



Weatherization Assistance Program Natural Gas Mobile Home Measures List

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1 General

Applicable Weatherization Program Manual requirements relating to materials and provision of services apply, with the exception of items identified in this policy (e.g., not requiring the use of Weatherization Assistant) and any additional specific Mobile Home Measures List requirements.

2 Energy Audit

A mobile energy evaluation will consist of a basic walkthrough of the home with basic data collected on the shell, health and safety, and mechanicals of the home. An energy auditor shall not test any of the mechanicals nor perform diagnostic tests in the home (i. e., furnaces, water heaters, gas leaks, draft tests, blower door, room pressures, and duct leakage). The prescribed list of measures to be completed must follow the rules and guidelines set forth below. Some prescriptive measures may be installed by the auditor during their evaluation.

3 Crew Work

Crew work is limited to the prescribed measures, based upon the energy evaluation findings and the allowable expenditure cap. Crews shall not test any of the mechanicals or perform diagnostic tests in the home (i. e., furnaces, water heaters, gas leaks, draft tests, blower door, room pressures, and duct leakage) as part of the weatherization work.

4 Therm Bins, Available Measures, and Allowable Expenditures per Pre-WX Fuel Consumption Bin

An “allowable” expenditure limit will be identified for each individual mobile home, based on its level of pre-WX fuel consumption. Agencies must follow the order of the measures list as prescribed in each therm bin (i.e., agencies cannot advance past one measure to do another measure lower on the list). Expenses for Baseload measures are excluded from the allowable expenditure amount. For all other measures, expenses are deducted from the allowable expenditure amount. Any Health and Safety work completed is deducted from the allowable expenditure amount. Once an agency reaches the maximum allowable expenditure based upon the pre-WX fuel consumption, an agency must stop work. Agencies must calculate and apply their own average costs for major measures, with the exception of Limited Belly Insulation, and Air Sealing (these two measures have cost caps). If an agency costs are unknown, please contact the Help Desk at heat@wisconsin.gov and DEHCR will help to provide those numbers.

There are two cases where the “order of measures” list may not apply. If the existing furnace does not meet replacement guidelines, the agency may bypass the furnace replacement and advance to the next measure. If the existing gas water heater is not approved for mobile home installation but is otherwise not eligible for replacement, air sealing measures are not to be completed.

Table 4-1 below depicts the allowable measures list based upon pre-WX fuel consumption and the expenditure limits associated with each step of Therm pre-usage levels. Note: The Therm levels are to be read as “up-to” — e.g., the row for 1,000 therms captures homes with 1,000 - 1,099 pre-WX therms. Until the next Therm level is reached, the agency may not move into that expenditure and measure list.



Table 4-1: Allowable Measures List

Annual Pre-WX Therms Usage	Baseload	Furnace Replacement	Duct Sealing	Air Sealing \$450 Cost Cap	Limited Belly Insulation \$500 Cost Cap	Allowable Expenditure Baseloads Excluded
< 500	✓					\$900
<= 600	✓	✓	✓	✓	✓	\$1,200
<= 700	✓	✓	✓	✓	✓	\$1,500
<= 800	✓	✓	✓	✓	✓	\$1,800
<= 900	✓	✓	✓	✓	✓	\$2,100
<= 1000	✓	✓	✓	✓	✓	\$2,400
<= 1100	✓	✓	✓	✓	✓	\$2,700
<= 1200	✓	✓	✓	✓	✓	\$3,000
<= 1300	✓	✓	✓	✓	✓	\$3,300
<= 1400	✓	✓	✓	✓	✓	\$3,600
<= 1500	✓	✓	✓	✓	✓	\$3,900
<= 1600	✓	✓	✓	✓	✓	\$4,200
<= 1700	✓	✓	✓	✓	✓	\$4,500
<= 1800	✓	✓	✓	✓	✓	\$4,800
> 1801	✓	✓	✓	✓	✓	\$5,000

5. Measure Descriptions and Guidelines

5.1 Baseloads

Baseload measures will be completed on every home. Baseload measures include the following items:

5.1.1 Compact Fluorescent Lighting (CFL) or Light Emitting Diode (LED) Bulbs

- 1) Replace eligible bulbs at time of energy evaluation (agency decision).
- 2) Replace existing incandescent light bulbs that have a daily burn time of 1.5 hours or more with CFLs or LEDs.
- 3) Replace functioning halogen torchiere lamps with CFL torchiere lamps.

5.1.2 Flow Restrictors and Showerheads

- 1) Replace showerheads at time of energy audit (agency decision).
- 2) Replace existing non-low-flow faucet aerators and showerheads with 1.5 gallons per minute (GPM) water-saving devices.

5.1.3 Refrigerators

- 1) Replace existing refrigerators manufactured prior to 2004.
- 2) If the existing refrigerator is greater than or equal to 18 cubic feet (CF), the replacement refrigerator should be equal in size.
 - a) If the existing refrigerator is less than 18 CF, upsize to an 18 CF refrigerator if the available refrigerator opening will accommodate the larger size.
- 3) If unsure of the existing refrigerator's age, please use the following website to help determine the age: <http://www.kouba-cavallo.com/refmods.htm>.

5.1.4 Freezers

- 1) Replace existing 14 CF and greater freezers manufactured prior to 2004.
 - a) Replacement freezers should be equal in size to the existing freezer.
- 2) If unsure of the existing freezer's age, please use the following website to help determine the age: <http://www.kouba-cavallo.com/refmods.htm>.

5.1.5 Water Heater Conversions

- 1) Replace existing electric water heaters with natural-gas direct-vent water heaters.
 - a) Prior to replacement the energy auditor must verify that the conversion is feasible:
 - i. Flooring and attic structures will not impede proper venting.
 - ii. Closet allows enough clearance to complete installation.
 - iii. The customer agrees to the conversion.
 - b) \$250 maximum allowance above and beyond bid cost allowed for incidental charges.
 - i. Retrofitting of cabinet for installation of water heater
 - c) Draft testing (worst case and natural conditions) of the newly installed water heater is not required.

5.2 Carbon Monoxide (CO) and Smoke Alarms

- 1) To be installed at time of energy audit (agency decision).
- 2) Install a CO alarm in every mobile home, unless already present.
 - a) If a gas water heater, natural drafting furnace, or draft induced furnace is present in the mobile home, attempt to locate the CO alarm relatively close to the appliances.
- 3) Install smoke alarms if the mobile home has a wood/pellet burning appliance.

5.3 Furnace Replacement

An agency must include its bid cost for a replacement furnace as part of the allowed expenditure. The cost of auxiliary work (I. E., condensate pump, thermostat) shall also be included in the deducted cost. If the existing furnace does not meet replacement guidelines below, the agency may bypass the furnace replacement measure and advance to the next measure.



If the furnace was replaced through the HE+ Furnace Program within the previous 12 months, the invoiced replacement cost is considered as part the job's allowable expenditure.

Buy down option: If the full cost of the furnace replace will exceed the allowable expenditure, the customer does have the option to buy down the cost of the furnace. An agency is allowed to use the allowable expenditure amount to go toward the cost of the furnace, and the customer agrees to pay the remainder of the cost.

Example: if the home is in the 600 therm range, no other work is to be completed, and a new furnace costs \$2,000, an agency can use \$1,200 of Wx funds towards the furnace if the customer agrees to pay the remaining \$800.

5.3.1 General guidelines for furnace replacement:

- 1) Replace furnaces that have a standing-pilot with a high efficiency furnace.
- 2) Replace furnaces with a calculated combustion efficiency of 80% or less with a high efficiency furnace.
 - a) To calculate the combustion efficiency take the output BTU/HR divided by the input BTU/HR.
- 3) Ensure the furnace cabinet has enough clearance for the installation of the new furnace.

5.4 Duct Sealing

The time cap for duct sealing is 3 labor hours.

An agency shall deduct its average cost for duct sealing from the allowable expenditure limit.

An agency is required to effectively address all items listed below within the time cap provided to perform duct sealing. If unable to effectively address all items listed below within that cost, do not proceed with duct sealing; stop the job at the previous measure.

5.4.1 General guidelines for duct sealing:

- 1) Limit duct sealing to a maximum of 3 total labor-hours.
- 2) Limit duct sealing to the major leakage points of a mobile-home duct system:
 - a) Boots
 - b) Plenum
 - c) Ends
 - d) Crossovers
- 3) An agency may also seal major holes in the ductwork while still addressing the items listed above within the time cap.
- 4) If visual inspection indicates that these areas do not require sealing, it is not required to seal them.

5.5 Air Sealing (Pre-Set Cost Cap)

The cost cap for air sealing is \$450.

An agency is required to effectively address all items listed below within the cost cap and time allotment provided to perform air sealing. If unable to effectively address all items listed below within that cost, do not proceed with air sealing; stop the job at the previous measure.

5.5.1 General guidelines for air sealing:

- 1) Limited to 3 total labor-hours or \$450, whichever comes first.
- 2) Only perform major air sealing.
- 3) Limit air sealing to the typical major leakage points of the mobile home's pressure boundary:
 - a) Underneath sinks
 - b) Above the furnace and water heater
 - c) Around the electrical box
 - d) Around kitchen range-hood exhaust

If visual inspection indicates that these areas do not require sealing, then don't seal them.

5.6 Limited Belly Insulation (Pre-Set Cost Cap)

The cost cap for limited belly insulation is \$500.

An agency must be able to effectively address all items listed below within the time allotment provided to perform air sealing. If unable to effectively address all items listed below within that cost, do not proceed with belly insulation; stop the job at the previous measure.

When more than 20% of the belly is in need of repair, defer services. Example: on a 980 sq ft unit, it is only allowed to patch up to 196 sq ft. If more extensive work is needed AND an agency thinks they can complete that work in a cost effective manner, contact the Energy Help Desk at heat@wisconsin.gov to request a waiver..

5.6.1 General guidelines for limited belly insulation:

- 1) Insulate with fiberglass batt and patch holes in the road barrier, intending to restore the belly to its original construction and integrity.
- 2) Focus only on water/sewer lines and other areas that need protection from the elements.

6. Health and Safety Measures

Health and Safety measures should be addressed only on a case-by-case basis, with deferral of services always being an option. Below are examples of how to manage certain situations.

At all times the cost of Health and Safety measures shall be deducted from the allowable expenditure amount.

6.1 Dryer venting

Vent dryers to the exterior per current Program Manual and Field Guide standards.



6.2 Gas Leaks

Do not test for gas leaks; provide verbal customer education about gas leaks and the way to detect them. Refer customer to utility company for more information.

6.3 Plumbing Leaks

- 1) If found at audit, defer the building.
- 2) If found during limited belly insulation, defer the in-progress unit until the customer has remedied the water leak.

6.4 Existing Mold and Moisture

- 1) Auditor judgment shall determine when to defer based on existing conditions.
 - a) Mold
 - b) Exhaust fans not working to address mold and high moisture problems
 - i. Customer is responsible for replacing exhaust fans.
- 2) Provide verbal customer education on the proper use of existing bath fans.
- 3) Page 2 of the health and safety checklist shall be used to document the reason to defer based upon existing mold and moisture.
- 4) Water heater is not mobile home approved
 - a) Document the situation and provide homeowner notification.
 - b) Air Sealing is not allowed, continue with other measures as prescribed.

7. Inspection

Mobile homes completed with the Measures List are not required to be inspected. Crews and contractors shall document the work performed with notes and photos, and receive necessary job completions signatures at the appropriate times.

If contracted work is being performed after agency work is being performed, consider scheduling job completions so that all job completion signatures can be attained on the same day.

8. Reporting

Report Natural Gas mobile homes as regular units. Ensure that only Measures List measures are being selected.

Natural Gas mobile homes that are being deferred but will still receive the Baseload items will be reported as regular units. If the mobile home comes off of deferral, contact the Energy Help Desk at heat@wisconsin.gov so that a re-work job can be created to account for the additional measures being completed.

9. Outreach

It is recommended that agency's develop a plan for outreach, to help minimize the costs of auditing as well as ensure the successful weatherization Natural Gas mobile homes within the measures list. Suggestions are listed below.

9.1 General guidelines for outreach:

- 1) Target mobile homes manufactured in the year 2000 and older.
 - a) More likely to fall into higher pre-usage therm bins.
- 2) Target mobile homes that have electric water heaters.
- 3) Target mobile homes that have refrigerators and freezers manufactured prior to 2004.
- 4) Target mobile homes that have standing pilot furnaces.