.***	Major	NYS 2019 Code Suplement 608.13.4
		Thermal Runaway: Where required by NYS 2019 Code Supplement Table 608.13 or elsewhere in this code, batteries and other energy storage systems shall be provided with a listed device or other approved method to prevent, detect and minimize the impact of thermal runaway. ***Applies to all Electrochemical BESS except Flow Batteries.***	Major	NYS 2019 Code Supplement 608.13.5

		Requirement	Defect Category	Code Reference
Energy Storage Tier 2 & 3 (continued)	Indoor Installations	**Dedicated Use Buildings:** Dedicated use buildings in compliance with NYS 2019 Code Supplement 608.14.1 shall be classified as Group F-1 occupancies. For the purpose of Table 608.14, dedicated use energy storage system buildings shall comply with NYS 2019 Code Supplement 608.14.1(1) thru 608.14.1(4)	Major	NYS 2019 Code Supplement 608.14.1
	Outdoor Installations	**Remote Outdoor Installations:** For the purpose of Table 608.15, remote outdoor installations include energy storage systems located more than 100 feet (30.5 M) from buildings, lot lines, public ways, stored combustible materials, hazardous materials, high piled stock and other exposure hazards.	Major	NYS 2019 Code Supplement 608.15.1
		Clearance to Exposure: Energy storage systems located outdoors shall be separated by at least 10 ft (3,048 mm) from the following exposures: lot lines, public ways, buildings, stored combustible materials, hazardous materials, high-piled stock, other exposure hazards. See NYS 2019 Code Supplement 6.8.15.3 for Exceptions.	Major	NYS 2019 Code Supplement 608.15.3
		Exterior Wall Installations: Energy storage systems shall be permitted to be installed outdoors on exterior walls of buildings when ALL of the following conditions are met: 1. The maximum energy capacity of individual energy storage system units shall not exceed 20 kWh. 2. The energy storage system shall comply with applicable requirements in section 608.15 3. The energy Storage System shall be installed in accordance with manufacturer instructions and their listing. 4. Individual energy storage system units shall be separated from each other by at least 3 ft (914 mm). 5. The energy storage system shall be separated from doors, windows, operable openings into buildings, or HVAC inlets by at least 5 ft (1,524 mm) **Exception:** smaller separation distances in Items 4 and 5 shall be permitted based on large scale fire testing complying with Section 608.6.	Major	NYS 2019 Code Supplement 608.15.4(1) thru 608.15.4(5)
	Special Installations	**Clearance to Exposure:** Energy storage systems located on rooftops and in open parking garages shall be separated by a minimum 10 feet (3048 mm) from the following exposures: 1. Buildings, except the building on which a rooftop energy storage system is mounted 2. Any portion of the building on which a rooftop system is mounted that is elevated above the rooftop on which the system is installed 3. Lot lines 4. Public ways 5. Stored combustible materials 6. Locations where motor vehicles can be parked 7. Hazardous materials 8. Other exposure hazards See NYS 2019 Code Supplement 608.16.3 for Exceptions	Major	NYS 2019 Code Supplement 608.16.3

		Requirement	Defect Category	Code Reference
Energy Storage Tier 2 & 3 (continued)	Special Installations	**Fire Suppression System:** Energy storage systems located in walk-in energy storage system units on rooftops or in walk-in energy storage system units in open parking garages shall be provided with automatic fire suppression systems within the energy storage system enclosure in accordance with Section 608.12.5. Areas containing energy storage systems other than walk-in energy storage system units in open parking structures on levels not open above to the sky shall be provided with an automatic fire suppression system complying with Section 608.12.5. **Exception:** A fire suppression system is not required in open parking garages if large scale fire testing complying with Section 608.6 is provided that shows that a fire will not impact the exposures in Section 608.16.3.	Major	NYS 2019 Code Supplement 608.16.4
		Rooftop: Energy storage systems and associated equipment that are located on rooftops and not enclosed by building construction shall maintain stairway access to the roof for emergency response and fire department personnel shall be provided either through a bulkhead from the interior of the building or a stairway on the exterior of the building.	Major	NYS 2019 Code Supplement 608.16.5(1)
		Rooftop: Energy storage systems and associated equipment that are located on rooftops and not enclosed by building construction shall maintain service walkways at least 5 feet (1524 mm) in width shall be provided for service and emergency personnel from the point of access to the roof to the system.	Major	NYS 2019 Code Supplement 608.16.5(2)
		Rooftop: Energy storage systems and associated equipment that are located on rooftops and not enclosed by building construction shall be located from the edge of the roof a distance equal to at least the height of the system, equipment, or component but not less than 5 feet (1.5 m).	Major	NYS 2019 Code Supplement 608.16.5(3)
		Rooftop: Energy storage systems and associated equipment that are located on rooftops and not enclosed by building construction shall have roofing materials under and within 5 feet (1524 mm) horizontally and shall be noncombustible or shall have a Class A rating when tested in accordance with ASTM E108 or UL 790.	Major	NYS 2019 Code Supplement 608.16.5(4) and ASTM E108; UL 790
		Rooftop: A Class I standpipe outlet shall be installed at an approved location on the roof levelof the building or in the stairway bulkhead at the top level.	Major	NYS 2019 Code Supplement 608.16.5(5)
		Rooftop: Energy storage systems and associated equipment that are located on rooftops and not enclosed by building construction shall be the minimum of 10 feet from the fire service access point on the roof top.	Major	NYS 2019 Code Supplement 608.16.5(6)

		Requirement	Defect Category	Code Reference
Energy Storage Tier 2 & 3 (continued)	Special Installations	**Rooftop:** Energy storage systems and associated equipment that are located on rooftops and not enclosed by building construction shall not be located within 50 feet (15,240 mm)of air inlets for building HVAC systems. **Exception:** This distance shall be permitted to be reduced to 25 feet (7.620 mm) if the automatic fire alarm system monitoring the radiant-energy sensing detectors deenergizes the ventilation system connected to the air intakes upon detection of fire.	Major	NYS 2019 Code Supplement 608.16.5(7)
		Open Parking Garages: Energy storage systems and associated equipment that are located in open parking garages shall not be located within 50 feet (15,240 mm) of air inlets for building HVAC systems. **Exception:** This distance shall be permitted to be reduced to 25 feet (7.620 mm) if the automatic fire alarm system monitoring the radiant-energy sensing detectors deenergizes the ventilation system connected to the air intakes upon detection of fire.	Major	NYS 2019 Code Supplement 608.16.6(1)
		Open Parking Garages: Energy storage systems and associated equipment that are located in open parking garages shall not be located within 25 feet (7620 mm) of exits where located on a covered level of the parking structure not directly open to the sky above.	Major	NYS 2019 Code Supplement 608.16.6(2)
		Open Parking Garages: Energy storage systems and associated equipment that are located in open parking garages shall have an approved fence with a locked gate or other approved barrier shall be provided to keep the general public at least 5 feet (1024 mm) from the outer enclosure of the energy storage system.	Major	NYS 2019 Code Supplement 608.16.6(3)
	Gas Detection System	**Signage:** Signs shall be provided adjacent to gas detection system alarm signaling devices that advise occupants of the nature of the signals and actions to take in response to the signal.	Incidental	NYS 2019 Code Supplement 916.9