



**Department of Energy**  
Washington, DC 20585

**WEATHERIZATION PROGRAM NOTICE 17-7**  
**EFFECTIVE DATE: August 9, 2017**

**SUBJECT:** WEATHERIZATION HEALTH AND SAFETY GUIDANCE

**PURPOSE:** To clarify, update and provide additional information related to the implementation and installation of health and safety (H&S) measures as part of the Department of Energy (DOE) Weatherization Assistance Program (WAP). This guidance also provides required components for Grantees to include in their Health and Safety Plans. This Weatherization Program Notice (WPN) and attachments supersede the following:

- WPN 11-6a, Supplemental Health and Safety Guidance
- WPNs 11-6, Health and Safety Guidance
- WPN 09-6, Lead Safe Weatherization (LSW) Additional Materials and Information
- WPN 08-6, Interim Lead-Safe Weatherization Guidance
- WPN 08-4, Space Heater Policy
- WPNs 02-6, Weatherization Activities and Federal Lead-Based Paint Regulations
- WPN 02-5, Health and Safety Guidance

It is DOE's intent that this guidance will better assist Grantee decision-making during H&S Plan development.

Grantees may create more stringent requirements as long as those requirements do not conflict with this guidance. The information in this guidance is available at <http://energy.gov/eere/wipo/weatherization-program-guidance>.

**SCOPE:** The provisions of this guidance apply to all Grantees applying for financial assistance under the DOE WAP.

**LEGAL AUTHORITY:** Title IV, Energy Conservation and Production Act, as amended, authorizes the Department of Energy to administer the Weatherization Assistance Program. All grant awards made under this Program shall comply with applicable law including regulations contained in 10 CFR Part 440, the Energy Policy Act of 2005, the Energy Independence and Security Act of 2007, and the Occupational Safety and Health Act of 1970 (29 USC §651), 29 CFR Part 1900, 1926, general industry and construction respectively.

**BACKGROUND:** Questions and concerns regarding guidance requirements listed in WPN 11-6 have been submitted to DOE. This guidance consolidates all related Health and Safety notices and updates the requirements listed in WPN 11-6. This is based on feedback from the WAP network and the WAP National Evaluation Report. Documentation of comments received by stakeholders and DOE's responses to those comments are available on the DOE WAP website.

**GUIDANCE:** Allowable energy related H&S actions are those actions necessary to maintain the physical well-being of both the occupants and weatherization workers where:

- Costs are reasonable, as determined by DOE, and are in accordance with the Grantee's approved Annual Plan; **AND**
- The actions must be taken to effectively perform weatherization work; **OR**
- The actions are necessary as a result of weatherization work.

No H&S measures can be performed in a home unless ECMs are also part of the scope of work.

Grantees have two options when drafting their H&S Plans. Grantees may:

- Create a separate budget category to cover H&S expenses, or
- Not create a separate budget category for H&S measures, and cost-justify all H&S expenses as is required with Incidental Repair Measures (IRM).

Here is a list of universal considerations and requirements, applicable whether a separate budget category is created or not, followed by a list of requirements and considerations for each of the budget options.

***Universal Considerations/Requirements:***

- All Grantees must update their H&S Plans in the master file of their Annual Plan submittal. Items listed as *required* or *restricted* **must** be incorporated in the Grantee H&S Plan. Where items are listed as *allowable*, the Grantee can decide whether or not to include the item based on the conditions in their state. Once determined, that determination must be applied consistently across the Grantee's entire service territory.

- The Grantee H&S Plan may address additional H&S hazards specific to their program. The Plan must include the measures, testing, client education and training requirements for these specific hazards.
- The Grantee's DOE-approved H&S Plan establishes the requirements Subgrantees and contractors must follow. It must be made available to those parties for their reference. DOE will hold the Grantee accountable to the H&S Plan requirements during monitoring.

*All H&S Plans Must Include:*

- Parameters for performing specific H&S measures, including what to do if a H&S item cannot be addressed.
  - For example, if exterior drainage issues may be addressed only where work can be completed with hand tools and a maximum of 4 labor hours, this should be described in the Plan.
- Procedures for informing clients of the aspects of weatherization that may put a client with pre-existing health conditions at risk during installation of measures. This screening may occur as part of the initial application for weatherization and/or during the audit. Procedures must include what steps will be taken and/or available to the client to ensure that weatherization work will not aggravate pre-existing health conditions. (See Attachments for sample documents).
- The review process for measures to be approved on a "case-by-case" basis.
- How training will be provided to meet the requirements for each H&S issue. This portion of the plan should include all training required within this guidance and any additional H&S training the Grantee chooses to provide.
- Testing protocols and action levels including the tests *required* in this guidance; any testing that will be allowed by the Grantee; and, a description of when testing is or is not to be conducted.
- Protocols for Air Conditioning and Heating System installation and repair, including what justifications are required, and a definition of "at-risk" occupants which justifies installation of cooling systems.
- Procedures detailing how crews will handle problems discovered during testing of Combustion Gases or when other life threatening hazards are observed, with specific protocols for addressing serious hazards that require immediate response.
- Process for verifying safe work practices (e.g., EPA's Renovation, Repair and Paint [RRP] Program for lead-safe work, Occupational Safety and Health Administration [OSHA] standards, DOE's Standard Work Specifications [SWS], building codes). Grantees must develop a process that periodically monitors in-progress work or describe another method used to ensure safe work practices are being followed. Results of the monitoring must be made available to DOE upon request.

When Measures, Testing, Client Education, and Training are *required or allowed*, DOE WAP funds may be used unless specified otherwise.

*Hazard Identification and Notification:*

- An H&S assessment must be performed to identify hazards in the home.
  - Where hazards are identified, appropriate testing must be performed when required by this guidance. The client/landlord/property manager must be informed in writing of all testing results, including identification of any hazards revealed by the testing that will lead to deferral.
- The notification must be signed by the client and the assessor/auditor and a copy maintained in the client file.

*Hazardous Materials Disposal:*

- When hazardous materials (refrigerant, mercury thermostats, lead paint dust/chips, etc.) are generated in the course of weatherization work, proper disposal is required, and removal/disposal costs must be included within the cost category specified in the H&S Plan.

*Installation of H&S Measures:*

- All applicable codes must be followed and manufacturer approved materials and instructions must be used while installing any H&S measures.

*Training and Client Education:*

- Workers shall be trained to know when the performance of a certain task requires a licensed professional to meet the requirements of the authority having jurisdiction (AHJ). Workers must be qualified and adequately trained to implement the DOE Standard Work Specifications and codes specific to the work being conducted, such as electrical or plumbing.
- Client education, as outlined in the table, is required only when an issues exists. For example, client education regarding drainage issues is only required where drainage problems are identified.

*ASHRAE 62.2 and Variances:*

- Implementation of ASHRAE 62.2-2016 is required. Client refusal of mechanical ventilation, when evaluated and called for pursuant to the Standard, **must** result in deferral. Grantees may request a variance to ASHRAE 62.2.
- If the Grantee chooses to request a variance, they must provide scientific justification specific to their housing stock and local considerations in their Annual Plan submittal for DOE to consider during plan review. Plans lacking sufficient justification, or containing inadequate justification (as determined by DOE), shall not be approved and must be amended.

***If Grantee Creates Separate H&S Budget Category:***

Creating a separate H&S budget category allows for accurate program performance evaluation by isolating H&S costs from “regular” program operations. Items defined as H&S measures and paid for from the H&S budget:

- Need not be cost-justified by the energy audit, and
- Are not included in the average cost per unit (ACPU) calculation.

***H&S vs. Incidental Repair Measures (IRM):***

- Certain H&S measures may be removed from the H&S budget category and performed as IRMs following the guidance outlined in WPN 12-9. Examples include: moisture repairs, vapor retarder installation, flue repair and electrical repairs. The Grantee may choose to specify in the H&S Plan the specific conditions under which the measure is to be considered an IRM. For example, repairing a small roof leak could be considered an H&S measure because it remediates mold-creating conditions or an IRM because it protects installed measures when attic insulation is installed. The default budget category for all issues listed in the table is H&S.
- Once the Plan is approved by DOE, it must be applied consistently for the full grant period. The decision to charge these measures as H&S or IRM may not be made in the field; WAP crews must follow the protocols in the approved H&S plan.

***H&S vs. ECM:***

- There are some instances where, depending on circumstances, the measure can qualify as either an H&S measure **OR** an energy conservation measure (ECM), such as a heating or cooling system replacement. When the measure can be cost-justified, the measure **must** be treated as an ECM. Program staff must conduct a site-specific audit in order to cost-justify ECMs that are not included in their DOE-approved priority list. The measure may be considered for H&S repair or replacement only after it is determined that the measure is not cost-effective.

***Budget Management:***

- Grantees should request an H&S budget amount that accurately reflects their need to address weatherization-related H&S issues. Justification must be provided in the H&S Plan regardless of the amount requested. See the H&S Plan Template for a helpful budget calculator.
- H&S funds cover the cost of testing and the installation of measures.
- Client education or training costs can be charged to Training and Technical Assistance budget and be included in the budget justification or in the Master File.
- The client file must include documentation that separates all costs into the appropriate budget category, including H&S.

- The rationale for performing each H&S measure in an individual home and its relationship to the ECM that necessitated it must be clearly documented in the client file.
- The Grantee must identify all funding sources that will be used to pay for H&S measures to ensure that adequate funds are allocated to this category.
- DOE considers Grantees' proposed H&S Plans individually and determines whether submitted costs are reasonable. As a general rule, budgets that exceed 15% percent of Program Operations may be approved but will require justification.
- Grantees must set H&S expenditure limits for their Subgrantees. These limits may vary by Subgrantee depending upon selected H&S measures, availability of alternate funding sources, and conditions found in different geographical areas.
- An average H&S expenditure limit should be used rather than a per unit cap so that costs can be adjusted based on the need for each home. The Grantee is responsible for developing mechanisms for managing their cost limitations and staying within the overall H&S budget for the program year.
- In the event, during a grant period, it is determined that approved H&S budgets will be insufficient, the Grantee must submit a request for a higher limit to the Project Officer.

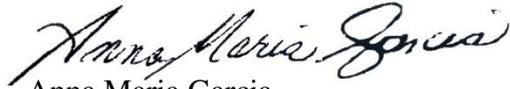
***If Grantee Does NOT Create Separate H&S Budget Category:***

- Related H&S costs must be included in the ACPU calculation, charged to the Program Operations budget, and cost-justified through the audit, and/or, if applicable, incorporated into all savings-to-investment ratio (SIR) calculations for all priority lists. The H&S Plan must include this language.
- If H&S issues cannot be addressed as required by this guidance within the SIR or with other funding sources the home must be deferred.

The following H&S Guidance Table is based on DOE legislative and regulatory requirements. While not every possible H&S issue is addressed in the Table, the guidance contains examples and direction to answer questions posed to DOE in comments received regarding H&S. Grantees may, at their discretion, include additional hazards that may be particular to their locality.

**CONCLUSION:** The Weatherization Assistance Program continues to make progress in addressing H&S issues, ensuring weatherization workers and clients are adequately protected. In addition to this guidance, DOE has developed an H&S Plan Template for optional use. Updates, training materials, best practices information, and a list of frequently asked questions can be found at <http://energy.gov/eere/wipo/weatherization-assistance-program>.

Grantees are strongly encouraged to use the H&S Plan Template. Its use reduces the likelihood of providing incomplete information, and typically will expedite DOE approval.

A handwritten signature in cursive script that reads "Anna Maria Garcia".

Anna Maria Garcia

Director

Office of Weatherization and Intergovernmental Program  
Energy Efficiency and Renewable Energy

Attachments

Health and Safety Guidance – Table of Issues

Attachment A – Additional Health and Safety Guidance Related to Heating Systems

**WPN 17-7 Table of Issues – Table of Contents**

**Air-Conditioning and Heating Systems/Units ..... 2**

**Asbestos - in Siding, Walls, Ceilings, etc. .... 3**

**Asbestos - in Vermiculite..... 3**

**Asbestos - on Pipes, Furnaces, other Small Covered Surfaces ..... 4**

**Biologicals and Unsanitary Conditions - Odors, Bacteria, Viruses, Raw Sewage, Rotting Wood, etc. .... 5**

**Building Structure and Roofing ..... 5**

**Code Compliance ..... 6**

**Combustion Gases..... 6**

**Electrical ..... 7**

**Formaldehyde, Volatile Organic Compounds (VOCs), Flammable Liquids and other Air Pollutants ..... 7**

**Fuel Leaks..... 8**

**Gas Ovens /Stovetops/Ranges ..... 8**

**Hazardous Materials Disposal -- Refrigerant, Asbestos, Lead, Mercury, including CFLs/Fluorescents ..... 8**

**Injury Prevention of Occupants and Weatherization Workers -- Repairing Stairs, Replacing Handrails, etc. .... 9**

**Lead Based Paint..... 9**

**Mold and Moisture -- Including but not limited to: drainage, gutters, down spouts, extensions, flashing, sump pumps, dehumidifiers, landscape, leaking roofs, vapor retarders, moisture barriers, etc. .... 10**

**Occupant Pre-existing or Potential Health Conditions ..... 10**

**Pests..... 11**

**Radon ..... 11**

**Safety Devices: Smoke and Carbon Monoxide Alarms, Fire Extinguishers ..... 12**

**Ventilation and Indoor Air Quality ..... 12**

**Window and Door Replacement, Window Guards ..... 13**

**Worker Safety ..... 13**

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## **Air-Conditioning and Heating Systems/Units**

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*(Space Heaters, including Solid Fuel Heating, are now covered in full in Attachment A to this guidance.)*

### **Action/Allowability**

When a space conditioning system does not qualify as an ECM, the following conditions must be met before the unit can be replaced or repaired with Health and Safety funds:

- “Red tagged,” inoperable, or nonexistent primary heating system may be replaced, repaired, or installed where climate conditions warrant, consistent with this guidance.
- Primary air conditioning system replacement, repair, or installation is allowed only in homes where current occupants meet Grantee’s definition of “at-risk” AND climate conditions warrant. “System” can mean a central unit or several individually operating units; however, when a central unit is in place, it shall be considered the primary unit, and all other units are to be considered secondary.
- Use proper sizing protocols (Manual J, State Approved sizing protocols, NEAT/MHEA outputs, etc.) based on post-weatherization housing characteristics, including installed mechanical ventilation, when installing or replacing a heating or cooling appliance.
- Unsafe primary units must be repaired, replaced and removed, or rendered inoperable, or deferral is required.
- Replacement or installation of secondary units is not allowed.
- Unsafe secondary units, including space heaters, must be repaired, removed or rendered inoperable, or deferral is required.
- See Hazardous Materials Disposal section for more information.

### **Testing**

- Make sure primary systems are present, operable, and performing correctly.
- Check DOE-approved audit to determine if the system can be installed as an energy conservation measure (ECM) prior to replacement as an H&S measure.
- Determine and document presence of “at-risk” current occupants when installing air-conditioning as a Health and Safety (H&S) measure.
- On combustion equipment, inspect chimney and flue and test for Combustion Appliance Zone (CAZ) depressurization.
- For solid fuel appliances look for visual evidence of soot on the walls, mantel or ceiling or creosote staining near the flue pipe.

### **Client Education**

- When deferral is necessary, provide information to the client, in writing, describing conditions that must be met in order for weatherization to commence. A copy of this notification must also be placed in the client file.
- Discuss appropriate use and maintenance of units.
- Provide all paperwork and manuals for any installed equipment.
- Discuss and provide information on proper disposal of bulk fuel tanks when not removed as part of the weatherization work.
- Where combustion equipment is present, provide safety information including how to recognize depressurization.

**Training**

- WAP H&S policy training on allowable activities.
- Licensing and/or certification for HVAC installers as required by authority having jurisdiction (AHJ).
- CAZ depressurization test and inspection training.

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**Asbestos - in Siding, Walls, Ceilings, etc.**


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**Action/Allowability**

Take all reasonable and necessary precautions to prevent asbestos contamination in the home.

Grantees must have a policy for identifying and managing suspected asbestos containing materials (ACM).

- Grantees must state in the H&S Plan the policy on blower door testing where friable suspected ACM is present. “Friable” means the material can be crumbled, pulverized, or reduced to powder by the pressure of an ordinary human hand. Grantees seeking guidance on safe policies and procedures should contact training providers or a local asbestos action office for technical support.
- The existence of asbestos siding that is in good condition does not prevent installing dense-pack insulation from the exterior.
- Siding may be removed and reinstalled in order to perform the ECM, and the associated costs may be charged as part of the ECM.
- General abatement of asbestos siding or replacement with new siding is not an allowable H&S cost.

**Testing**

- Visually inspect exterior wall surface and subsurface, floors, walls, and ceilings for suspected ACM prior to drilling or cutting.
- Asbestos Hazard Emergency Response Act of 1986 (AHERA) sample collection and testing must be conducted by a certified tester.

**Client Education**

- Inform the client in writing that suspected ACMs are present and what precautions will be taken to ensure the occupants’ and workers’ safety during weatherization.
- Formally notify client in writing of results if testing was performed.

**Training**

- Safe practices for siding removal and replacement.
- How to identify suspected ACM.
- Licensing/certification for removal and reinstallation of asbestos siding if required by AHJ.

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**Asbestos - in Vermiculite**


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**Action/Allowability**

- When vermiculite is present, assume it contains asbestos unless testing determines otherwise.
- Do not perform a blower door test if it will disturb the vermiculite.
- Use proper respiratory protection while in areas containing vermiculite.
- The H&S Plan must include the Grantee’s policy on blower door testing where suspected friable ACM is present. “Friable” means the material can be crumbled, pulverized, or reduced to powder by the pressure of an ordinary human hand.
- Encapsulation by an appropriately trained asbestos control professional is allowed.

- Removal is not allowed.
- When deferral is necessary due to asbestos, occupant must provide documentation that a certified professional performed the remediation before work continues.

### **Testing**

- AHERA sample collection and testing must be conducted by a certified tester.
- Baseline environmental asbestos sampling is an allowable cost if authorized in the H&S Plan. .

### **Client Education**

- Instruct clients in writing not to disturb suspected ACM.
- Provide asbestos safety information to the client.
- Formally notify client in writing of results if testing was performed.
- When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.

### **Training**

- Training on how to recognize vermiculite.
- AHERA or state certification to conduct testing.
- AHERA or other appropriate asbestos control professional certification/training for encapsulation.

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## ***Asbestos - on Pipes, Furnaces, other Small Covered Surfaces***

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### **Action/Allowability**

- Assume asbestos is present in suspect covering materials.
- When suspected friable ACM is present, take precautionary measures as if it is asbestos unless testing determines otherwise.
- Grantees must state in the H&S Plan the policy on blower door testing when friable suspected ACM is present. “Friable” means the material can be crumbled, pulverized, or reduced to powder by the pressure of an ordinary human hand.
- Encapsulation by an appropriately trained asbestos control professional is allowed and should be conducted prior to blower door testing if the materials are friable.
- Grantee may allow removal by an appropriately trained professional on a case-by-case basis. Grantees must state in the H&S Plan what criteria the Grantee uses when reviewing requests.
- Charge only those costs directly associated with the testing, encapsulation, or removal to the H&S budget category.
- When deferral is necessary due to asbestos, occupant must provide documentation that a certified professional performed the remediation before work continues.

### **Testing**

- Assess whether suspected ACMs are present.
- AHERA sample collection and testing is allowed and must be conducted by a certified tester.

### **Client Education**

- Instruct clients in writing not to disturb suspected ACM.
- Provide asbestos safety information to the client.
- Formally notify client in writing of results if testing was performed.
- When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.

### **Training**

- How to recognize suspected ACM.
- AHERA or other appropriate asbestos control professional certification/training is required to abate the ACM.

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**Biologicals and Unsanitary Conditions - Odors, Bacteria, Viruses, Raw Sewage, Rotting Wood, etc.**

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**Action/Allowability**

- Remediation of conditions that may lead to or promote biological concerns and unsanitary conditions is allowed.
- Addressing bacteria and viruses is not an allowable cost.
- Deferral may be necessary in cases where conditions in the home pose a health risk to occupants and/or weatherization workers.
- See Mold and Moisture section for more information.

**Testing**

- Sensory inspection.

**Client Education**

- Inform client in writing of observed conditions.
- Provide information on how to maintain a sanitary home.
- When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.

**Training**

- How to recognize unsafe conditions and when to defer.
- Safe work practices when encountering such conditions.

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**Building Structure and Roofing**

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**Action/Allowability**

- Building rehabilitation is beyond the scope of the Weatherization Assistance Program.
- Homes that require more than minor repairs must be deferred.
- See Mold and Moisture, Code Compliance, and Pests sections for more information.

**Testing**

- Visual inspection.
- Ensure that access to the portions of the home where weatherization will occur are safe for entry and performance of assessments, work, and inspections.

**Client Education**

- Notify client in writing of structurally compromised areas.
- When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.

**Training**

- How to identify structural and roofing issues.

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## Code Compliance

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### Action/Allowability

- Correction of preexisting code compliance issues is not an allowable cost unless triggered by weatherization measures being installed in a specific room or area of the home.
- When correction of preexisting code compliance issues is triggered and paid for with WAP funds, cite specific code requirements with reference to the weatherization measure(s) that triggered the code compliance issue in the client file.
- Follow State and local or AHJ codes while installing weatherization measures, including H&S measures.
- Condemned properties and properties where “red tagged” H&S conditions exist that cannot be corrected under this guidance must be deferred.

### Testing

- Visual inspection.

### Client Education

- Inform client in writing of observed code compliance issues when it results in a deferral.
- When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.

### Training

- How to determine what code compliance may be required.

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## Combustion Gases

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### Action/Allowability

- Proper venting to the outside for combustion appliances, including gas dryers and refrigerators, furnaces, vented space heaters and water heaters is required.
- Correct venting when testing indicates a problem.
- If unsafe conditions whose remediation is necessary to perform weatherization cannot be remedied by repair or tuning, replacement is an allowable H&S measure unless prevented by other guidance herein.
- Maintain documentation justifying the replacement with a cost comparison between replacement and repair in the client file.
- Replacement units must meet safety guidelines as determined in the Grantee Plan or technical Field Guide.
- See Air-Conditioning and Heating Systems section and Attachment A for more information.

### Testing

- Combustion safety testing is required when combustion appliances are present.
- Test naturally drafting appliances for spillage and CO during CAZ depressurization testing pre- and post-weatherization and before leaving the home on any day when work has been done that could affect draft (e.g., tightening the home, adding exhaust).
- Inspect venting of combustion appliances and confirm adequate clearances.
- Check DOE-approved audit to determine if the appliance can be justified as an ECM prior to replacement as an H&S measure.

### Client Education

- Provide client with combustion safety and hazards information.

**Training**

- How to perform appropriate testing, determine when a building is excessively depressurized, and the difference between air free and as-measured CO.
- CO action levels.

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**Electrical**


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**Action/Allowability**

- When the H&S of the occupant/worker(s) is at risk, minor repairs, as defined by the Grantee, are allowed when necessary for weatherization measures.
- Evaluate and if necessary provide sufficient over-current protection and damming (if required) prior to insulating building components containing knob and tube wiring, as required by the AHJ.

**Testing**

- Visual inspection for presence and condition of knob-and-tube wiring.
- Check for alterations that may create an electrical hazard.
- Voltage drop and voltage detection testing are allowed.

**Client Education**

- When electrical issues are the cause of a deferral, provide information to client on over-current protection, overloading circuits, and basic electrical safety/risks.

**Training**

- How to identify electrical hazards.
- Local (or AHJ) code compliance.

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**Formaldehyde, Volatile Organic Compounds (VOCs), Flammable Liquids and other Air Pollutants**


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**Action/Allowability**

- Removal of pollutants is allowed and is required if they pose a risk to workers.
- If pollutants pose a risk to workers and removal cannot be performed or is not allowed by the client, the unit must be deferred.
- Refer to *Hazardous Materials Disposal* section for more information.

**Testing**

- Sensory inspection.

**Client Education**

- Inform client in writing of observed hazardous condition and associated risks.
- Provide client written materials on safety issues and proper disposal of household pollutants.
- When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.

**Training**

- How to recognize potential hazards and when removal is necessary.

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## Fuel Leaks

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### Action/Allowability

- When a minor gas leak is found on the utility side of service, the utility service must be contacted before work may proceed.
- Fuel leaks that are the responsibility of the client (vs. the utility) must be repaired before weatherizing a unit.
- Notify utilities and temporarily halt work when leaks are discovered that are the responsibility of the utility to address.

### Testing

- Test exposed gas lines for fuel leaks from utility coupling into, and throughout, the home.
- Conduct sensory inspection on bulk fuels to determine if leaks exist.

### Client Education

- Inform clients in writing if fuel leaks are detected.

### Training

- Fuel leak testing.

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## Gas Ovens /Stovetops/Ranges

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### Action/Allowability

- When testing indicates a problem, entities may perform standard maintenance on or repair gas cooktops and ovens.
- Replacement is not allowed.

### Testing

- Test gas ovens for CO.
- Inspect cooking burners and ovens for operability and flame quality.

### Client Education

- Inform clients of the importance of using exhaust ventilation when cooking and the importance of keeping burners clean to limit the production of CO.

### Training

- Testing techniques
- CO action levels

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## Hazardous Materials Disposal -- *Refrigerant, Asbestos, Lead, Mercury, including CFLs/Fluorescents*

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### Action/Allowability

- Hazardous Waste Materials generated in the course of weatherization work shall be disposed of according to all local laws, regulations and/or Federal guidelines, as applicable.
- Document proper disposal requirements in contract language with responsible party.
- Refer to *Lead* and *Asbestos* sections for more information on those topics.

### Testing

- Not applicable.
- Refer to *Lead* and *Asbestos* sections for more information on those topics.

### Client Education

- Inform client in writing of hazards associated with hazardous waste materials being generated/handled in the home.

**Training**

- Appropriate Personal Protective Equipment (PPE) for working with hazardous waste materials.
- Disposal requirements and locations.
- Health and environmental risks related to hazardous materials.

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**Injury Prevention of Occupants and Weatherization Workers -- *Repairing Stairs, Replacing Handrails, etc.***


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**Action/Allowability**

- When necessary to effectively weatherize the home, workers may make minor repairs and installations, as defined by the Grantee; otherwise these measures are not allowed.

**Testing**

- Inspect for dangers that would prevent weatherization.

**Client Education**

- If conditions will not be repaired, inform client in writing of observed hazards and associated risks.

**Training**

- Hazard identification.

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**Lead Based Paint**


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**Action/Allowability**

- Crews must follow EPA's Lead; Renovation, Repair and Painting Program (RRP) when working in pre-1978 housing unless testing confirms the work area to be lead free.
- Deferral is required when the extent and condition of lead-based paint in the house would potentially create further H&S hazards.
- Only those costs directly associated with the testing and lead safe practices for surfaces directly disturbed during weatherization activities are allowable.
- Documentation in the client file must include Certified Renovator certification; any training provided on-site; description of specific actions taken; lead testing and assessment documentation; and, photos of site and containment set up. Include the location of photos referenced if not in file.

**Testing**

- Testing to determine the presence of lead in paint that will be disturbed by WAP measure installation is allowed with EPA-approved testing methods.
- Testing methods must be economically feasible and justified.
- Job site set up and cleaning verification by a Certified Renovator is required.
- Grantees must verify that crews are using lead safe work practices during monitoring.

**Client Education**

- Follow pre-renovation education provisions for RRP.
- When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.

**Training**

- All employees and contractors working on pre-1978 homes must receive training to install measures in a lead-safe manner in accordance with the SWS and EPA protocols, and installation must be overseen by an EPA Certified Renovator.
- Grantee Monitors and Inspectors must be Certified Renovators.

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**Mold and Moisture -- Including but not limited to: drainage, gutters, down spouts, extensions, flashing, sump pumps, dehumidifiers, landscape, leaking roofs, vapor retarders, moisture barriers, etc.**

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### **Action/Allowability**

- Limited water damage repairs that can be addressed by weatherization workers are allowed when necessary in order to weatherize the home and to ensure the long-term stability and durability of the measures.
- Source control (i.e. correction of moisture and mold creating conditions) is allowed when necessary in order to weatherize the home and to ensure the long-term stability and durability of the measures. Source control is independent of latent damage and related repairs.
- Where severe Mold and Moisture issues cannot be addressed, deferral is required.
- Mold cleanup is not an allowable H&S cost.
- Surface preparation where weatherization measures are being installed (e.g., cleaning mold off window trim in order to apply caulk) must be charged as part of the ECM, not to the H&S budget category.

### **Testing**

- Visual assessment including exterior drainage.
- Diagnostics such as moisture meters are recommended pre-weatherization and at the final inspection.
- Mold testing is not an allowable cost.

### **Client Education**

- Provide client written notification and disclaimer on mold and moisture awareness.
- Provide information on importance of cleaning and maintaining drainage systems.
- Provide information on proper landscape design and how this impacts site drainage and moisture control.
- When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.

### **Training**

- National curriculum on mold and moisture or equivalent.
- How to recognize drainage issues.

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## **Occupant Pre-existing or Potential Health Conditions**

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### **Action/Allowability**

- When a person's health may be at risk and/or WAP work activities could constitute an H&S hazard, the occupant will be required to take appropriate action based on severity of risk.
- Failure or the inability to take appropriate actions must result in deferral.

### **Testing**

- Screen occupants to reveal known or suspected health concerns either as part of initial application for weatherization, during the audit, or both.

### **Client Education**

- Inform client in writing of any known risks.
- Provide client with Subgrantee point of contact information in writing so client can inform of any issues.
- When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.

**Training**

- How to assess occupant preexisting conditions and determine what action to take if the home is not deferred.
- Awareness of potential hazards.

**Pests****Action/Allowability**

- Pest removal is allowed only where infestation would prevent weatherization.
- Infestation of pests may be cause for deferral where it cannot be reasonably removed or poses H&S concern for workers.
- Screening of windows and points of access, and incorporating pest exclusion into air sealing practices to prevent intrusion is allowed.

**Testing**

- Assessment of presence and degree of infestation and risk to worker.

**Client Education**

- Inform client in writing of observed condition and associated risks.
- When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.

**Training**

- How to assess presence and degree of infestation, associated risks, and deferral policy.

**Radon****Action/Allowability**

- Radon mitigation is not an allowable H&S cost.
- Clients must sign an informed consent form prior to receiving weatherization services. This form must be kept in the client file.
- In homes where radon may be present, work scope should include precautionary measures based on [EPA Healthy Indoor Environment Protocols](#) for Home Energy Upgrades, to reduce the possibility of making radon issues worse.
- Whenever site conditions permit, cover exposed dirt floors within the pressure/thermal boundary with 6 mil (or greater) polyethylene sheeting, lapped at least 12” and sealed with appropriate sealant at all seams, walls and penetrations.
- Other precautions may include, but are not limited to, sealing any observed floor and/or foundation penetrations, including open sump pits, isolating the basement from the conditioned space, and ensuring crawl space venting is installed.

**Testing**

- Grantees may allow testing at their discretion in areas with high radon potential.

**Client Education**

- Provide all clients EPA’s [A Citizen’s Guide to Radon](#) and inform them of radon related risks.
- Informed consent form must include:
- Information from the results of the IAQ Study that there is a small risk of increasing radon levels when building tightness is improved;
- A list of precautionary measures WAP will install based on EPA Healthy Indoor Environment Protocols;
- Some of the benefits of Weatherization including energy savings, energy cost savings, improved home comfort, and increased safety; and

- Confirmation that EPA's [A Citizen's Guide to Radon](#) was received and radon related risks discussed with the client.

### **Training**

- Auditors, assessors and inspectors must have knowledge of radon, what it is and how it occurs, including what factors may make radon worse, and precautionary measures that may be helpful.
- Workers must be trained in proper vapor retarder installation.
- A zonal map can be located at <http://www.epa.gov/radon/pdfs/zonemapcolor.pdf>

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## **Safety Devices: Smoke and Carbon Monoxide Alarms, Fire Extinguishers**

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### **Action/Allowability**

- Smoke alarms may be installed where alarms are not present or are inoperable.
- CO alarms must be installed where alarms are not present or are inoperable.
- Where solid fuel burning equipment is present, fire extinguishers may be provided as an allowable H&S measure.

### **Testing**

- Check existing alarms for operation.
- Verify operation of installed alarms.

### **Client Education**

- Provide client with verbal and written information on use of devices installed.

### **Training**

- Where to install alarms.
- Local code compliance.

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## **Ventilation and Indoor Air Quality**

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### **Action/Allowability**

- Install ventilation as required by ASHRAE 62.2 - 2016.
- Grantees may voluntarily elect to adopt the most recent version of ASHRAE 62.2 as soon as they are prepared to implement the Standard.
- If the ASHRAE normative Appendix A is employed and an existing fan is being replaced or upgraded to meet whole-house ventilation requirements, take actions to prevent zonal pressure differences greater than 3 pascals across the closed door, if one exists.
- In Climate Zone 1: Homes that are designed to have free movement of air between the indoors and outdoors where no effort is being made through weatherization to establish an air barrier are NOT required to meet the ventilation requirements outlined in ASHRAE 62.2, except in any room that may be enclosed and contain a source of water or combustion. All other ASHRAE 62.2 requirements must be complied with in Climate Zone 1.

### **Testing**

- ASHRAE 62.2 evaluation to determine required ventilation.
- Measure fan flow of existing fans and of installed equipment to verify performance.

### **Client Education**

- Provide client with information on function, use, and maintenance (including location of service switch and cleaning instructions) of ventilation system and components.
- Provide client with equipment manuals for installed equipment.
- Include disclaimer that ASHRAE 62.2 does not account for high polluting sources or guarantee indoor air quality.

**Training**

- ASHRAE 62.2 training, including proper sizing, evaluation of existing and new systems.
- If the Grantee opts to adopt a new version of ASHRAE 62.2 then training and technical assistance should be planned prepare crews to implement the new Standard.

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**Window and Door Replacement, Window Guards**

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**Action/Allowability**

- Replacement, repair, or installation is not an allowable H&S cost.

**Testing**

- Not applicable

**Client Education**

- Provide written information on lead risks wherever issues are identified.

**Training**

- Awareness of guidance.

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**Worker Safety**

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**Action/Allowability**

- Workers must follow OSHA standards where required and take precautions to ensure the H&S of themselves and other workers.
- All Subgrantees and contractors must maintain compliance with the current OSHA Hazard Communication Standard, including on-site organized Safety Data Sheets (SDS) (formerly called MSDS).

**Testing**

- Grantees must verify that Subgrantees, crews and contractors follow safe work practices.

**Client Education**

- Not applicable.

**Training**

- Use and importance of PPE.
- Safety training appropriate for job requirements. OSHA 10 hour training meets this requirement.
- Ongoing training as required in Hazard Communication Program.

**WAP WPN 17-7 Attachment A:  
Additional Health and Safety Guidance Related to Heating Systems**

- Budget Category Decisions
- Code Compliance and Inspection
- Electric Space Heaters
- Fireplaces – Special Considerations
- Manufactured Homes – Special Considerations
- Masonry Chimneys
- Solid Fuel-Fired Heaters
- Unvented Gas- and Liquid-Fueled Space Heaters
- Vented Gas- and Liquid-Fueled Space Heaters

**Budget Category Decisions:** Perform a full DOE-approved energy audit prior to deciding how to categorize the cost of space heater repair or replacement. If the measure is an approved WAP expenditure and the audit justifies the costs with an SIR equal to or greater than 1.0, the measure must be performed and costs charged as an Energy Conservation Measure (ECM). If the measure is not an eligible ECM, the measure may be charged as either a Health and Safety (H&S) measure if included in the DOE approved Grantee Annual Health and Safety Plan. More information is available in the DOE Health and Safety Guidance and Incidental Repair Guidance to assist with this decision.

**Code Compliance and Inspection Requirements:** Installation of space heaters requires knowledge of appropriate industry standards and comply with the applicable building code(s) in the municipality where installation is taking place. Building permits shall be secured, where required for all space heater work. This is a program operations cost. The manufacturer approved initial start-up procedures must be followed before any heater is put into operation. States are reminded that even licensed heating contractors may not be aware of the stringent requirements of the Weatherization Program, so their work should be reviewed by Program staff. Safety inspections related to the space heater should include, but not be limited to, a check for adequate floor protection, and code-compliant clearances to walls and other combustible materials. Even though many vented space heaters are manufactured with spill switches, it is still a requirement that a worst-case depressurization draft test be performed on all vented units.

**Electric Space Heaters:** DOE will not permit any DOE-funded weatherization work other than minor repairs on electric space heaters. This does not preclude the use of other funding sources for the replacement or major repair of electric space heaters, but the Department does not encourage it because of:

- Lower output ratings (size);
- Risk of fire hazards; and,
- Inadequate electrical systems in older homes, which frequently cannot safely carry the power required to operate an electric heater.

Work on such systems may make local agencies liable for inadequate electric wiring and any damages that result.

**Fireplaces – Special Considerations:** Fireplaces present special hazards that are affected by weatherization. If draft is poor, smoke may downdraft into the living space causing poor indoor air quality. It is likely the occupants will ventilate in these situations. Near the end of a wood fire, glowing coals will remain, radiating heat, while the draft lowers and allows the top of the chimney to cool, further reducing draft. The reduced oxygen available to the glowing coals causes production of CO without the smoke that encourages space ventilation. This is a dangerous situation as the CO enters the living space due to the lowered draft, causes drowsiness of occupants, and sometimes worse. For this reason it is extremely important to make sure there is a CO alarm installed in this combustion zone and occupants are educated to the danger signs and what to do.

***Inspection/Evaluation:***

Assessing solid fuel fired appliances involves inspecting the venting/chimney and the overall installation to ensure it adheres to the applicable code: NFPA 211 or other as determined by the authority having jurisdiction. Appliances should be inspected pre- and post-weatherization.

Conduct pre- and post- weatherization worst case CAZ depressurization testing in spaces having a fireplace. Since there is no consensus method for verifying safe operation of fireplaces, Grantees can propose testing policies and limits (e.g., one Grantee uses a depressurization limit of -5 in the CAZ of any wood-burning combustion appliances, including fireplaces). If the Grantee does not propose a policy and fireplaces are left operational, the vent must meet code or the home cannot be weatherized.

To evaluate operation of *other* combustion appliances, the blower door can be set to run at 300 CFM (set up as for depressurization testing), or other Grantee-approved flow, to mimic the airflow dynamics likely when the fireplace is in use.

**Manufactured Homes – Special Considerations:** The Manufactured Home Construction and Safety Standards (<https://portal.hud.gov/hudportal/HUD?src=/hudprograms/mhcss>) require all fuel-burning, heat-producing appliances in mobile homes, except ranges and ovens, to be vented to the outside.

All fuel-burning appliances in mobile homes, except ranges, ovens, illuminating appliances, clothes dryers, solid fuel-burning fireplaces and solid fuel-burning stoves, must be installed to provide for the complete separation of the combustion system from the interior atmosphere of the manufactured home (i.e., to draw their combustion air from outside).

**Masonry Chimneys:** Masonry chimneys used by vented space heaters should be properly lined in compliance with the International Fuel Gas Code (IFGC). When WAP installs new equipment it must meet local code requirements. Masonry chimneys that have been retired (i.e. not being used by existing equipment) should be assessed for energy savings opportunities such as air sealing and capping to reduce thermal bypass.

**Solid-Fueled Space Heaters:** Solid fueled space heaters include wood stoves, coal stoves, pellet stoves, and fireplaces. Wood, coal, and pellet fired furnace and boiler systems should be treated as vented heating systems and are not covered here.

Assess solid fuel-fired appliances to ensure safe installation prior to weatherization activities taking place. Repair or removal is an allowed H&S measure for primary and secondary solid fuel-fired heating appliances. Replacement is allowed for *primary* solid fuel heating appliances but replacement is not allowed for secondary heating appliances. Repair of flues and proper installation (e.g. protection of combustibles), is required for both primary and secondary solid fuel heating appliances. Install replacement primary heaters and/or flues according to applicable codes, standards and manufacturer's instructions. Provide adequate combustion air.

**Unvented Gas- and Liquid-Fueled Space Heaters:** This policy applies to unvented space heaters fueled by natural gas, propane or kerosene. This policy is consistent with the IRC and the IFGC and is divided to address primary and secondary heat sources.

***Primary Heat Sources:***

DOE will not permit any DOE-funded weatherization work where the completed dwelling unit is heated with an unvented gas- and/or liquid-fueled space heater as the primary heat source. The primary heat source must be replaced with a vented unit prior to weatherization. The replacement unit should be sized so it is capable of heating the entire dwelling unit, consistent with audit requirements described in [10 CFR 440.21\(e\)\(2\)](#).

***Secondary Heat Sources:***

Secondary unvented units that conform to the safety standards of ANSI Z21.11.2 may remain as back-up heat sources. DOE is allowing this flexibility primarily to provide low-income clients an emergency back-up source of heat in the event of electrical power outages. When selecting items to leave behind, give preference to code-compliant units that do not require electricity.

Secondary unvented units that do not meet ANSI Z21.11.2 must be removed and properly disposed of prior to weatherization but may remain until a replacement heating system is in place. Repair of secondary unvented units is not allowed. Secondary unvented units that meet the ANSI Z21.11.2, but are not operating safely, must be removed and properly disposed of.

An unvented gas- and liquid-fueled space heaters that remains in a completed single-family house after weatherization shall:

- Not have an input rating in excess of 40,000 Btu/hour;
- Not be located in, or obtain combustion air from sleeping rooms, bathrooms, toilet rooms, or storage closets, except:
  - One listed wall-mounted space heater in a bathroom if permitted by the authority having jurisdiction which --:
    - Has an input rating that does not exceed 6,000 Btu/hour;

- Is equipped with an oxygen-depletion sensing safety shut-off system; and
- The bathroom has adequate combustion air;
- One listed wall-mounted space heater in a bedroom if permitted by the authority having jurisdiction, which --:
  - Has an input rating that does not exceed 10,000 Btu/hour;
  - Is equipped with an oxygen-depletion sensing safety shut-off system; and
  - The bedroom has adequate combustion air.

**Vented Gas- and Liquid-Fueled Space Heaters:** Treat vented gas- and liquid-fueled space heaters the same as furnaces in terms of combustion safety testing, repair and replacement. This policy applies to vented space heaters fueled by natural gas, propane, or oil.