

HEALTH & SAFETY

Health and Safety Overview

While the health and safety of clients and crews is paramount in the Weatherization Assistance Program, funds are limited to the cost of eliminating energy-related health and safety hazards that are necessary before, or result from, the installation of Weatherization measures. Weatherization agencies conduct only energy-related health and safety measures and are instructed to report health and safety problems that cannot be remedied or mediated by Weatherization activities to the appropriate state agency or the U.S. Environmental Protection Agency.

Allowable energy-related health and safety activities include, but are not limited to, the following:

- Combustion appliance testing;
- Electrical repair (ensuring code compliance when insulating knob-and-tube wiring and repairing overloaded electrical circuits);
- Assessment of fire hazards (identifying inadequate combustion appliance clearances and creosote build-up);
- Addressing indoor air quality;
- Lead-Safe Weatherization (limited to procedures for installing Weatherization measures without increasing the existing risk of exposure to lead, but does not include lead abatement); and
- Procedures to identify pre-existing health conditions in homes and clients, address these problems, and ensure that Weatherization does not exacerbate these problems.

Hot Topics

The following sections address current hot topics regarding energy-related health and safety in the Weatherization Assistance Program.

Weatherization Activities and Federal Lead-Based Paint Regulations

Congress has become increasingly aware of the lead-based paint hazard and thus, has recently authorized revision of Environmental Protection Agency (EPA), Housing and Urban Development (HUD), and Occupational Safety and Health Administration (OSHA) lead-based paint regulations under Title X of the 1992 Housing and Community Development Act. This act is the basis for the EPA, HUD, and OSHA regulations that are the guidelines for lead-based paint activities.



Weatherization technician adjusts protective mask.





Weatherization technician installs insulation to the underbelly of a mobile home.

DOE Policy

The Weatherization Assistance Program does not specifically address lead-based paint hazard reduction. Since 2001, DOE's policy has been that Weatherization workers must be aware of the hazard and conduct Weatherization practices that ensure a lead safe work environment to avoid contaminating homes with lead-based paint dust and debris, and to avoid exposing themselves and their families to this hazard.

In April 2008, EPA published the "Lead; Renovation, Repair, and Painting Program" Final Rule (LLRPP Final Rule). This rule specifically cites proper Weatherization procedures in several places and has a direct impact on how the Program proceeds in implementing Lead Safe Weatherization. DOE will operate Weatherization activities that involve the "targeted housing" specified in the LLRPP Final Rule in accordance with the guidelines specified by EPA.

Sensitivities

The National Center for Healthy Housing performed a study, "*Analysis of Lead-Safe Weatherization Practices and the Presence of Lead in Weatherized Homes.*" The results of the study indicated the levels of lead paint were sometimes higher than acceptable EPA standards following the completion of certain Weatherization measures, specifically, when work was done on doors and windows.

Adopting the EPA practices specified in the LLRPP Final Rule should eliminate any concern for these higher than acceptable levels. However, DOE will conduct a national sampling, specifically on homes involving window and door work, to ensure the EPA practices address and remedy the previous study results.

Pro-active Steps

By following EPA's final rule, coupled with comprehensive materials outlining the minimum standards for lead safe Weatherization, we can ensure protection of Weatherization clients and workers, while continuing to focus on the Weatherization Program's primary mission: energy efficiency, and making energy more affordable for low-income households. To accomplish this, DOE's approach includes the following:

1. Strengthen the implementation and quality control of Lead-Safe Weatherization (LSW) by improving techniques and procedures currently in use by the network.
2. For "targeted housing" (housing constructed before 1978), implement EPA's "White Glove Testing" protocols, a series of wet and dry cloth cleaning processes with visual verification, to ensure we are leaving targeted houses "safe."

3. Nationally, conduct a limited sample of pre- and post-Weatherization dust wipe sampling with certified laboratory review to ensure that LSW procedures are being properly followed and monitored. This sampling will focus on homes involving door and window work.

DOE guidance and LSW curriculum are under development and will be distributed nationally during the Fall of 2008.

Weatherization Activities Related to Mold and Moisture

Mold is receiving increasing attention in the media, insurance claims, and even in Congress. However, there are no current EPA regulations or standards for airborne mold contaminants.

DOE Policy

Weatherization Assistance Program Guidance instructs states to include a protocol for dealing with mold, which was to include a specific policy when encountering homes with mold growth. While the Weatherization Assistance Program does not include mold remediation, it does allow health and safety activities to take place that are necessary before, or because of, Weatherization. If a mold condition is discovered during the initial inspection of the home by the energy auditor that cannot be adequately addressed by the Weatherization crew or there is a concern that weatherizing the house (tightening the building shell) could exacerbate the problem, then the unit should be referred to the appropriate public or non-profit agency for remedial action.

Sensitivities

Moisture problems can surface after a home has been weatherized. Air sealing combined with new mechanical interaction on a tighter building shell may exacerbate existing moisture problems.

While Weatherization allows energy-related health and safety activities, mold has the potential to drain limited resources away from the primary energy conservation goal of the Program. With recent media attention, insurance agencies are receiving increased claims and law suits involving mold-related health problems are on the rise. Mold and mildew is excluded from the Pollution Occurrence Insurance policy that DOE negotiated for lead paint. Including coverage for mold and mildew would double the cost of the policy, again diverting valuable resources from weatherizing homes in need.

Practices

Moisture problems, or the potential for them, affect the way a home is weatherized. Moisture problems should be assessed and given consideration when installing Weatherization measures.

Crews are permitted to identify and correct moisture sources provided the costs are not excessive. Weatherization measures such as air sealing and insulation not only save energy but can also solve moisture problems by preventing prolonged condensation on various building components. Crews are also permitted to provide reasonably priced mechanical ventilation to

exhaust moisture from the dwelling and/or maintain minimum ventilation requirements.

Crews must take caution when dealing with mold in homes for it can have harmful effects for those with asthma and can cause skin irritations. States should develop deferral policies to deal with homes that are too contaminated to receive Weatherization measures.

Pro-active Steps

DOE continues to keep apprised of the latest activities regarding mold litigation, legislation, and EPA guidance in order react to any requirements that may arise from legislation. Agencies must define moisture policies, educate clients on moisture and mold and how to avoid problems, and must be prepared to react to any legislation that would require increased training. To assist in this effort, DOE developed a recommended Mold Training Curriculum. The curriculum contained on the Mold Awareness CD, distributed as WPN 06-4, can be used by states that do not already have a mold training component approved by DOE

Weatherization Activities Related to Two-Part Spray Foam

Two-part spray foam insulation is increasingly used by Weatherization providers to air seal and insulate. It is extremely effective and quick, but must be used properly to protect crews and clients from contamination.

DOE Policy

Local agencies must comply with Occupational Safety and Health Administration (OSHA) requirements in all Weatherization activities. Costs for local agencies to comply with OSHA requirements may be charged under Section 440.18 as health and safety, tools and equipment, incidental repairs, etc. DOE requires compliance with OSHA and also encourages agencies to follow the Material Safety Data Sheets that identify potential health risks and describe the proper use, handling, and storage of a wide variety of materials, including some common Weatherization materials.

Allowable Weatherization materials are listed in Appendix A of the Program regulations (10 CFR 440). Currently, Appendix A does not include a specific listing for two-part polyurethane spray foam, but a generic listing for “materials used as a patch to reduce infiltration through the building envelope” allows its use until Appendix A is updated.

Sensitivities

The use of two-part spray foam produces vapors that may cause allergic skin and respiratory reactions as well as lung injury. Excessive exposure may cause irritation to upper respiratory tract and lungs, and pulmonary edema (fluid in the lungs).

Practices

As Material Safety Data Sheets recommend, crews use fans to ventilate enclosed areas such as attics, basements, and crawlspaces where two-part spray foam is used. Where the danger of exceeding exposure levels exists even with ventilation, crews wear negative-pressure, half-mask respirators with organic vapor cartridges and dust/mist pre-filters or preferably NIOSH-approved, positive-pressure, supplied-air respirators.

Pro-active Steps

DOE assembled a stakeholder group representing all levels of the Weatherization network to discuss the safe and effective use of two-part spray foam. The committee made policy recommendations, which DOE recently incorporated into its updated health and safety guidance. The guidance directs grantees to ensure that crews comply with OSHA requirements, strictly follow manufacturers' instructions and heed the precautions listed on the Material Safety Data Sheets.

Weatherization Activities and Unvented Space Heaters

An estimated three million low-income households in the United States rely on space heaters as their primary method of heating their homes. An additional four million low-income households use space heaters as a secondary method of heating. While a subject of debate, potential health and safety risks associated with the use of space heaters, especially portable and unvented devices, include elevated levels of carbon monoxide, fire hazards, and excessive moisture resulting in mold and rot. Therefore, the Weatherization Program is concerned about air sealing houses that use gas-, propane-, or kerosene-fired unvented space heaters.

DOE Policy

DOE does 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. This policy applies to unvented natural gas-fired space heaters, unvented propane-fired space heaters, and unvented kerosene space heaters. As it relates to gas- and propane-fired unvented space heaters, this policy is consistent with the 2003 and 2006 International Fuel Gas Codes (IFGC) and International Residential Code (IRC).

Many states require the removal of all unvented gas- and liquid-fueled space heaters and replacement with vented, code-compliant heating systems as a prerequisite to Weatherization. However, DOE will allow unvented gas- or liquid-fueled space heaters to remain as secondary heat sources in single-family houses provided they comply with the IRC and the IFGC. In allowing this flexibility, DOE directs states to provide strong client education, including information on the proper operation of the heating equipment and install smoke or carbon monoxide detectors. Of critical importance is clear client education regarding the dangers of carbon monoxide and excessive moisture levels.

Sensitivities

The prevalence of unvented space heaters makes it harder for hot-climate states to comply with the updated DOE policy than cold-climate states. It is not uncommon for Weatherization-eligible houses in the Southeast to have four or five unvented gas space heaters as the primary source of heat. Warmer, more rural states tend to get smaller DOE grants. Therefore, the installation of vented, primary heating systems further strains already limited budgets.

Manufacturers of unvented gas and propane space heaters and the members of the gas and propane industry have expressed concerns over the DOE policy that prohibits 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. They contend that there are no documented studies that link the use of unvented space heaters to elevated carbon monoxide and nitrogen dioxide emissions and excessive moisture levels.

Practices

Many states require the removal of all unvented gas- and liquid-fueled space heaters and replacement with vented, code-compliant heating systems as a prerequisite to Weatherization. Other, non-DOE funding sources are often used to purchase and install the new primary heating systems to relieve the strain on DOE Program budgets.

Combustion appliance safety testing is a standard part of the Weatherization Program nationwide. This testing includes gas-leak detection, measurement of carbon monoxide in the ambient air and in the flue of vented combustion appliances, and worst-case draft testing, which ensures that combustion gases of vented appliances drafts safely outside even when exhaust fans and pressure imbalances impede their ability to do so.

Pro-active Steps

DOE assembled a stakeholder group representing all levels of the Weatherization network to discuss the safe and effective Weatherization of houses using space heaters of all types. The committee made policy recommendations, which DOE recently incorporated into its updated space heater guidance, Weatherization Program Notice, 08-4, March 3, 2008. DOE also recently met with members of the gas and propane industry to listen to their concerns and plans to continue that dialogue.

Weatherization Disaster Planning and Relief

10 CFR 440.18(e)(2)(ii) has allowed for re-weatherization if a, “dwelling unit has been damaged by fire, flood, or act of God and repair of the damage to Weatherization materials is not paid for by insurance.” This has been allowable whether a disaster has been declared or not. If a grantee is only using this existing reweatherization provision for ordinary Weatherization activities without any other special considerations, then a Disaster Response Plan is not necessary or required. This guidance expands to include additional opportunities when disastrous situations occur.

DOE Policy

For Weatherization purposes, a disaster is determined by a Presidential or Gubernatorial order declaring either a Federal or State Emergency. The crisis may be naturally occurring or man-made and generally will involve at least three phases: the crisis itself, the clean-up, and the rebuilding of the affected area. It is not uncommon for Weatherization work to be suspended during the crisis and early clean-up phase until basic community services such as electricity, water, food, and medical supply activities can be returned closer to normal.

The disaster time period may be from several days to a month or more and can have a critical impact on Program operations. Since disasters create both problems and opportunities in furthering energy efficiency goals, the Weatherization network has traditionally supported use of Weatherization workers in normalization activities.

Sensitivities

After the early stages of the clean-up, grantees need to ensure the focus of any additional effort is primarily on the interests of low-income households and residents. Because Program resources are so limited, Weatherization efforts may only be used to supplement and not supplant other resources and services.

Pro-active Steps

Grantees are encouraged to be pro-active and develop an optional section in their state plan to address the most-probable types of disasters likely in their service area. This should be a general approach that can be implemented immediately or once the threat becomes imminent. Since the crisis itself may be sudden, mobilizing forces in the early stages of clean-up are usually a short duration of the overall disaster timeline.

The advantage to having provisions already approved in the state plan would enable crews to immediately respond at the local level without the concern proposed activities would over-step the bounds of both the grantee and DOE.

Specific guidance on other factors important to the implementation of Disaster Relief is scheduled to be sent by Program Notice to the grantees.

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.



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