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**Energy Conservation Measures (ECM):**

Ensure that the following documents have been completed and signed before beginning the home assessment:

 [Release of Liability and Waiver of Claims](http://www.ces.ncsu.edu/wp-content/uploads/2013/10/Volunteer-Release-of-Liability-and-Waiver-of-Claims.pdf)

 [Utility Usage Release Form](http://www.ces.ncsu.edu/wp-content/uploads/2013/10/Volunteer-Utility-Usage-Release-Form.pdf)

 [Homeowner Request and Questionnaire](http://www.ces.ncsu.edu/wp-content/uploads/2013/10/Volunteer-Homeowner-Request-and-Questionnaire.pdf)

Before beginning the energy conservation measures (ECM) the volunteer will explain each ECM and its benefit to the resident. The resident will have the option of declining any of the measures.

While performing the ECM, the volunteer will educate the resident in an uncomplicated, easy-to-understand manner on some of the ways in which energy is consumed and lost in the home, and how efficiency can be improved both through the measures provided by the Volunteer Energy Conservation Initiative (VECI) program and through modest adjustment in lifestyle and habit.

If the volunteer sees that there are major additional energy efficiency improvements that are needed in the home (e.g., attic insulation, major air sealing, etc.) s/he will explain what was found and provide information and literature explaining how to proceed, how to identify rebate or loan programs, etc. The information will be presented in a way that encourages the resident to follow-up. The volunteer will note on the Home Energy Evaluation Survey the opportunity identified and the recommendation made to the resident.

**The energy conservation measures will be selected from the following list based on priority:**

Compact Fluorescent Bulbs

* This measure provides the installation compact fluorescent bulbs to replace incandescent bulbs.

Insulation for Water Pipes

* Installation of up to ten (10) feet of pipe insulation to the hot and cold water pipes immediately adjacent to the water heater.

Appliances

* Refrigerator – clean coils, seal doors and adjust temperature, as needed
* Clothes dryer – clean vent and ensure proper installation, as needed

Water Heater Temperature Check and Adjustment

* This measure provides for checking the temperature of the water being produced by the water heater and if the measured temperature exceeds the recommended range, offering to perform a temperature turn-down adjustment.



Low-Flow Faucet Aerators

* This measure provides the installation of up to three (3) low-flow faucet aerators.

Low-Flow Showerheads

* This measure provides the installation of one (1) low-flow showerheads.

Heating / AC System

* Offer to assist homeowner in signing up for a tune-up on HVAC unit with utility company if rebates/offers are available (ie: Progress Energy).

HVAC Filters

* This measure provides a new, installed central HVAC filter for each location, as needed. In addition, the installation (or cleaning, if applicable) of a replacement filter will be demonstrated.

Air Infiltration Reduction Measures

* This measure provides for the installation of weather stripping, door sweeps, caulk, and foam sealant to reduce or stop air infiltration around doors, windows, attic hatches, and plumbing penetrations.
* Seal these areas as needed for proper efficiency:
  + Fireplace dampers and gaps around chimney
  + Electrical outlets and switch plates
  + Around window-mounted air conditioners
  + Around exterior doors and windows
  + Attic hatch(es) or attic door(s)
  + Dryer vent
  + Kitchen exhaust fan
  + Gaps around pipes and wires
  + Duct registers
  + Ductwork in unconditioned space\*

\*Conduct basic, high priority sealing when possible (such as connecting and sealing disconnected ducts and sealing duct boots).

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| ***Measure*** | **Installation Criteria** |
| **Compact Fluorescent Bulbs** | All CFL’s must be Energy Star rated  Disallowed on dimming switches  Disallowed in closed “fishbowl” fixtures  Disallowed in unstable or broken fixtures  Disallowed on exterior fixtures  Test after installation  Maximum of ten per household  See CFL Changeout Lumen Equivalent specifications table at the end of this Appendix for replacement equivalents. |
| **Water Heater Wrap** | Disallowed on gas fired systems  Disallowed on foam insulated electric systems  Installed per manufacturer’s instructions  Use a minimum of R-10, fiberglass or mineral fiber only batt with a protective covering |
| **Pipe Insulation** | Disallowed on gas fired systems domestic water pipes only  Maximum of 5’ on cold water feed  Maximum of 5’ on hot water supply  Installed as close as possible to the tank  Use pipe wrap with R-value of at least 3 |
| **Showerheads** | Install equipment with flow rate of 2.0 gpm or less  Teflon thread tape always to be used  Adapter used as required  Tested after installation and adjusted as necessary  Leave old showerhead with homeowner  Anti-sediment screen must be stainless steel |
| **Faucet Aerator** | Install equipment with flow rate of 1.5 gpm or less Replace only if existing unit can be easily removed  Test after installation and adjusted as necessary  Leave old aerators with customer  Maintain a supply of faucet aerators capability of meeting the need for male threaded and female threaded faucet situations |
| **HVAC Air Filter** | Remove existing filter carefully  Install new filter, adjusting size as necessary  Leave same size replacement for subsequent customer use  When available, filters should be UL approved and factory cut.  Where not commercially available, a custom cut washable filter should be installed and a replacement provided |
| **Window AC Filter** | Clean or replace existing filter |
| **Refrigerator/Freezer**  **Coil Cleaning** | Only if coils can be accessed safely  Demonstrate cleaning technique to customer  Leave coil brush with customer |
| **Refrigerator Thermometer** | Placed in refrigerator/freezer at eye level whenever possible  Maximum of six available per household  Demonstrate how to reset appliance temperature  Inform customer of reset time required |
| **Wall Plate Thermometer** | Locate centrally in conditioned space  Install only on interior wall  Locate away from air supply registers  Locate on wall opposite window AC  Replace existing switch plate with thermometer plate |
| **Caulking** | Install only on immovable gaps  Caulk to be finished with smooth unbroken bead |
| **Foam** | Install only on immovable gaps  Install only on surfaces concealed from conditioned spaces |
| **Weather Stripping** | Install professional grade “V” seal vinyl weather strip with adhesive back  Install only on doors leading to unconditioned spaces  Provide clearance for latches and deadbolts  Install in smooth, straight line  Test for air sealing adequacy |
| **Door Sweeps** | Install only on doors leading to unconditioned spaces  Install door sweep on door bottom edge  Install in smooth, straight line  Test for air sealing adequacy |

**CFL Changeout Watt Equivalent Specifications**

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| --- | --- |
| **Existing Incandescent Wattage** | **Replacement CFL Wattage (Range)** |
| 40 Watts | 11 Watts – 13 Watts |
| 60 Watts | 13 Watts – 16 Watts |
| 75 Watts | 18 Watts – 20 Watts |
| 100 Watts | 23 Watts – 25 Watts |

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