



Department of Energy
Washington, DC 20585

WEATHERIZATION PROGRAM NOTICE 11-6
EFFECTIVE DATE: January 12, 2011

SUBJECT: WEATHERIZATION HEALTH AND SAFETY GUIDANCE

PURPOSE: To update and provide clarification and additional information related to the implementation and installation of health and safety measures as part of the Department of Energy (DOE) Weatherization Assistance Program (WAP). This guidance also provides recommendations to Grantees as they develop their Health and Safety Plans and procedures. This Program Notice replaces Weatherization Program Notice 02-5 and related guidance, and in conjunction with other referenced guidance materials should be used when making decisions on how to address health and safety issues while conducting weatherization work. The information in this guidance as well as many additional health and safety resources related to weatherization are available on the Internet at www.waptac.org.

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, the American Recovery and Reinvestment Act of 2009 (Recovery Act), and the Occupational Safety and Health Act of 1970 (29 USC §651), 29 CFR Part 1900, 1926, general industry and construction respectively.

BACKGROUND: Based upon DOE reviews and reports from Grantees, DOE determined that health and safety issues were being inconsistently addressed across the weatherization network. In order to create clarity and consistency in how health and safety issues are approached by Grantees, DOE reconvened its Health and Safety Committee to review current trends and practices for the health and safety concerns of the WAP network.

This Program Notice will assist Grantees in their development of a comprehensive approach to health and safety matters.

GUIDANCE: Over the years, a number of issues have been addressed to ensure that weatherization activities do not cause or exacerbate health and safety problems for workers and occupants. According to 10 CFR Part 440, allowable energy related health and safety actions are those actions necessary to maintain the physical well being of both the occupants and/or weatherization workers where:

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

Two questions to ask here are:

1. What must we do within reasonable costs to get the home to a point we can go forward with weatherizing, where the weatherization work will be lasting and effective?
2. What must we do to ensure that the weatherization work we conducted does not create a health or safety problem for the occupant?

Health and safety measures are allowed where, cumulatively, they do not exceed reasonable costs, as approved by DOE, outlined in each Grantee's approved Health and Safety Plan. DOE considers Grantees' proposed Health and Safety Plans on a case-by-case basis and determines whether submitted costs are reasonable. Health and safety measures are allowed to be conducted only where energy efficiency measures are identified for installation. Grantees are required to identify health and safety procedures and the percentage of costs involved as a part of their overall Health and Safety Plan to be approved by DOE. This approach gives Grantees and Subgrantees the ability to incorporate new technologies and their costs into their programs by removing health and safety costs from the per-house limitation; if they are budgeted separately. In providing this approach, DOE encourages Grantees to be prudent in their oversight of the percentage of funds approved for health and safety mitigation on homes weatherized by their Subgrantees.

The regulations do not mandate a separate health and safety budget cost category, but rather encourages Grantees to budget health and safety costs as a separate category and, thereby, exclude such costs from the average per-unit cost calculation. This separate category also allows these costs to be isolated from energy efficiency costs in program evaluations. Grantees are reminded that, if health and safety costs are budgeted and reported under the program operations category, the related health and safety costs should be included in the calculation of the average cost per home and cost-justified through the audit.

Grantees should carefully consider the approach to be taken when they draft their health and safety procedures. While ease of accounting is an important consideration, Grantees should keep in mind that activities assigned to the health and safety budget category do not have to be cost justified by the energy audit. The same items assigned to incidental repair, weatherization material, or installation cost categories must be cost-justified.

There are some instances where, depending on circumstances, the measure can be considered either a health and safety measure OR an energy conservation measure (e.g., furnaces). In those instances where the measure has a cost-effective savings-to-investment ratio (SIR) of one (1) or greater, the measure should be treated as a weatherization efficiency measure¹.

Deferral may be necessary if health and safety issues cannot be adequately addressed through this guidance. The decision to defer work in a dwelling is difficult but necessary in some cases. This does not mean that assistance will never be available, but that work must be postponed until the problems can be resolved and/or alternative sources of help are found. In the judgment of the auditor, any conditions that exist, which may endanger the health and/or safety of the workers or occupants, should be deferred until the conditions are corrected. Deferral may also be necessary where occupants are uncooperative, abusive, or threatening.

The following Health and Safety Guidance Table was developed within applicable legislation and DOE regulations. While not every possible health and safety issue is addressed herein, the guidance should provide enough relevant examples and direction to provide clarity to the many issues presented to DOE. The section following the Guidance Table provides direction on what must be addressed within the Grantee's Approved Health and Safety Plan as part of their Grantee Plan.

Some common themes and requirements that should be considered when utilizing the Guidance Table are as follows:

- Where removal or replacement is addressed in the document, proper disposal is required, and allowed as a health and safety cost.
- Where hazards are identified, clients must be informed in writing and the document must be signed by the client and a copy maintained in the client file.
- State and local (or jurisdiction having authority) codes must be followed while installing health and safety measures.
- Workers must be qualified and adequately trained according to state and local (or jurisdiction having authority) codes specific to the work being conducted (electrical, plumbing, etc.).
- Where Actions/Allowability, Testing, Client Education, and Training are allowed or required, DOE funds may be used unless specified otherwise. Health and safety expenditure limits apply to the specific action being taken to address the health and safety issue.

¹ Any measures being considered as an efficiency measure that is not on the DOE-approved priority list for the Grantee will require a site-specific audit to be performed on the dwelling in order to justify the measure being installed as an efficiency measure.

Health and Safety Issue	Action/Allowability	Testing	Client Education	Training
Air Conditioning and Heating Systems	“Red tagged”, inoperable, or nonexistent heating system replacement, repair, or installation is allowed where climate conditions warrant, unless prevented by other guidance herein. Air conditioning system replacement, repair, or installation is allowed in homes of at-risk occupants where climate conditions warrant.	Make sure systems are present, operable, and performing. Determine presence of at-risk occupants.	Discuss and provide information on appropriate use and maintenance of units and proper disposal of bulk fuel tanks when not removed.	Awareness of guidance.
Appliances and Water Heaters	Replacement of water heaters is allowed on a case by case basis. Replacement and installation of other appliances are not allowable health and safety costs. Repair and cleaning are allowed. Also see Air Conditioning and Heating Systems and Combustion Gases.	Determine whether appliances/water heaters are performing safely. Combustion safety testing is required when combustion appliances are present.	Discuss and provide information on appropriate use, maintenance, and disposal of appliances/water heaters.	Awareness of guidance. Conducting diagnostic training.
Asbestos - in siding, walls, ceilings, etc	Removal of siding is allowed to perform energy conservation measures. All precautions must be taken not to damage siding. Asbestos siding should never be cut or drilled. Recommended, where possible, to insulate through home interior.	Inspect exterior wall surface and subsurface for asbestos siding prior to drilling or cutting.	Inform the client that suspected asbestos siding is present and how precautions will be taken.	Safe practices for siding removal and replacement. How to identify asbestos containing materials.
Asbestos - in vermiculite	When vermiculite is present, unless testing determines otherwise, take precautionary measures as if it contains asbestos, such as not using blower door tests and utilizing personal air monitoring while in attics. Where blower door tests are performed, it is a best practice to perform pressurization instead of depressurization. Encapsulation by an appropriately trained asbestos control professional is allowed. Removal is not allowed.	Assess whether vermiculite is present. Asbestos Hazard Emergency Response Act of 1986 (AHERA) certified prescriptive sampling is allowed by a certified tester.	Clients should be instructed not to disturb suspected asbestos containing material. Provide asbestos safety information to the client. Formally notify client if test results are positive for asbestos and signed by the client.	Audit training on how to recognize vermiculite. AHERA course for testing. AHERA or other appropriately trained or certified asbestos control professional training for encapsulation.
Asbestos - on pipes, furnaces, other small covered surfaces	Assume asbestos is present in covering materials. Encapsulation is allowed by an AHERA asbestos control professional and should be conducted prior to blower door testing. Removal may be allowed by an AHERA asbestos control professional on a case by case basis.	AHERA testing is allowed by a certified tester.	Clients should be instructed not to disturb suspected asbestos containing material. Provide asbestos safety information to the client.	AHERA course for testing and asbestos control professional training for abatement. How to identify asbestos containing materials.

Health and Safety Issue	Action/Allowability	Testing	Client Education	Training
Biologicals and Unsanitary Conditions - odors, mustiness, bacteria, viruses, raw sewage, rotting wood, etc.	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 a known agent is present in the home that may create a serious risk to occupants or weatherization workers. Also see Mold and Moisture guidance below.	Sensory inspection.	Inform client of observed conditions. Provide information on how to maintain a sanitary home and steps to correct deferral conditions.	How to recognize conditions and when to defer. Worker safety when coming in contact these conditions.
Building Structure and Roofing	Building rehabilitation is beyond the scope of the Weatherization Assistance Program. Homes with conditions that require more than incidental repair should be deferred. See Mold and Moisture guidance below.	Visual inspection. Ensure that access to areas necessary for weatherization is safe for entry and performance of assessment, work, and inspection.	Notify client of structurally compromised areas.	How to identify structural and roofing issues.
Code Compliance	Correction of preexisting code compliance issues is not an allowable cost other than where weatherization measures are being conducted. State and local (or jurisdiction having authority) codes must be followed while installing weatherization measures. Condemned properties and properties where “red tagged” health and safety conditions exist that cannot be corrected under this guidance should be deferred.	Visual inspection. Local code enforcement inspections.	Inform client of observed code compliance issues.	How to determine what code compliance may be required.
Combustion Gases	Proper venting to the outside for combustion appliances, including gas dryers is required. Correction of venting is allowed when testing indicates a problem.	Combustion safety testing is required when combustion appliances are present. Inspect venting of combustion appliances and confirm adequate clearances. Test naturally drafting appliances for draft and spillage under worst case conditions before and after air tightening. Inspect cooking burners for operability and flame quality.	Provide client with combustion safety and hazards information, including the importance of using exhaust ventilation when cooking and the importance of keeping burners clean to limit the production of CO.	How to perform appropriate testing, determine when a building is excessively depressurized, and the difference between air free and as-measured.

Health and Safety Issue	Action/Allowability	Testing	Client Education	Training
Drainage - gutters, down spouts, extensions, flashing, sump pumps, landscape, etc.	Major drainage issues are beyond the scope of the Weatherization Assistance Program. Homes with conditions that may create a serious health concern that require more than incidental repair should be deferred. See Mold and Moisture guidance below.	Visual inspection.	Importance of cleaning and maintaining drainage systems. Information on proper landscape design.	How to recognize drainage issues.
Electrical, other than Knob-and-Tube Wiring	Minor electrical repairs are allowed where health or safety of the occupant is at risk. Upgrades and repairs are allowed when necessary to perform specific weatherization measures.	Visual inspection. Voltage drop and voltage detection testing are allowed.	Provide information on overloading circuits, electrical safety/risks.	How to identify electrical hazards. Local code compliance.
Electrical, Knob-and-Tube Wiring	Minor upgrades and repairs necessary for weatherization measures and where the health or safety of the occupant is at risk are allowed. Must provide sufficient over-current protection prior to insulating over knob-and-tube wiring.	Inspect 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.	Provide information to client on over-current protection, overloading circuits, basic electrical safety/risks.	How to identify electrical hazards. Local code compliance.
Fire Hazards	Correction of fire hazards is allowed when necessary to safely perform weatherization.	Check for fire hazards in the home during the audit and while performing weatherization.	Inform client of observed hazards.	How to identify fire hazards.
Formaldehyde, Volatile Organic Compounds (VOCs), and other Air Pollutants	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.	Sensory inspection.	Inform client of observed condition and associated risks. Provide client written materials on safety and proper disposal of household pollutants.	How to recognize potential hazards and when removal is necessary.
Injury Prevention of Occupants and Weatherization Workers - Measures such as repairing stairs and replacing handrails.	Workers must take all reasonable precautions against performing work on homes that will subject workers or occupants to health and safety risks. Minor repairs and installation may be conducted only when necessary to effectively weatherize the home; otherwise these measures are not allowed.	Observe if dangers are present that would prevent weatherization.	Inform client of observed hazards and associated risks.	Awareness of potential hazards.

Health and Safety Issue	Action/Allowability	Testing	Client Education	Training
Lead Based Paint	Follow EPA's Lead; Renovation, Repair and Painting Program (RRP). In addition to RRP, Weatherization requires all weatherization crews working in pre-1978 housing to be trained in Lead Safe Weatherization (LSW). Deferral is required when the extent and condition of lead-based paint in the house would potentially create further health and safety hazards.	Testing is allowed. Job site set up and cleaning verification is required by a Certified Renovator.	Follow RRP requirements.	All weatherization crews working on pre-1978 homes must receive LSW training and be accompanied by an EPA Certified Renovator. Grantee Monitors/Inspectors must be Certified Renovators and receive LSW training.
Mold and Moisture	Limited water damage repairs that can be addressed by weatherization workers and correction of moisture and mold creating conditions are allowed when necessary in order to weatherize the home and to ensure the long term stability and durability of the measures. Where severe Mold and Moisture issues cannot be addressed, deferral is required.	Visual assessment is required and diagnostics such as moisture meters are recommended pre and prior to final inspection. Mold testing is not an allowable cost.	Provide client notification and disclaimer on mold and moisture awareness.	National curriculum on mold and moisture or equivalent.
Occupant Preexisting or Potential Health Conditions	When a person's health may be at risk and/or the work activities could constitute a health or safety hazard, the occupant at risk will be required to take appropriate action based on severity of risk. Temporary relocation of at-risk occupants may be allowed on a case by case basis. Failure or the inability to take appropriate actions must result in deferral.	Require occupant to reveal known or suspected health concerns as part of initial application for weatherization. Screen occupants again during audit.	Provide client information of any known risks. Provide worker contact information so client can inform of any issues.	How to assess occupant preexisting conditions and determining what action to take if the home is not deferred. Awareness of potential hazards.
Occupational Safety and Health Administration (OSHA) and Crew Safety	Workers must follow OSHA standards and Material Safety Data Sheets (MSDS) and take precautions to ensure the health and safety of themselves and other workers. MSDS must be posted wherever workers may be exposed to hazardous materials.	Grantees must perform assessments to determine if crews are utilizing safe work practices.	Not applicable.	Use and importance of personal protection equipment. OSHA 10 hour training is required for all workers. OSHA 30 hour training is required for crew leaders.

Health and Safety Issue				
Pests	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 health and safety concern for workers. Screening of windows and points of access is allowed to prevent intrusion.	Assessment of presence and degree of infestation and risk to worker.	Inform client of observed condition and associated risks.	How to assess presence and degree of infestation, associated risks, and need for deferral.
Radon	Whenever site conditions permit, exposed dirt must be covered with a vapor barrier except for mobile homes. In homes where radon may be present, precautions should be taken to reduce the likeliness of making radon issues worse.	Testing may be allowed in locations with high radon potential.	Provide client with EPA consumer's guide to radon.	What is it, how it occurs. What factors may make radon worse. Weatherization measures that may be helpful. Vapor barrier installation.
Refrigerant	Reclaim refrigerant per Clean Air Act 1990, section 608, as amended by 40 CFR82, 5/14/93.	EPA testing protocols.	Clients should not disturb refrigerant.	EPA-approved section 608 type I or universal certification.
Smoke, Carbon Monoxide Detectors, and Fire Extinguishers	Installation of smoke/CO detectors is allowed where detectors are not present or are inoperable. Replacement of operable smoke/CO detectors is not an allowable cost. Providing fire extinguishers is allowed only when solid fuel is present.	Check for operation.	Provide client with verbal and written information on use of smoke/CO detectors and fire extinguishers where allowed.	Where to install detectors. Local code compliance.
Solid Fuel Heating (Wood Stoves, etc.)	Maintenance, repair, and replacement of primary indoor heating units is allowed where occupant health and safety is a concern. Maintenance and repair of secondary heating units is allowed.	Required inspection of chimney and flue and combustion appliance zone depressurization.	Provide safety information including recognize depressurization.	How to perform CAZ depressurization test and proper inspection.
Space Heaters, Stand Alone Electric	Repair, replacement, or installation is not allowed. Removal is recommended.	Check circuitry to ensure adequate power supply for existing space heaters.	Inform client of hazards and collect a signed waiver if removal is not allowed.	Awareness of guidance.
Space Heaters, Unvented Combustion	Removal is required, except as secondary heat where the unit conforms to ANSI Z21.11.2. Units that do not meet ANSI Z21.11.2 must be removed prior to weatherization but may remain until a replacement heating system is in place.	Testing for air-free carbon monoxide (CO) is allowed. Check units for ANSI Z21.11.2 label.	Inform client of dangers of unvented space heaters - CO, moisture, NO2, CO can be dangerous even if CO alarm does not sound.	How to perform air-free CO testing. Understanding the dangers of unvented space heaters.

Space Heaters, Vented Combustion	Should be treated as furnaces.	Venting should be tested consistent with furnaces.	Not applicable.	Proper testing methods for safe operation (draft and CO) should be conducted and for steady state efficiency if possible.
Spray Polyurethane Foam (SPF)	Use EPA recommendations (available online at http://www.epa.gov/dfe/pubs/projects/spf/spray_polyurethane_foam.html) when working within the conditioned space or when SPF fumes become evident within the conditioned space. When working outside the building envelope, isolate the area where foam will be applied, take precautions so that fumes will not transfer to inside conditioned space, and exhaust fumes outside the home.	Check for penetrations in the building envelope. Sensory inspection inside the home for fumes during foam application.	Provide notification to the client of plans to use two-part foam and the precautions that may be necessary.	Training on use of various products with specification for each application type. MSDS sheets. Temperature sensitivity.
Ventilation	2010 (or most current) ASHRAE 62.2 is required to be met to the fullest extent possible, when performing weatherization activity (must be implemented by January 1, 2012). Implementing ASHRAE 62.2 is not required where acceptable indoor air quality already exists as defined by ASHRAE 62.2. Existing fans and blower systems should be updated if not adequate.	ASHRAE 62.2 evaluation, fan flow, and follow up testing are required to ensure compliance.	Provide client with information on function, use, and maintenance of ventilation system and components. Include disclaimer that ASHRAE 62.2 does not account for high polluting sources or guarantee indoor air quality.	ASHRAE 62.2 training required including proper sizing, evaluation of existing and new systems, depressurization tightness limits, critical air zones, etc.
Window and Door Replacement, Window Guards	Replacement, repair, or installation is not an allowable health and safety cost but may be allowed as an incidental repair or an efficiency measure if cost justified.	Not applicable	Provide information on lead risks.	Awareness of guidance.

Grantee Health and Safety Plan Updates

All Grantees must amend their Health and Safety Plans in their master files of their Grantee Plan to be effective in Program Year 2011. Before any DOE funds can be expended for health and safety, Grantees must provide in the master file the hazards to be remedied and anticipated approaches including testing, training, client education, and conditions that require referral to other agencies that, therefore, necessitate a delay of weatherization services.

As a part of the Health and Safety Plan, Grantees must set health and safety expenditure limits for their Subgrantees, providing justification by explaining the basis for setting these limits and providing related historical experience. It is possible that these limits may vary depending upon conditions found in different geographical areas. These limits must be expressed as a percentage of the average cost per dwelling unit. For example, if the average cost per dwelling is \$5000, 10 percent would equal an average of \$500 per dwelling unit for health and safety. These funds are to be expended by subgrantees in direct weatherization activities.

At minimum, grantees must develop and include within their Health and Safety Plan, separate detailed components and explanations for:

- A system with guidelines for determining and documenting if the potential health and safety issue should be remedied, referred to other agencies, result in partial weatherization, or lead to deferral. Subgrantees are expected to pursue reasonable options on behalf of the client, including referrals, and to use good judgment in dealing with difficult situations. Documentation forms must be developed and should include the client's name and address, dates of the audit/assessment and when the client was informed, a clear description of the problem, conditions under which weatherization could continue, the responsibility of all parties involved, and the client(s) signature(s) indicating that they understand and have been informed of their rights and options.
- Procedures that include a method used to determine when DOE monies will be used to remedy the health and safety issue, and how the Grantee will treat problems that cannot be remedied with DOE monies after discovery.
- How training will be provided in order to meet the requirements of the health and safety issues.
- Testing for the presence of health and safety issues, including, at a minimum, those tests required in the above Guidance Table.
- Implementation of ASHRAE 62.2, which will be required one year after the date this guidance becomes effective. Grantees must provide justification if making changes to AHRAE 62.2 specific to their housing stock and local considerations in their Grantee Plan.
- Implementation of Smoke/CO Detector installation parameters and procedures.
- Implementation protocols on Air Conditioning and Heating System installation and repair including justification for allowability that includes degree days for cold weather and hot weather climates, and how to define at-risk occupants.

- Detailed procedures on how the Grantee will handle problems discovered during testing of Combustion Gases.
- Implementation of OSHA and MSDS requirements related to crew and worker safety, how the 10 and 30 hour training requirements will be met, and what the process is for determining if crews are utilizing good safe work practices according to all requirements (EPA, OSHA, etc.).
- Protocols for addressing mold found in the client's homes. The protocol should include a method of identifying the presence of mold during the initial audit or assessment, notification to the client, and crew training on how to alleviate mold and moisture conditions in homes.
- Implement and verification of compliance with RRP and LSW.
- Developing procedures and protocols for informing clients of hazards that are identified during weatherization. Clients must be informed in writing and the document must be signed by the client and a copy maintained in the client file.
- Developing procedures for requiring clients to reveal known or suspected occupant health concerns as part of the initial application for weatherization, additional screening of occupants again during the audit, and how steps will be taken to ensure that weatherization work will not worsen the health concern.

CONCLUSION: The Weatherization Assistance Program continues to make progress in addressing health and safety issues and ensuring the health and safety of weatherization workers and recipients of weatherization services. In addition to this guidance, DOE will continuously update and provide best practices and referral opportunities on the Internet at www.waptac.org.



LeAnn M. Oliver

Program Manager

Office of Weatherization and Intergovernmental Program

Energy Efficiency and Renewable Energy