Measures and Installation Criteria

Through EmPower+, all measures must be installed by the participating contractor, per program guidelines and BPI standards. Participating Contractors must install measures to manufacturers specifications and measures must meet the minimum efficiency requirements and SIR requirements indicated in the eligible measures list found in Section 5.15 of the Program Manual.

Advanced Power Strips

1. NYSERDA will subsidize up to two advanced power strips that need to provide one primary outlet and at least three standby outlets with at least 1,000 joules of surge protection, program encourages using advance poser strips with the highest joule rating available.
    a. TRM Tier 1 are standard primary-controlled advanced power strips where the primary device controls the secondary outlets.
    b. TRM Tier 2 – For AV equipment only (home theater components, gaming consoles, computers). These advanced power strips reduce active and standby energy waste by monitoring user engagement and cutting power to all devices when a set period of inactivity is detected. This is accomplished through the use of infrared sensing and motion sensing technology, in addition to the primary/secondary switched capability of a TRM Tier 1 advanced power strip.

Carbon Monoxide/Smoke Detectors

1. Smoke detectors: To be installed as required by New York State law.
2. CO detectors: In dwellings which have either a combustion appliance or attached garage, the Participating Contractor must ensure that a working CO detector is present.
3. If installed by the Participating Contractor, the household must be instructed in its use and be provided with instruction manual and warranty information.
4. CO/smoke detectors that are provided by the Participating Contractor must meet the following criteria:
    a. UL compliant
    b. Conform to all local/state codes
    c. Detector must be installed per manufacturer specifications

Domestic Hot Water Measures

Hot Water Heating

1. Temperature adjustment
    a. Criteria
        i. Tested hot water temperature is greater than 120 degrees
        ii. The household is amenable to temperature change

iii. For rental units, owner permission to change the hot water temperature, must be obtained.
iv. In non-rental units, whenever possible, the household member participating in the home energy assessment should be present, shown how to make the adjustments and encouraged to perform the adjustment themselves.

b. The contractor must follow the manufacturer's procedures for adjusting the temperature on hot water heaters.
   i. CAZ and gas leak testing must be completed as required by BPI.
      - Gas or oil hot water heating systems must meet venting codes of the National Fire Protection Association (NFPA) as applicable:
        1) NFPA 54: The National Fuel Gas Code
        2) NFPA 31: Standard for the Installation of Oil-Burning Equipment
        3) NFPA211: Standard for Chimneys, Fireplaces, Vents, and Solid-Fuel Burning Appliances.

Pipe Wrap

a. Criteria- For electric hot water heaters only
   a. A water heater change-out is not under consideration
   b. Pipes are not currently insulated or are insulated poorly
   c. No pipe leaks exist
   d. If the water heater has heat traps, insulation of the intake pipe is not required.
   e. Pipes are not part of a tankless system.

5. Procedures
   a. All installed pipe insulation should be of a size that is correct for the pipe: i.e., no exposed pipe due to using pipe insulation that is too small. Corners must be mitered, and insulation secured with tape.
   b. First 6 feet of hot water pipe and 3 feet of intake water pipe must be insulated.
   c. Pipe insulation must be at least R3.

Showerhead Replacement

1. Criteria
   a. Pre-existing showerhead has a flow rate greater than 3 gallons per minute (GPM)
   b. Current showerhead is not required for medical reasons
   c. Showerhead may be installed without damaging the plumbing.
   d. Showerhead to be installed is acceptable to household

2. Procedures
   a. The Participating Contractor must test the water flow if the existing

shower head does not have water GPM listed on the fixture. New shower head must be installed per manufacturer specifications.

b. Shower-massager or hand-shower models are acceptable but install type must be discussed with the customer before installation.
c. The new showerhead must have a flow rate in the range of 1.7-2.5 GPM.

Heat Pump Water Heater/Electric Water Heater Conversions

1. Criteria
    a. Only heat pump water heater (HPWH) and electric resistance domestic hot water equipment will be incentivized. Fossil fuel water heaters are not eligible for incentives except in instances where there are health and safety reasons or where a mobile home rated. It is recommended that electric resistance heaters only be used in those cases when a HPWH cannot be installed, and the existing water heater is non-functioning.
    b. Rental units are not eligible for replacement unless a Rental Property Energy Efficiency Services Agreement is completed.
    c. HPWHs must be installed in accordance with manufacturers specifications and local and State codes.
    d. The existing panel box must have sufficient capacity to meet the household's needs in addition to the replacement electric hot water heater.
    e. Please see Section 5.10 and 5.15 in the Program Manual for additional information on heat pump equipment installation requirements.
2. Procedures
    a. The Participating Contractor must discuss option with the household and verify their interest in converting to electric. The household must be informed that in a "fuel-switch" scenario, the electricity usage will increase, but the new water heater will decrease the cost of the existing fuel type.

Inspection and Service to Water Heaters Fueled by a Fossil Fuel

1. Criteria
    a. Unless a health and safety issue is identified, incentives are not available for the installation of water heaters fueled by natural gas, oil or propane. Program will incentivize heat pump water heaters (HPWH) and electric resistance domestic hot water equipment. It is recommended that electric resistance heaters only be used in those cases when a HPWH cannot be installed, and the existing water heater is non-functioning.
    b. Repairs may be made for health and safety reasons and are subject to program caps. Please refer to section 5.5 of the Program Manual for additional information on health and safety. Conditions in dwelling are appropriate for change-out (i.e., no flooding in basement, adequate conditioned space etc.).

Heating Equipment Measures

Heating System Repair and Replacement

1. Criteria for installation
    - Ownership by household has been established and written owner permission has been obtained.
    - For Tier 1 (Low-Income) households, heating system replacements with combustion appliances will only be considered in No-Heat situations. Please see Section 5.9 of the Program Manual for additional information.
    - Air Source Heat Pumps are prequalified measures for Tier 1 (Low-Income) and Tier 3 (Moderate-Income) projects when replacing propane, oil, kerosene, electric resistance, and wood-fueled equipment. Ground source heat pumps must pass cost effectiveness regardless of existing fuel type. See Sections 5.10 and 5.15 of the Program Manual for additional information on heat pump equipment.
    - Pellet Stoves are eligible for incentives for Tier 1 (Low-Income) and Tier 3 (Moderate-Income) households. Please refer to Section 5.8 of the Program Manual for additional information.

2. General Procedures
    a. Work performed must comply with all State and local codes and must be completed in accordance with BPI standards, manufacturer's recommendations, and program requirements.
    b. Contractor must discuss the heating system operation with an appropriate household member to:
        i. Identify problems and concerns expressed by the household
        ii. Educate the household on appropriate use and maintenance of the heating system.
    - Adjustments to the heating system that are deemed to be health and safety related may be part of the inspection/servicing. Please refer to section 5.15 of the Program Manual for incentive caps. Such measures may include replacement of a furnace filter, opening of restricted ductwork, bleeding an air-bound radiator, or adjustment of a gas burner.
    - For existing fossil fuel heating equipment, furnace filter slots must be covered according to the manufacturer's specification.
    - completion of any heating system work which affects the efficiency of the heating system, another steady-state efficiency test must be performed. Final documentation, descriptions of specific repairs completed, and specific costs must be provided along with invoices.
    - Warranty, instruction manual and Participating Contractor contact information must be provided to the household.

3. Procedures related to secondary heating systems must be performed in accordance with BPI standards.

Insulation Measures

Participating Contractors can reference Section 5.15 of the Program Manual to identify what air sealing and insulation measures are prequalified and what the Program minimum efficiency requirements are for each type.

Air Sealing Methodology

1. Criteria
    a. Blower door testing must be performed, when feasible, at the time of the assessment and test out in accordance with BPI standards outlined in ANSI/BPI-1200-S-2017 "Standard Practice for Basic Analysis of Buildings."

2. Procedures
    a. During the home energy assessment, the Participating Contractor will conduct a blower door test and use pressure diagnostic techniques to identify major sources of infiltration.
    b. If the Participating Contractor does not provide air sealing as part of the work scope, written explanations must be provided to program implementation staff.
    c. The Participating Contractor will make a list of specific air sealing tasks to be performed. For Tier 1 (Low-Income) projects, these tasks are to be based on the current hourly rates in Section 5.5 of the Program Manual.

Insulation

Participating Contractors can reference Section 5.15 Table 1A of the Program Manual for the Program insulation requirements for each measure. Participating Contractors should prioritize options for insulating the whole home with cost effective measures rather than using a high-cost single measure in limited areas.

1. Criteria
    a. No significant structural deficiencies exist (such as leaking roof) which would impede the effectiveness of the insulation. Such deficiencies must be corrected prior to insulating.
        - Participating Contractor should consult with program implementation staff for minor repairs and/or accessories that can be included as part of the project cost.
    b. Structure is sound enough to support the weight of the insulation and installer(s).
    c. When proposing to dense packing ceiling slopes and/or wall

cavities, the proposed cavities must have a minimum void depth of 2 inches.

- Example: A 2x4 wall cavity with 2 inches or more of pre-existing fiberglass insulation would not be eligible
- Example: A 2x6 wall cavity with 3 inches or less of pre-existing fiberglass insulation would be eligible.

Contractors must conduct a thorough assessment of wall cavities or ceiling slopes before proposing these areas for additional insulation work through EmPower+. Workscope submissions that include the dense packing of wall cavities or ceiling slopes where the proposed cavity includes pre-existing insulation must include photos of the existing wall cavity conditions to support that the combined R-value and density of new and existing insulation will meet manufacturer installation specifications.

2. General Procedures
    a. All insulation must be installed in a manner that is consistent with BPI Standards, manufacturer's specifications, NYSERDA program guidelines, and local codes.
    b. For shell measures installed in unfinished/open cavities, unless Program approves to finish small areas as part of the eligible work scope, the building owner or designated representative must attest the insulated areas will be finished within 30 days of project completion, or sooner, if required by code or manufacturer' s specifications.
    c. Participating Contractor must inspect premises for presence of knob and tube wiring and note location. If knob and tube wiring is present in the attic the Participating Contractor may:
        - Insulate attic but ensure that no insulation is in direct contact with knob and tube wiring. Contractors must ensure they follow all codes when installing insulation in the areas of knob and tube wiring.
        - Propose removal of knob and tube wiring in order to fully insulate attic
            1) The Participating Contractor must provide photographs of pre-existing knob and tube wiring a detailed description of the remediation plan, and remediation costs to implementation staff for review.
            2) For Tier 1 (Low-Income) projects, the Participating Contractor must receive authorization from program implementation staff prior to proceeding with knob and tube remediation.
            3) Participating Contractors shall follow the requirements of the local jurisdiction when completing any electrical work in a home, including when the removal of knob and tube is required.
            4) Participating Contractors are not required to use a

licensed electrician to remove active/live knob and tube wiring unless a licensed electrician is required by the local jurisdiction where work is being performed.

3. Procedures specific to attic insulation
   a. Participating Contractor must ensure that insulation levels are sufficient to allow for any settling that may occur in an open blow. Refer t
   b. Stairway accesses to attics must receive wall insulation and stair tread high-density cellulose to ensure a complete thermal boundary. The access door must receive weatherstripping and a door sweep and must be secured to prevent air leakage.
   c. If attic hatches exist or are installed in a dwelling, the Participating Contractor must weatherstrip and insulate the hatches **but not permanently seal**.
   d. If a Participating Contractor creates an access to the attic that must be permanently sealed (such as access through drywall, or situations where the Participating Contractor insulates the attic through a vent), the Participating Contractor must provide **pre-and post-photos** of the installed insulation, in accordance with Section 8.2.
   e. In situations where objects stored in attic impede the Participating Contractor's ability to adequately insulate attic, the Participating Contractor may require the household move objects within a given time frame.
      - For Tier 1 (Low-Income) projects, in rare instances, such as situations in which a household member is disabled, the Participating Contractor may propose to the Program a charge for moving objects, prior to installation. In other situations, additional resources from outside of the program may be required.
   f. When a floored attic exists, the Participating Contractor must remove and replace flooring in a manner that provides minimum damage, and which provides access to all areas. Broken and split boards must be replaced with a like product and fastened appropriately. If a drill-and-plug method is used, the finished plugs must be flush with existing surfaces.
   g. In situations where the knee walls are insulated, the Participating Contractor must adequately block the thermal bypass at the attic floor/knee wall intersection.
   h. Ventilation must be installed in accordance with all applicable building codes, BPI standards, and program requirements. All openings must be sealed in a weathertight manner and must not greatly detract from the aesthetics of the structure.
   i. Vent openings shall be cut in such a manner as to allow maximum airflow through the vent.

4. Procedures specific to sidewall insulation
    a. Participating Contractor must make every effort to determine the presence of pre-existing insulation.
    Acceptable methods include:
        - Probing outside of electrical outlets but inside outlet covers with a non-conductive probe such as a plastic knitting needle.
        - Drilling holes in exterior facing walls in discrete areas such as closet walls. Any penetrations made by the Participating Contractor should be sealed following the inspection.
        - Probing gaps or holes in the interior surface of the exterior wall.
        - Consulting with the occupant.
        - Pulling, drilling, checking under siding. Any penetrations made by the Participating Contractor should be sealed following the inspection.
        - Infrared scans.
    b. If pre-existing cellulose wall insulation is found and there is reason to believe that significant settling has occurred, re-insulation may be considered as follows:
        - Contractor must notify program implementation staff.
        - An infrared scan must be used to identify the extent of voids.
        - Square footage of the void space must be documented.
        - Contractor may then propose an adjusted wall price, based on higher labor cost/ft^2.
    c. When insulating walls:
        - If pre-existing wall insulation is present, the crew must accurately document, with notes and pictures as needed, the location of added wall insulation.
        - Siding must be removed in all cases and reinstalled to match the original condition. Damaged siding must be repaired and replaced with like material and color, as necessary and must be watertight. Only paintable caulk is acceptable for sealing replaced siding.
        - Drilling directly into exterior siding or drilling into the interior walls of the home is prohibited unless Participating Contractor obtains written permission from the homeowner and approval to proceed from Program implementation staff. As part of the written permission, the Participating Contractor must provide a detailed description of the expectations for sealing the holes (i.e. plugged and 1 coat of spackle and or ready to paint).

5. Procedures specific to miscellaneous insulation measures
    a. Insulation of floors or crawlspaces may be acceptable measures provided that these measures:
        - Are cost effective
        - Do not create the potential for freezing of pipes

1) Are consistent with an appropriate thermal boundary for the home. Floor insulation between a warm basement and a heated space above, for example, is not appropriate.

- Address any air leakage issues with appropriate air sealing

b. Floor insulation must be installed in such a manner that insulation is in contact with the sub-floor, with kraft or foil face applied towards the sub-floor and in accordance with applicable state or local codes.
c. Dirt-floor crawlspaces require a continuous air/moisture barrier installed in accordance with state or local code. This barrier must extend at least 10-16" up the foundation wall and sealed.
d. Exhaust fans that terminate into crawlspaces or attic spaces must

Lighting Measures

The following guidelines will assist Participating Contractors with the creation of reasonable lighting retrofit packages, and modeling of the associated savings. This guidance is for Direct Install, Tier 1 (Low-Income) and Tier 3 (Moderate-Income) projects.

LED Installation Guidelines

1. Existing light bulbs must be 60 watts or greater to be eligible for replacement.
2. LEDs must be installed in high use areas. The installation of LEDs in low use areas such as closets, unfinished basements, attics, garages or utility rooms is not permitted.
3. LEDs must be rated for the light fixture, switch type, environment, etc. in accordance with the manufacturer's recommendation.
4. Participating Contractor must physically replace the existing lighting with LEDs during the course of completing the direct install/project work scope for Tier1 or Tier 3 (Moderate-Income) projects. It is not permissible for the contractor to provide the customer with LEDs for the customer to install.
5. Candelabra LEDs
    a. The chandelier must be in use for an average of three or more hours per day.
    b. The household must be willing to accept the appearance of the bulb.
    c. In instances where more than 20 LEDs will be installed at the project, a lighting schedule may be required per bullet 7. below.
6. To ensure adequate lighting, contractors must, whenever possible, replace incandescent bulbs with LEDs as indicated in the table below:

Pre-existing Incandescent	Light Output	Replacement LED Max
60 watts	750-1049 lumens	8 watts
75 watts	1050-1489 lumens	13 watts
100 watts	1490-2600 lumens	20 watts
150 watts	2601-2800 lumens	28 watts

7. In instances where a project includes more than 20 LEDs, Participating Contractors must submit an LED installation schedule detailing the pre and post bulb wattage, location, and burn time. Projects where more than 20 LEDs are specified may be considered eligible but will be reviewed and considered on a case-by-case basis. If a detailed schedule (e.g. pre/post wattage, location, burn time) has been modeled in the program software, a separate lighting schedule is not required.

Programmable Thermostats

1. Criteria for installation
   a. Participant owns the home, or a Rental Property Energy Efficiency Services Agreement has been submitted to the program
   b. Household displays the ability to properly understand and has a lifestyle that will effectively utilize the thermostat.
   c. Thermostat voltage is appropriate
   d. Maximum one per zone

2. Required thermostat specifications
   a. In situations where home has a central air conditioning unit in use, thermostat has the capability to adjust cooling temperatures
   b. Battery back-up
   c. Large, easy to read display. In situations where household is visually impaired, Contractor must ensure that display is appropriate to household's needs.
   d. A minimum of a 5/2-day program schedule (full 7-day program schedule is preferred.
   e. Programming should be easy and intuitive, and must allow adequate time for inputs
   f. Participant should be able to override program easily
   g. Thermostat should include at minimum of a full one-year warranty
   h. Installed thermostats must be compatible with existing heating system

3. Procedures for installation of thermostats for fossil-fuel systems
   a. Thermostats may be installed during initial home energy assessment visit.
   b. Installation must include training of an appropriate family member.
   c. Participating Contractor contact information must be left with the household in case questions arise.
   d. Thermostat must be fully operational and programmed according to

the family's needs before the Participating Contractor leaves the home.

e. Replaced thermostats that contain mercury must be disposed of in accordance with program guidelines.

4. Procedures regarding thermostats for electrically heated homes
   a. Programmable thermostats maybe very effective at reducing electricity costs; however, electrically heated homes often require thermostats in each room. Nevertheless, the cost may be moderated by replacing only the thermostats in the areas that are most frequently used; a set of 3 to 5 "line-voltage" thermostats in these areas maybe an appropriate and effective application. If such an opportunity arises, Participating Contractor may consult with program implementer for guidance.

Revision History

August 2, 2023 - Refrigerator and freezer criteria for replacement changed from "Pre-existing refrigerator must be at least ten years old" to "Pre-existing refrigerator must be older than 2011."

August 2, 2023 – Carbon monoxide/smoke detector guidance updated per the below:

Carbon Monoxide/Smoke Detectors

1. Smoke detectors: To be installed as required by New York State law.
2. CO detectors: In dwellings served where the customer is the owner of the dwelling, which have either a combustion appliance or attached garage, the Participating Contractor must ensure that a working CO detector is present.
3. If installed by the Participating Contractor, the household must be instructed in its use and be provided with instruction manual and warranty information.
4. Smoke/CO detectors that are provided by the Participating Contractor must meet the following criteria:
    a. UL compliant
    b. Conform to all local/state codes
    c. Detector must be installed per manufacturer specifications

August 17, 2023 - Add updated refrigerator guidance once approved.

May 1, 2024 – First paragraph updated by adding "by the Participating Contractor."

September 2024- Removed "Contractor may not proceed with home performance measures in a home unless the heating system is deemed to be in safe and operable condition." from the Heating System Repair and Replacement Section

February 2025 – Removed appliances section, updated Insulation Rules to match Program Announcements

July 2025 - Under **Carbon Monoxide/Smoke Detectors**, removed language stating CO detectors were only to be installed when the customer is the owner of the dwelling.
Under **Domestic Hot Water Measures, Hot Water Heating,** removed language on procedures.
Under **Heat Pump Water Heater/Electric Water Heater Conversions,** removed power vented natural gas/propane water heater as a viable option.
Under **Inspection and Service to Water Heaters Fueled by a Fossil Fuel,** repairs must only be made for health and safety reasons. Removed procedures.
Under **Heating Equipment Measures**, General Procedures, added that furnace filter slots must be covered according to manufacturer's specification. Removed option for major repair or

replacements.
Under **Insulation**, General Procedures, included that contractors must follow all codes when installing insulation.
Under **Insulation**, removed specific codes and instead referenced “applicable state or local code”.