

APPLIANCE UPGRADE PROGRAM

Quality and Market Standards

Checklist Specifications — November 2024



For informational use by: Participating Contractors, as a reference guide to understanding the quality assurance scoring criteria, and specific requirements when installing measures in the Appliance Upgrade Program.

NYSERDA maintains the integrity of the Appliance Upgrade Program through an independent quality and market standards team, which manages the quality assurance (QA) system. The QA system includes verifying compliance with program and installation standards using comprehensive field inspections. QA field inspections of installations are conducted by a qualified independent third-party competitively selected by NYSERDA and will use these checklists as their guide. Participating Contractors are required to submit proof of all corrective action taken when a specific installation requirement has not been met. The checklist specifications contained in this document are for reference purposes only.

Field Definitions

Category – Represents a specific workscope category that the inspector is reviewing.

Measure – Represents a specific component that the inspector is reviewing.

Task Description – A detailed description of the task for the inspector to reference in determining if a task should be marked as a non-conformance.

Non-Conformance Category – Each task is assigned a non-conformance rating of either incidental, minor, major or critical. Refer to the Non-Conformance Rating Descriptions below for additional detail.

Reference – The basis for each task requirement is linked to the project workscope, a program guideline, manufacturer instructions, or code.

Non-Conformance Category Description	Energy Impact	Non-Energy Impact
Incidental	May result in a savings shortfall, but the impact will be small and may not be measurable.	Not expected, on its own, to pose a substantial risk of system failure or hazard.
Minor	Will result in a savings shortfall, but the impact will be small and may not be measurable.	Requires modifications to address but not expected to pose a substantial risk of system failure or hazard.
Major	Will result in a measurable shortfall in energy savings.	Presents an increased risk of system failure or hazard but not determined to be in imminent danger of failure or hazard.
Critical	N/A	Presents an imminent hazard.

Quality Assurance Scoring Matrix

(Scores are determined by counting the number of non-conformances with the highest severity rating. Applies to the whole project, not each individual measure)

Score	Incidental	Minor	Major	Critical
5	Up to 3	Up to 2	0	0
4	More than 3	Up to 3	0	0
3	N/A	More than 3	0	0
2	N/A	N/A	Up to 1	0
1	N/A	N/A	More than 1	More than 0

Quality Assurance Score Descriptions

5: System Meets All Program Criteria – An inspection receiving a score of 5 is generally well-installed, with no noticeable defects in workmanship or expected energy output. These projects are examples of best practices.

3: System Meets Key Program Requirements – An inspection achieving a score of 3 meets basic Program requirements, but the project may require some modification to be considered fully compliant.

1: System Does Not Meet Program Requirements – An inspection receiving a score of 1 indicates a project that has failed to meet key Program requirements and is not expected to meet the expected energy savings. These projects may require urgent attention to address safety concerns.

Checklist Specifications Table of Contents

Electrical.....	3
Testing Inspection.....	6
Induction Cooktop.....	6
Heat Pump Dryer.....	6

Quality and Market Standards Checklist

Electrical			
Measure	Task Description	Non-Conformance Category	Reference
Structure Protection	Wood-framed structural members have been drilled, notched or altered properly.	Major	NYS RC R502.8, R602.6, E3402.1
	Penetrations of fire-resistance-rated assemblies, firestops and draftstops have been protected properly.	Minor	NYS RC R302.4, E3402.2, E3402.3
Listed and Labeled	Electrical materials, components, devices, fixtures and equipment are listed for the application, bear the label of an approved agency and installed to the manufacturer's specifications.	Minor	NYS RC E3403.3
General Requirements	Enclosure is suitable for environment.	Major	NYS RC E3404.4
	Unused openings of electrical equipment shall be properly sealed.	Minor	NYS RC E3404.6
	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	NYS RC E3404.8
	Each disconnecting means are legibly marked to indicate its purpose, except where located and arranged so that the purpose is evident. The marking has the durability to withstand the environment involved.	Incidental	NYS RC E3404.13
Electrical Conductors and Connections	Conductors are appropriately sized for expected current load.	Critical	NYS RC E3406.3, 3603.1, 3603.1.1, 3603.1.2, 3603.1.3, 3603.1.4, 3603.1.5, E3602.2
	All conductors of the same circuit shall be contained within the same raceway.	Minor	NYS RC E3406.7
	Conductors of dissimilar metals have not been joined in a terminal or splicing connector where physical contact occurs between dissimilar conductors such as copper and aluminum, copper and copper-clad aluminum, or aluminum and copper-clad aluminum, except where the device is listed for the purpose and conditions of application.	Minor	NYS RC E3406.8
	Conductors in raceways are continuous between outlets, boxes, and devices and shall be without splices or taps in the raceway.	Major	NYS RC E3406.11.1
	Grounded conductors are connected to terminals specifically intended for grounded connections. The continuity of a grounded conductor shall not depend on connection to a metallic enclosure, raceway or cable armor.	Major	NYS RC E3406.13
	Equipment grounding conductors, grounding electrode conductors and bonding jumpers are properly connected.	Major	NYS RC E3406.14

Electrical (continued)

Measure	Task Description	Non-Conformance Category	Reference
Conductors and Terminal Identification	Insulated grounded conductors are properly identified.	Incidental	NYS RC E3407.1
	Equipment grounding conductors are properly identified.	Incidental	NYS RC E3407.2
Service	Means have be provided to disconnect all conductors in a building or other structure from the service entrance conductors.	Major	NYS RC E3601.6
	Service disconnects are permanently marked as a service disconnect.	Incidental	NYS RC E3601.6.1
	Service OCPD is properly sized.	Major	NYS RC E3602.3, E3602.2, E3602.1, E3603.3
	Service is three wire, 120/240 volt, single phase with a grounded neutral.	Major	NYS RC E3602.4
Service Entrance Conductors	Service entrance cables are protected from physical damage.	Major	NYS RC E3605.5
	Service entrance insulated conductors and cables that are exposed to direct sunlight are protected.	Minor	NYS RC E3605.6
	Service entrance cables are properly supported.	Minor	NYS RC E3605.7
	Service entrance cables are properly secured in place.	Minor	NYS RC E3605.9.7
System Grounding	The wiring system is properly grounded at the service with a grounding electrode conductor connected to a grounding electrode system.	Major	NYS RC E3607.1, E3607.2
	Equipment grounding conductor properly installed.	Major	NYS RC E3607.3.1, E3607.3.2, E3607.6, E3908.12
	The grounding electrode conductor is properly connected to equipment grounding conductors, service equipment enclosures, and the grounded service conductor to the grounding electrode(s).	Major	NYS RC E3607.4
	An unspliced main bonding jumper is properly installed connecting the equipment grounding conductor(s) and the service-disconnect enclosure to the grounded conductor of the system within the enclosure for each service disconnect.	Major	NYS RC E3607.5
Grounding Electrode System	All electrodes within a building are properly bonded together to form the grounding electrode system.	Major	NYS RC E3608.1, E3608.2
	When a metal water pipe is used as a grounding electrode, there must be a ground jumper present across water meter/filter and is supplemented by an additional electrode.	Major	NYS RC E3608.1.1.2, E3608.4
	The upper end of the grounding electrodes are flush with or below ground level except where the above-ground end and the grounding electrode conductor attachment are protected against physical damage.	Major	NYS RC E3608.1.4.1
	Grounding electrodes are made of approved material.	Major	NYS RC E3608.1.4, E3608.5
	Metal underground gas piping system has not be used as a grounding electrode.	Critical	NYS RC E3608.6
	Grounding electrode conductor is properly bonded to the main premises grounding electrode system.	Major	NYS RC E3609
	Grounding electrode conductor is continuous.	Major	NYS RC E3610.1, E3610.3, E3611.

Electrical (continued)

Measure	Task Description	Non-Conformance Category	Reference
Grounding Electrode System (continued)	Grounding electrode conductor is sufficiently sized.	Major	NYS RC E3603.4
Branch Circuits	The branch-circuit for one wall-mounted oven or one counter-mounted cooking unit is sized based on the nameplate rating of the appliance. The branch-circuit for a counter-mounted cooking unit and not more than two wall-mounted ovens all supplied from a single branch circuit and located in the same room is based on the sum of nameplate ratings of the individual appliances.	Major	NYS RC E3702.9
	The ampacity of the conductors supplying multimotor and combination load equipment (air-conditioning and heat pump equipment) are not less than the minimum circuit ampacity marked on the equipment. The branch-circuit overcurrent device rating is the size and type marked on the appliance.	Major	NYS RC E3702.11
	Central heating equipment other than fixed electric space heating are supplied by an individual branch circuit. Permanently connected air-conditioning equipment, and auxiliary equipment directly associated with the central heating equipment such as pumps, motorized valves, humidifiers and electrostatic air cleaners, shall not be prohibited from connecting to the same branch circuit as the central heating equipment.	Minor	NYS RC E3703.1
Panelboards	Circuit directory is complete and located on the face of the panelboard enclosure or inside the panel door.	Incidental	NYS RC E3706.2
	Each grounded conductor is terminated within the panelboard on an individual terminal that is not also used for another conductor, except that grounded conductors of circuits with parallel conductors shall be permitted to terminate on a single terminal where the terminal is identified for connection of more than one conductor.	Major	NYS RC E3706.4
Wiring Methods	Wiring methods and applications are acceptable.	Minor	NYS RC E3801.2, E3801.4
	All conductors of a circuit, including equipment grounding conductors and bonding conductors, are contained in the same raceway, trench, cable or cord.	Minor	NYS RC E3801.3
Above-Ground Installation	Wiring properly installed and supported.	Minor	NYS RC E3802.1
	Cables in attics or roof spaces provided with access protected from physical damage (cable height, guard strips, running boards, etc.).	Major	NYS RC E3802.2, E3802.3.1, E3802.3.2
	Insulated conductors and cables used where exposed to direct rays of the sun are listed or listed and marked, as being "sunlight resistant," or covered with insulating material, such as tape or sleeving, that is listed or listed and marked as being "sunlight resistant."	Major	NYS RC E3802.3.3
	Type NM or SE cables smaller than 8 AWG are run either through bored holes in joists or on running boards when located in unfinished basements or crawl spaces.	Minor	NYS RC E3802.4
	Bends in types NM and SE cable have a radius of 5 times the diameter of the cable, or greater.	Minor	NYS RC E3802.5
	Cables are supported and secured in an approved manner.	Minor	NYS RC E3802.6
	Where portions of a raceway or sleeve are known to be subjected to different temperatures such as passing from the interior to the exterior of a building, the raceway or sleeve has be filled with an approved material to prevent the circulation of warm air to a colder section of the raceway or sleeve.	Incidental	NYS RC E3802.7

Electrical (continued)

Measure	Task Description	Non-Conformance Category	Reference
Power Distribution	Appliance receptacle outlets installed for specific appliances, such as laundry equipment, have be installed within 6 feet of the intended location of the appliance.	Incidental	NYS RC E3901.5
	125-volt, single-phase, 15- and 20-ampere receptacles installed in laundry areas have ground-fault circuit-interrupter protection.	Major	NYS RC E3902.9
	Conductors entering boxes, conduit bodies or fittings are protected from abrasion.	Minor	NYS RC E3906.1
	Unused openings other than those intended for the operation of equipment, those intended for mounting purposes, or those permitted as part of the design for listed equipment, are closed to afford protection substantially equivalent to that of the wall of the equipment.	Minor	NYS RC E3906.4
	Covers and plates are nonmetallic or metal, metal covers and plates are grounded.	Major	NYS RC E3906.10
Cabinets and Panelboards	Unused openings, other than those intended for the operation of equipment, those intended for mounting purposes, and those permitted as part of the design for listed equipment, are closed to afford protection substantially equivalent to that of the wall of the equipment. Unused openings for circuit breakers and switches are closed using identified closures, or other approved means that provide protection substantially equivalent to the wall of the enclosure.	Minor	NYS RC E3907.5
	Conductors entering cabinets and panelboards are protected from abrasion.	Minor	NYS RC E3907.6
	Cabeling is secured to the cabinet, panelboard, cutout box, or meter socket enclosure.	Minor	NYS RC E3907.8
Grounding	Metal enclosures of conductors, devices and equipment are connected to the equipment grounding conductor.	Major	NYS RC E3908.1
	Grounded conductors are not connected to normally noncurrent-carrying metal parts of equipment, to equipment grounding conductor(s), or reconnected to ground on the load side of the service disconnecting means.	Major	NYS RC E3908.6
	Grounded circuit conductors have not been used for grounding noncurrent-carrying metal parts of equipment on the load side of the service disconnecting means.	Major	NYS RC E3908.7
	Equipment grounding conductor run with or enclosing circuit conductors per NYS RC E3908.8.	Major	NYS RC E3908.8
Appliance Installation	Appliances and equipment have been installed in accordance with the manufacturer's installation instructions. Electrically heated appliances and equipment shall be installed with the required clearances to combustible materials.	Minor	NYS RC E4101.2
	Each appliance has been protected against overcurrent in accordance with the rating of the appliance and its listing.	Major	NYS RC E4101.4
	Appliances have be provided with a means to disconnect all ungrounded supply conductors. For fixed electric space-heating equipment, means shall be provided to disconnect the heater and any motor controller(s) and supplementary overcurrent-protective devices.	Major	NYS RC E4101.5

Testing Inspection			
Measure	Task Description	Non-Conformance Category	Reference
Health & Safety	Gas Leak Testing - Pre-Existing Lines - Indoor ambient air sampled at each floor of the home with a Combustion Gas Detector has a LEL of 0%. When LEL is above 0%, gas leak testing performed on all gas piping and leaks tagged and photo documented.	Minor	ANSI/BPI-1100-T Section 7.3
	Gas piping system has no open fittings or ends and all valves at unused outlets are plugged or capped.	Critical	ANSI/BPI-1200 Section 7.5.2.8
Induction Cooktop			
Appliances	OEM manual left with the installed unit.	Incidental	Program Requirement
	If included in contract, replaced equipment has been removed.	Incidental	Program Requirement
	Manufacturer required clearances provided around cooktop (top, sides, back and bottom).	Major	Manufacturer specifications
Heat Pump Dryer			
Appliances	OEM manual left with the installed unit.	Incidental	Program Requirement
	If included in contract, replaced equipment has been removed.	Incidental	Program Requirement
	Manufacturer recommended clearances provided around dryer.	Minor	Manufacturer specifications
	Manufacturer required ventilation provided for units installed in closets with doors.	Major	Manufacturer specifications

