

## Region 2 (Moderate) – Single-Family Site-Built PL

1. **Mandatory:** Install all applicable Health and Safety (H&S) measures per the Grantee’s DOE-approved H&S Plan.
2. **Mandatory:** Light Emitting Diode (LED) lighting replacement of all existing screw-based incandescent, halogen, or compact fluorescent lighting used for a minimum of one hour per day.
  - [Lighting Replacement SWS](#)
3. **Mandatory:** Air Sealing – seal the exterior pressure boundary surfaces at all the following locations: attic top-plates; ceiling, wall, and floor bypasses, penetrations, and holes; sill box to floor intersection if on unconditioned crawlspace or basement, or entire sill box area if conditioned foundation.
  - Target value is 1 cfm/ft<sup>2</sup> of conditioned floor area.
  - [Air sealing SWS](#)
4. **Mandatory:** Duct Sealing – seal all accessible ducts located outside the thermal boundary.
  - Target value is 1 Pascal per register as measured with a Pressure Pan.
  - [Duct sealing SWS](#)
5. **Mandatory:** Duct Insulation – insulate all accessible uninsulated ducts located outside the thermal boundary to R-8 or R12 if exposed to the exterior.
  - [General Duct insulation SWS](#)
6. **Mandatory:** Ceiling insulation
  - Unconditioned Attic
    - i. **Mandatory:** insulate all accessible attics to R-49 or to capacity if less.
      - [Attic Floors - Unconditioned Attics SWS](#)
    - ii. **Mandatory:** insulate all uninsulated enclosed attics to capacity (e.g., floored or cathedral).
      - [Attic Floors - Unconditioned Attics SWS](#)
  - Finished Attic / Kneewall Attic / Bonus Room
    - i. **Mandatory:** Insulate all attic flats (collar beam & outer ceiling joists) to R-49 or to capacity if less.
      - [Attic Floors - Unconditioned Attics SWS](#)
    - ii. **Mandatory:** Insulate all uninsulated attic enclosed roof rafter slopes to maximum capacity possible.
      - [Inaccessible Ceilings – Dense Pack SWS](#)
    - iii. **Mandatory:** Insulate all uninsulated knee walls to R-15 or to capacity, whichever is greater.
      - [Attic Knee Walls SWS](#)
7. **Mandatory:** Wall Insulation
  - a. **Mandatory:** Insulate any exterior wall cavity with no existing insulation to full dense-packed capacity.
  - b. **Optional:** Insulate any partially insulated exterior wall cavities (e.g., 3.5” cavity with 2” of existing batt) using dense-pack insulation.
    - [Dense Pack Insulation SWS](#)
8. **Mandatory:** Floor insulation – insulate all uninsulated floors over unconditioned foundations to R-30 or to full joist capacity, if less. Must include complete ground moisture barrier over any exposed dirt floors.
  - [Floors SWS](#), [Ground Vapor Retarders SWS](#)
9. **Optional:** **\$250** per home DOE WAP funds cap
  - Faucet aerators (<2.2 GPM) – [Low-Flow Devices SWS](#)
  - Showerhead (<2.5 GPM) - [Low-Flow Devices SWS](#)
  - Domestic Water Heater (DWH) tank insulation (R-10 minimum) – [Tank Insulation SWS](#)
  - DWH pipe insulation (6’ of both hot and cold-water lines nearest the DWH, and any accessible hot water lines beyond that to R-3) – [Pipe Insulation SWS](#)

10. **Optional:** Replace up to (1) refrigerator per home, with a label rating of less than 400kWh/yr and maximum installed cost of **\$850** per unit when the existing refrigerator:
- Was manufactured before 2001, OR
  - Uses >1000 kWh/yr based upon energy use metering or industry accepted resource.
    - [Refrigerator Replacement SWS](#)
11. **Optional:** Primary Heating and Air-Conditioning System Replacements
- [Heating & Cooling: Equipment Installation SWS](#)
- i) Replace existing ducted electric resistance forced air furnace and air conditioning combination with a heat pump of minimum 15.2/SEER2 & 8.1/HSPF2 which must include an EC air handler motor and programmable thermostat ([SWS 5.0108.1](#); [SWS 5.0101.1](#)).
  - ii) Replace existing combination of non-ducted fixed electric resistance heat (e.g., electric baseboard, and PTAC units), and non-ducted air conditioning (i.e., window or room A/C, including PTAC) with a minimum 19/SEER2 & 10/HSPF2 mini-split heat pump system which must include a programmable thermostat ([SWS 5.0108.3](#); [SWS 5.0101.1](#)).
  - iii) Replace existing window A/C manufactured before 2014 with a minimum 12 CEER or higher unit of the same or lesser BTU capacity.
  - iv) If the home has any other existing combination of heating/cooling systems other than as described above, then an energy model may be run that assumes items 1-8 have been completed and determine if an alternative heating/cooling system replacement is cost effective for this specific home.

## Region 2 (Moderate) – Manufactured Home PL

1. **Mandatory:** Install all applicable Health and Safety (H&S) measures per the Grantee’s DOE-approved H&S Plan.
2. **Mandatory:** Light Emitting Diode (LED) lighting replacement of all existing screw-based incandescent, halogen, or compact fluorescent lighting used for a minimum of one hour per day.
  - [Lighting Replacement SWS](#)
3. **Mandatory:** Air Sealing – seal the primary pressure boundary surfaces at the following locations: attic top-plates (if accessible); all penetrations and holes through the ceiling, exterior walls, and floor.
  - a. Target value is 1 cfm/ft<sup>2</sup> of conditioned floor area.
    - [Air sealing SWS](#)
4. **Mandatory:** Duct Sealing – seal all accessible ducts. At a minimum, seal all end caps, crossovers, duct boot connections, holes or penetrations, and furnace connections.
  - a. Target value is 1 Pascal per register.
    - [Duct sealing SWS](#)
5. **Mandatory:** Ceiling insulation (both flat and vaulted ceilings) – fill ceiling to R-49 or to capacity, whichever is less, with blown insulation.
  - [Attic Floors – Unconditioned Attics SWS](#)
6. **Mandatory:** Replace all single-paned metal-framed windows with Low-E double-paned windows having a U-value of 0.33 or less. Single pane windows with storm windows are not eligible for replacement using DOE funds.
  - [Window Replacement SWS](#)
7. **Optional:** **\$250** per home DOE WAP funds cap
  - a. Faucet aerators (<2.2 GPM) – [Low-Flow Devices SWS](#)
  - b. Showerhead (<2.5 GPM) - [Low-Flow Devices SWS](#)
  - c. Domestic Water Heater (DWH) tank insulation (R-10) – [Tank Insulation SWS](#)
  - d. DWH pipe insulation (6’ of both hot and cold-water lines nearest the DWH, and any accessible hot water lines beyond that to R-3.) – [Pipe Insulation SWS](#)
8. **Optional:** Replace up to (1) refrigerator per home, with a label rating of less than 400kWh/yr and maximum installed cost of **\$850** per unit when the existing refrigerator:
  - a. Was manufactured before 2001, OR
  - b. Uses >1000 kWh/yr based upon energy use metering or industry accepted resource.
    - [Refrigerator and Freezer Replacement SWS](#)
9. **Optional:** Primary Heating and Air-Conditioning System Replacements
  - [Heating & Cooling: Equipment Installation SWS](#)
  - i) Replace existing window A/C manufactured before 2014 with a 12 CEER or higher unit of the same or lesser BTU capacity.
  - ii) If the home has any other existing combination of heating/cooling systems other than as described above, then an energy model may be run that assumes items 1-6 have been completed and determine if an alternative heating/cooling system replacement is cost effective for this specific home.

## Region 2 (Moderate) – LRMF PL

1. **Mandatory:** Install all applicable Health and Safety (H&S) measures per the Grantee’s DOE-approved H&S Plan.
2. **Mandatory:** Light Emitting Diode (LED) lighting replacement of all existing screw-based incandescent, halogen, or compact fluorescent lighting used for a minimum of one hour per day.
  - [Lighting Replacement SWS](#)
3. **Mandatory:** Air Sealing – seal the primary pressure boundary surfaces at the following locations: attic top-plates; attic ceiling; exterior wall, and floor penetrations, and holes; sill box to floor intersection if on unconditioned crawlspace or basement, or entire sill box area if conditioned foundation.
  - [Air sealing SWS](#)
4. **Mandatory:** Duct Sealing – seal all accessible ducts located outside the thermal boundary.
  - [Duct sealing SWS](#)
5. **Mandatory:** Duct Insulation – insulate all accessible uninsulated ducts located outside the thermal boundary to R-8 or R12 if exposed to the exterior.
  - [General Duct insulation SWS](#)
6. **Mandatory:** Ceiling insulation – insulate all accessible attics to R-49 or to capacity if less.
  - [Attic Floors - Unconditioned Attics SWS](#)
7. **Mandatory:** Wall Insulation – where the total gross area of any uninsulated exterior wall is >10%, insulate the missing areas to capacity with dense pack insulation.
  - [Dense Pack Insulation SWS](#)
8. **Mandatory:** Floor insulation – insulate all uninsulated floors over unconditioned foundations to R-30 or to full joist capacity if less. Must include complete ground moisture barrier over any exposed dirt.
  - [Floors SWS](#), [Ground Vapor Retarders SWS](#)
9. **Optional:** **\$250** per dwelling unit DOE WAP funds cap
  - Faucet aerators (<2.2 GPM) – [Low-Flow Devices SWS](#)
  - Showerhead (<2.5 GPM) - [Low-Flow Devices SWS](#)
  - Domestic Water Heater (DWH) tank insulation (R-10) – [Tank Insulation SWS](#)
  - DWH pipe insulation (6’ of both hot and cold-water lines nearest the DWH, and any accessible hot water lines beyond that to R-3) – [Pipe Insulation SWS](#)
10. **Optional:** Replace up to (1) refrigerator per dwelling unit, with a label rating of less than 400kWh/yr and maximum installed cost of **\$850** per unit when the existing refrigerator:
  - Was manufactured before 2001, OR
  - Uses >1000 kWh/yr based upon energy use metering or industry accepted resource.
    - [Refrigerator and Freezer Replacement SWS](#)
11. **Optional:** LED lighting replacement of fluorescent tube lighting – [Lighting Replacement SWS](#)

12. Optional: Primary Heating and Air-Conditioning System Replacements

- [Heating & Cooling: Equipment Installation SWS](#)
- i) Replace existing ducted electric resistance forced air furnace and air conditioning combination with a heat pump of minimum 15.2/SEER2 & 8.1/HSPF2 which includes an EC air handler motor and programmable thermostat ([SWS 5.0108.1](#); [SWS 5.0101.1](#)).
- ii) Replace existing combination of non-ducted fixed electric resistance heat (e.g., electric baseboard, and PTAC units), and non-ducted air conditioning (i.e., window or room A/C, including PTAC) with a minimum 19/SEER2 & 10/HSPF2 mini-split heat pump system which must include a programmable thermostat ([SWS 5.0108.3](#); [SWS 5.0101.1](#)).
- iii) Replace existing ducted heat pump system that is manufactured before 2006 with a minimum 15.2/SEER2 & 8.1/HSPF2 heat pump which must include an EC air handler motor and programmable thermostat ([SWS 5.0108.1](#); [SWS 5.0101.1](#)).
- iv) Replace existing window A/C system manufactured before 2014 with a minimum 12 CEER or higher unit of the same or lesser BTU capacity.
- v) If the building has any other existing combination of heating/cooling systems other than as described above, then an energy model may be run in compliance with the Grantee's DOE-approved audit process which assumes items 1-8 have been completed and determine if an alternative heating/cooling system replacement is cost effective for this specific building.