



## HPwES Qualifying Work Standards (Effective February 17<sup>th</sup> 2012)



The national Home Performance with Energy Star (HPwES) program advocates a whole-house, comprehensive approach to improving the energy efficiency of an existing residential structure. The Midwest HPwES program, sponsored by KCP&L and MGE, will only rebate qualifying improvements that meet the character of the national program.

**Note** – Qualifying improvements that have been contracted or installed prior to the initial energy analysis are NOT eligible for rebates. *Contracted* is defined as a signed contract OR a deposit on improvements that have been bid.

The following document describes how air or duct sealing measures, insulation, and Energy Star rated windows/doors must be installed in order to qualify for available rebates. Rebates are only available if applicants do not have any of the health and safety issues list on the **HPwES Health and Safety Priority List** by their **post audit**. To review these issues, visit our website at [www.kcenergy.org](http://www.kcenergy.org).

Some qualifying improvements have **prerequisites**. For example if attic insulation is to be installed, efforts must be made to air seal accessible can lights in the attic. Each qualifying improvement requires at least one **Step to Complete**. The maximum number of prerequisites for each improvement and the steps required to complete them are listed below.

Some prerequisites can also help participants achieve multiple rebates. Completing attic air sealing before installing attic insulation could earn participants air sealing and attic insulation rebates. See the column **Eligible Rebate** in the table below for the maximum eligible rebates that can be achieved by completing all of the required prerequisites for a particular improvement.

Qualifying Improvement	Prerequisites	Steps to Complete	Eligible Rebates
Duct sealing	0	1	Up to \$200
Air sealing	1	3	Up to \$400
Windows/Doors	0	2	Up to \$400
Insulation	3	2	Up to \$800*

\*Includes rebates for air sealing and duct sealing that may be earned while completing the prerequisites for insulation projects. Either receipts for air/duct sealing materials OR invoices for related work must be included with final application documents in order to qualify for air/duct sealing rebates along with insulation rebates.

## AIR SEALING

**Minimum:** Air sealing measures must reduce infiltration by 10%

### Prerequisites:

- Air sealing can be done if whole house infiltration is at or greater than 70% of the Building Airflow Standard (BAS). Rebates will not be issued if infiltration is 30% below the BAS unless mechanical ventilation is introduced.

### Steps Required for Completion:

1. Seal all accessible attic penetrations and recessed lights.
2. Seal attic access (see below for more guidance on this step)
3. If garage is attached, seal all accessible penetrations between garage and living space.

### Work Standards:

Air sealing must be prioritized. If air sealing is intended to be a qualifying improvement, the following **MUST** be sealed:

- Attic access must be airtight, (verify by blower door). (See the guidelines below on how to properly seal and insulate different attic accesses). The attic access cannot be permanently sealed unless another access is available.
- Efforts must be made to seal all *accessible* attic penetrations. Foam board should be used to cover larger gaps and foamed in if the penetrations are larger than several inches. Note - It is not required that top plates be sealed. (See below for a program specific definition of *accessible*\*).
- *Accessible*\* can lights that are not IC-rated or airtight models must be boxed with non-flammable material and sealed to ceiling material. Within the box, there must be a minimum of three inches of clearance above the can light for heat dissipation.
- *Accessible*\* penetrations between conditioned space and an attached garage must be sealed. All cracks/gaps in garage walls and ceilings that adjoin living spaces must be air sealed as part of work scope. If there is less than 32 square feet of missing sheetrock, the drywall must be replaced and all joints sealed.

\***Accessible** is defined as a location where other materials do not need to be removed to reach the targeted area or where there is enough clearance to install the intended energy efficiency measure. The only exception is insulation. Insulation should be temporarily moved for air sealing and returned once work is completed.

### **ATTIC HATCH:**

1. If hatch frame is loose, secure frame with trim screws/nails, then fill the holes.
2. Caulk the access frame where it meets the ceiling material inside the hatch. Apply compression weather strip such as open cell foam on the frame. (Not hatch)
3. Hatch must be airtight (verify with blower door). If weight of access makes complete air seal then no latches are needed. If not then use some type of latch (metal plate, thumb, hook & eye). Can screw into 2x4s on top of access to straighten and give weight.

**Optional (for air sealing)** - Insulate to at least R-19. Batt can be glued to hatch.

### **ATTIC PULL DOWN STAIRS:**

1. Pull-down stairs must be weather stripped and be air tight, (verify with blower door) If not airtight then install latches or catches to make complete air seal.
2. Stairs must have a tight fitting cover.

**Optional (for air sealing)** – Insulate stairs to at least R-19

### **ATTIC WALL DOORS:**

1. Doors must be weather stripped on all four sides, install a threshold at the bottom if necessary.
2. The access must be airtight using latches, catches, or with approval from the homeowner, screws. (Verify with blower door)

**Optional (for air sealing)** - Shall be insulated to the same R-value as the walls.

## DUCT SEALING

**Minimum:** Duct sealing measures must reduce infiltration by 10%.

**Prerequisites:** N/A

**Work Standards:** Ducts should be sealed with either mastic/mesh or foil tape.

## INSULATION

**Minimum:**

Insulation Type	Minimum Improved R-value	Recommended
Attic Flat	R-38	R-49
Attic Slope	R-38	R-49
Walls	R-value must increase to qualify	R-13
Floors	R-value must increase to qualify	R-30

**Prerequisites:**

- Insulation must not be installed where it contacts live knob and tube wiring.
- If ductwork is in the area targeted for insulation (attic, crawlspace, or garage ceiling), all accessible joints must be sealed. See duct sealing section for specific requirements.
- Air sealing must be performed in targeted area prior to insulation.

**Steps Required for Completion:**

1. Consider moisture control options and ventilation requirements for targeted insulation area.
  - Crawlspace should have a vapor barrier on the floor and be vented if the crawlspace ceiling is to be insulated and air sealed.
  - Ventilated attic spaces should be ventilated with one square foot of ventilation per 300 square feet of attic space.
2. Insulated the targeted area to at least the minimum R-values listed in the table above.

## Work Standards:

### Attic Insulation

- **Before insulation, all penetrations that are accessible must be air sealed.**
- **If the attic is vented, baffles must be placed where soffit/eave vents exist.**
- All exhaust fans must vent above the insulation. It is recommended that they vent to the exterior.
- Chimneys in attic areas must be baffled with an effective dam prior to insulating to maintain a minimum 3” clearance to the insulation being installed.
- Single-walled flue pipes require a minimum 6” clearance to insulation or other combustible materials. Refer to NFPA 54 for additional requirements for specific materials.
- A sturdy dam (capable of holding weight as someone climbs out of the attic access) must be present around the attic access opening that is at least 15 inches above the ceiling material. May not be possible if there are clearance issues.
- The attic access must be insulated, air sealed, trim caulked. See the required R-values for different accesses listed on page three.

### Kneewall Insulation

The following work standards for knee walls are the bare minimum expectation if knee walls are to be insulated. Applicants and contractors can exceed these guidelines with alternative methods.

- Use at least 1/2 inch foam board and seal all joints for air infiltration.
- If there is enough clearance, extend 14 inches past the top plate if blown insulation is being installed on the ceiling of the finished attic space.

### Rim/Band Joist Insulation

- Air sealing must be done to mudsill and then the perimeter of rim/band joist and all penetrations prior to insulating.

## WINDOWS/DOORS

**Minimum:** Installed units must have a SHGC and U-factor of 0.30 or less.

**Prerequisites:** N/A

**Work Standards:**

- New windows and doors must be sealed with caulk and spray foam.
- Trim should be sealed to the wall if air leaks around them.
- Weight pockets from original windows should be insulated.