

Section 5: General Energy Waste Reduction Measures

Energy Saving Measures v. General Energy Waste Reduction Measures

Some measures can be classified as either Energy Savings Measures (ESMs) or as General Energy Waste Reduction Measures (GEWRMs) depending on how they are recorded to individual jobs. The classification made on each job depends on how the measures are recorded into energy modeling software. If a measure is going to be considered an ESM, then it must be screened by approved energy modeling software and generate a measure-level SIR ≥ 1.0 to be included on the workorder and installed on the job. If the measure is going to be considered a GEWRM then it does not need to be screened and proven to yield a measure level SIR ≥ 1.0 . Instead, the measure cost can be counted against a \$250 maximum allowable per-job investment for GEWRMs. Some measures that can be classified as GEWRMs and count toward the \$250 per job cap are covered specifically in this section of the manual. Any miscellaneous weatherization work that (a) requires minimal investment and (b) provides some form of energy waste reduction, can be included toward the per job GEWRM cap of \$250.

Heat Distribution Systems

Site-Built Homes | Forced Air Distribution Systems - Located inside the pressure boundary

The measures covered in the table below can no longer be classified as General Energy Waste Reduction Measures. Instead, these measures shall be classified as Incidental Repair Measures on every project (effective 2019).

Duct Sealing & Insulation		
Technical Protocols for ducts located <u>inside</u> of the pressure boundary		
Return Side	Vs.	Supply Side
<p>All physically accessible joints on the return side of heat distribution systems shall be verified* as “leak-free” prior to completion of every weatherization project.</p> <p>When duct sealing measures are necessary, duct mastic shall be used to perform the work with the aid of mesh tape.</p> <ul style="list-style-type: none"> ✓ Use of mesh tape is only allowable in tandem with duct mastic, not alone. ✓ Use of any other kind of tape for duct sealing purposes is not allowable. <p>*The effectiveness of duct sealing performed on return ducts inside the pressure boundary should be thoroughly evaluated and verified with smoke sticks (or equivalent visual aids) while the air handler is running.</p>		<p>Sealing the supply side of heat distribution systems is allowed. It is not required.</p> <p>This is a very low priority measure that should only be performed after all required weatherization measures have been performed.</p>
<p>Any ductwork that is located <u>inside</u> of the pressure boundary shall not be insulated using WAP funding.</p>		



Section 5: General Energy Waste Reduction Measures

Heat Distribution Systems



Site-Built Homes | Forced Air Distribution Systems - Located outside the pressure boundary

These measures can be classified as either [General Energy Waste Reduction Measures](#) or as [Incidental Repair Measures](#) (effective 2019).


Duct Sealing & Insulation
Technical Protocols for ducts located <u>outside</u> of the pressure boundary
Return Side & Supply Side
<p>Any ductwork that is located <u>outside</u> of the pressure boundary shall be:</p> <ol style="list-style-type: none"> 1. Sealed with duct mastic as needed with the aid of mesh tape. 2. Verified* as "leak free"*. 3. Insulated to R-8 minimum. <p>*The effectiveness of duct sealing performed outside the pressure boundary shall be verified with smoke sticks (<i>or equivalent visual aids</i>) while the air handler is running prior to insulating the ducts.</p>

Heat Distribution Systems

Mobile Homes | Forced Air Distribution Systems

-  Whenever a workscope is developed for a mobile home project using the DOE approved priority-list, all duct sealing & insulation measures shall be classified as General Energy Waste Reduction Measures.
-  Whenever a workscope is developed for a mobile home project by performing a site-specific energy model, these measures shall be classified as Energy Saving Measures that generate a Savings to Investment Ratio.

Set-Back Thermostats

-  Whenever programmable/set-back thermostats are installed they shall be classified as General Energy Waste Reduction Measures.



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Domestic Hot Water Systems

Water Heaters | Tank Insulation – [No Longer a General Energy Waste Reduction Measure \(since 2018\)](#)

Efficiency Vermont (EVT) no longer funds insulation measures for water heaters. The local WAP agency can add tank insulation measures into their WAP scopes of work. However, it is no longer allowable practice to classify tank insulation measures as General Energy Waste Reduction Measures on any WAP jobs. To pay for the tank insulation measure using WAP funding the measure must be proven to yield a measure level SIR of ≥ 1.0 by approved energy modeling software.

The minimum insulation value of any added tank insulation must be R-11. The insulation must be installed in a manner that does not obstruct draft diverters, pressure relief valves or thermostats. All panel covers over the water heater elements must be in place prior to insulating the tank. For electric water heaters only, the tank insulation must either be cut on 3 sides so that the insulation material can be folded back to allow for access to the panel covers over the elements or the location of the panel covers over the elements must be drawn onto the tank insulation with permanent marker so that the insulation could be cut back at a later time to service the appliance.

Water Heater Piping | Pipe Insulation – [Still A General Energy Waste Reduction Measure \(2020\)](#)

Efficiency Vermont no longer funds insulation measures for the piping leads connected to water heaters. WAP funding shall be used to insulate 12 ft. total of the cold and hot leads connected to all water heaters regardless of water heater fuel type and the type of plumbing piping that extends from the water heater. Three feet of the cold-water piping and nine feet of the hot-water piping extending from the water heater shall be insulated unless those lengths of piping are physically inaccessible. If those full lengths of piping (3 ft. cold/ 9ft. hot) are inaccessible, then the length of piping that is accessible shall be insulated. This amount of piping is to be insulated regardless of the distance between the water heater tank and the first elbow in the piping runs. All corners of the pipe insulation must be mitered and mechanical fasteners must be used. Tape can be used in addition to, but never instead of, mechanical fasteners. Zip-ties do count as mechanical fasteners. Installing 12 ft. of pipe insulation from all water heaters shall be classified as a General Energy Waste Reduction Measures on all jobs.

Additional General Energy Waste Reduction Measures (2019)

EVT technical protocols and funding shall be used for the following measure installations in all allowable cases:

- ✓ Efficient LED lighting products, Low-flow Faucet Aerators and/or Showerheads
- ✓ Water Heater Temperature Set-backs
- ✓ Advanced Power Strips, Energy-Efficient Refrigerators, Freezers and/or Clothes Washers
- ✓ Heat Pump Technologies

If the DHW fuel source prohibits the use of EVT funding, then all of the measures listed below still can and must be installed during every WAP job, unless the client declines their installation. These measures below shall be classified as General Energy Waste Reduction measures and be paid for with WAP funding in any cases where use of EVT funding is not allowed. Technical standards for these measure installations shall still adhere to EVT's most recent protocols:

1. Low-flow faucet-aerators
2. Low-flow shower-heads
3. Water heater temperature set-backs.

