

## Table of Contents Health and Safety Plan 2015

Table of Contents Health and Safety Plan 2015 .....	1
Home Assessment & Client Evaluation.....	3
Occupant Preexisting or Potential Health Conditions .....	4
Health & Safety Issues.....	4
Air Conditioning and Heating Safety .....	4
Heating Systems.....	5
Air Conditioning & Cooling Systems.....	6
Appliances and Water Heaters.....	6
Asbestos .....	6
Biologicals and Unsanitary Conditions – odors, mustiness, bacteria, viruses, raw sewage, rotting wood, etc.....	7
Building Structure and Roofing .....	7
Code Compliance.....	8
Combustion Gases .....	8
Drainage – gutters, down spouts, extensions, flashing, sump pumps, landscapes, etc.....	9
Electrical, other than Knob-and Tube Wiring.....	9
Electrical, Knob-and Tube Wiring.....	10
Fire Hazards .....	10
Formaldehyde, Volatile Organic Compounds (VOCs) and other Air Pollutants .....	10
Injury Prevention of Occupants and Weatherization Workers – Measures such as repairing stairs and replacing handrails .....	11
Lead Based Paint.....	11
Mold and Moisture.....	13
Occupational Safety and Health Administration (OSHA) and Crew Safety .....	15
Pests .....	17
Radon .....	17
Refrigerant .....	17
Smoke, Carbon Monoxide Alarms, and Fire Extinguishers .....	18
Solid Fuel Heating (Wood Stoves, etc).....	19
Stand Alone Electric Heaters .....	19
Space Heaters, Unvented Combustion.....	19
Space Heaters, Vented Combustion.....	20
Spray Polyurethane Foam (SPF).....	20

Ventilation.....	20
Window and Door Replacement, Window Guards.....	20
Deferrals/Referrals .....	21
Client Education.....	21

## III.4 Health and Safety

---

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 this approved Master Plan;
- The actions must be taken to effectively perform weatherization; or
- The actions are necessary as a result of weatherization work.

Each subgrantee will have 15% of their program operations set aside for energy related health and safety repairs. Each subgrantee will be responsible for the management of their health and safety budget and will be required to bill health and safety repairs as a separate budget line item. **Subgrantee will also be required to obtain written approval from Grantee for all health and safety repairs exceeding \$2000.** Subgrantees are also reminded that any health and safety expenses in excess of 15% of subgrantee program operations budget will result in disallowed cost.

### Home Assessment & Client Evaluation

The weatherizing subgrantee must determine presence of at-risk occupants before proceeding with weatherization services. The Client Health & Safety Evaluation form must be reviewed and signed by the client and evaluator, once at the intake process and again at the initial audit before weatherization is started.

Crew and client H&S issues are viewed as closely linked in the areas of site conditions and work procedures. Working from this concept, which assumes that any hazard associated with a work site, whether it is a work practice, an existing condition, client behavior, and so forth, has the potential of harming both crew and client, a holistic approach towards H&S is taken throughout the entire process of weatherizing a home, with special emphasis given to the initial inspection.

The initial audit, by a qualified Auditor/ Inspector, should include sensory inspections and diagnostic testing as listed in the WAP guidelines to verify the existing conditions of the home and any Health & Safety issues that could arise or halt production on said home. Details on existing conditions that could hinder Weatherization are listed below.

All of this is contingent on having well trained inspectors/ auditors. H&S issues are revealed before any work is ever done. This goes a long way towards preventing any harm befalling either crew or client.

## Occupant Preexisting or Potential Health Conditions

A feature of any inspection includes client education, whereby the occupant's health problems are addressed. Once a clear understanding has been reached between the program inspector and the occupant, work practices will be deployed so as not to aggravate any preexisting condition. In some rare instances, a deferral may be the only solution.

When a person's health may be at risk and/or the work activities could constitute a health & 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.

Occupants will be required to reveal known or suspected health concerns as part of initial application for weatherization. The occupants of the dwelling will be screened again during the audit. The client must be provided with information of known risks. It will also require that worker contact information (in the form of agency weatherization office staff phone numbers) be given to the client so client can inform of any issues

## Health & Safety Issues

As potential hazards are identified by the intake specialist and Initial Auditor/ Inspector in the *Home Assessment & Client Evaluation* as listed above, they are analyzed in terms of their severity and how they will be dealt with up to and including deferral. Wherever possible, measures should be considered through the cost justification method of an  $SIR > 1$  as an Energy Conservation Measure (ECM) first, before using funds from the H&S allocation. Clients must always be informed of any Health or Safety risk discovered during the evaluation process in writing and written confirmation of receipt of that information by the client must be obtained and kept in the client file. A listing of Health and Safety issues are compiled, any of which that can't be corrected can result in a deferral on any given project. They are as follows:

## Air Conditioning and Heating Safety

“Red tagged”, inoperable or nonexistent HVAC system replacement, repair, or installation is allowed where climate conditions warrant, unless prevented by other guidance herein. Arizona climate involves a defined heating and cooling season with a Heating Degree Day (HDD) measurement range from 1180 to over 7200. The Cooling Degree Day (CDD) measurements in Arizona range from 573 to more than 5100. Arizona has a vast difference across the state due to the four recognized climate zones and a the vast difference in elevation changes from a few hundred feet above sea level to more than 7000 feet above sea level.

Research indicates of all people who die of heat stroke, about 80 percent are age 50 or older. Deaths attributed to lung disease, diabetes and hypertension increase more than 50 percent during heat waves. Heat stroke occurs 12 to 13 times more frequently in people age 65 and older than in younger persons. It is also an accepted medical fact that infants and children up to four

years of age are very sensitive to the effects of high temperatures and rely on others to regulate their environment.

Air conditioning is the number one protective factor against heat-related illness and death effecting people with health issues. Therefore air conditioning system replacement, repair or installation is allowed to be categorized as health and safety in homes with occupants under four years old, over 65 years old and where there are at-risk occupants. Air conditioning system replacement, repair or installation must be attempted through cost justification as an ECM first before using H&S funding. Where this measure can be justified by the approved REM audit, replacement, repair or installation is not to be included in health and safety.

**Reminder- Air conditioning units cannot be installed on rental properties, as it is the requirement of the Landlord pursuant to the Arizona Landlord Tenant Act.**

**All replacement of HVAC equipment shall first be modeled in REM Design to attempt a SIR of 1 or greater prior to being installed as an H&S measure.**

Houses with occupants between the ages of 4-64 requesting the need for air conditioning based on health risk must provide a letter from a doctor defining the condition requiring an air conditioned environment and the maximum allowable air temperature relevant to that person's individual condition.

Repair of all combustible fuel line leaks from the meter or tank to the heating system or appliance are allowable H&S measures. Materials must meet federal, state, and local code. Only repairs of gas cooking appliances in order to eliminate gas leaks and reduce unsafe levels of carbon monoxide in living area are allowed. Repair materials must meet federal, state and local code. Installation of protective materials on combustible surfaces adjacent to energy systems to meet NFPA clearance codes is allowable. Materials and installation must meet NFPA specifications. Materials must meet federal, state and local code.

## Heating Systems

Heating systems are repaired or replaced, under H&S, when not operational or unsafe. This measure is taken in order to eliminate unsafe levels of carbon monoxide in the living area and to ensure adequate heating. Justification documentation in the form of the appropriate heat system checklist (per energy source) which includes all required diagnostic recordings for the individual unit, and photos demonstrating the specific issue(s) with the system must be in the client file. Replacement of operational units, where diagnostic readings are attainable, must be attempted to be cost justified as a ECM using regular weatherization funds with an SIR>1 before using H&S funds. A unit with a cracked heat exchanger where diagnostic readings are attainable must be attempted to be replaced through cost justification as an ECM first before using H&S funding. Replacement of non-operational units can only be from H&S funding.

## Air Conditioning & Cooling Systems

**In a case where an AC system must be replaced and it cannot be justified as an ECM,** replacement is an allowable expense under H&S only for at risk clients and will always require an approved waiver from Grantee. Evaporative Cooling will always be considered an H&S measure but do not require a waiver unless the \$2000 threshold is exceeded.

### Package Unit Systems

When a package unit is encountered and only one component of that system is inoperable, you must first attempt to service the unit using H&S funds. If servicing the unit does not work and replacement of the inoperable component is determined to be less economical than the replacement of the entire unit, H&S funds may be used upon receiving written approval from Grantee.

The weatherizing subgrantee must determine presence of at-risk occupants while also ensuring systems are present, operable and performing. Subgrantees must discuss and provide clients with information on the appropriate use and maintenance of units, with explanation, from the subgrantee.

## Appliances and Water Heaters

Replacement of water heaters under H&S is allowed on a case by case basis when it cannot be replaced as an ECM under the following conditions:

- When high co levels or drafting issues cannot be resolved on old unit
- When the cost of repair exceeds the cost of replacement or if the broken water heater is more than 10 years old.
- Pictures of the old water heater are to be on file at subgrantee's office.

Information and explanation on appropriate use and maintenance are to be provided to client after installation. Disposal of old appliances and water heaters must be handled by subgrantee or their contractor.

**Replacement and installation of appliances other than water heaters, such as stoves or washing machines, are not allowable H&S costs under DOE rules.**

## Asbestos

Asbestos anywhere on the interior of the dwelling that would need to be addressed either directly or incidentally during the weatherization process is not an allowable H&S cost. Testing by an AHERA professional for Asbestos is an allowable Health & Safety cost however Abatement of Asbestos is not. Policies have been in effect for asbestos presence and related work practices for many years. The approach is not to disturb, cut or drill said material and deter those measures

that might do so. In instances where measures can be installed without disturbing asbestos surfaces or materials, that is the best approach. In instances where a local authority such as Code Enforcement imposes specific guidelines or requirements, service provider program staffs are to make themselves aware of those restrictions and comply with them.

If it is determined, by the Initial Auditor/ Inspector in the *Home Assessment & Client Evaluation* as listed above, that weatherization work cannot be performed without creating a hazard the project is to be deferred. The client is to be informed in writing of the potential hazard and the agency must not return to weatherize until an AHERA certified professional issues a clearance statement. A copy of this statement/report must be kept in the client file.

Prior to drilling or cutting an exterior wall the subsurface must be inspected for asbestos.

When vermiculite is present, unless testing determines otherwise, the unit is to be deferred. Where blower door tests are performed, it is a best practice to perform pressurization instead of depressurization. Encapsulation by an appropriately trained professional is allowed. However asbestos encapsulation and testing cost are not reimbursable by the AZ WAP. Removal is not allowed.

With regard to pipes, furnaces and other small covered surfaces, assume asbestos is present in the covering materials. Encapsulation is allowed by an AHERA asbestos control professional and should be conducted prior to blower door testing.

Clients must be informed that suspected asbestos is present and how precautions will be taken. Clients will be instructed not to disturb suspected asbestos containing material. Clients must be provided information and explanation on asbestos safety information and steps to correct deferral conditions (where applicable). The clients are required to sign a form, provided by the weatherizing agency, indicating they have been informed (where applicable).

## **Biologicals and Unsanitary Conditions – odors, mustiness, bacteria, viruses, raw sewage, rotting wood, etc.**

A sensory inspection is required. Clients must be informed of observed conditions. Clients must be provided information and explanation on how to maintain a sanitary home and steps to correct deferral conditions (where applicable).

Remediation of conditions that may lead to or promote biological concerns and unsanitary viruses is not an allowable cost. Addressing bacteria and viruses is not allowed. Cleaning or repairing biological and unsanitary conditions to perform weatherization is not allowed. 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 bullet below.

## **Building Structure and Roofing**

Site conditions identified and documented by the Initial Auditor/ Inspector in the *Home Assessment & Client Evaluation* as listed above, that poses a safety hazard to its employees and

subcontractors and cannot be corrected within the scope of the program. Building structure & roofing should be evaluated visually as to not disturb any existing conditions.

Building Structure – Structural problems with candidate dwellings can often lead to deferral because their scope is beyond the means of the program to treat. Beyond simple incidental repairs, such as roof patching, there is no feasible means to address severe structural defects.

During the pre-inspection or initial inspection of the dwelling, the evaluator must have access to all aspects of the structure in order to adequately and appropriately gather data for the REM energy audit if not using Priority List or to conduct the weatherization work itself. Items such as clothing, dogs, trash or other impediments restricting access to any portion or portions of the dwelling that blocks necessary access may constitute a deferral.

Building rehabilitation is beyond the scope of the WAP. H&S funds should not be used when the repair is a component of an ECM. In that case, the repair should be cost justified as an incidental repair. Clients must be notified of structurally comprised areas (where applicable).

## Code Compliance

Correction of preexisting code compliance issues is not an allowable cost other than where they are triggered by performing weatherization measures. 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.

Per WPN11-6a if a permit is pulled to replace a HVAC system, water heater or other appliance requiring a permit and it is required by the municipality to upgrade all smoke alarms in the home to hardwire with battery backup it would be allowed

Clients must be notified of observed code compliance issues (where applicable). H&S funds should not be used when the repair is a component of an ECM, such as fixing a light fixture in order to install a CFL bulb. In this case the cost should be cost justified as an ECM with the associated incidental repair.

## Combustion Gases

Proper venting to the outside for combustion appliances, including gas dryers is required. Correction of venting is allowed when testing or inspection indicates a problem. Combustion safety testing is required when combustion appliances are present.

Correction of venting issues shall be completed and should be done as an incidental repair when it is a component of an ECM. Proper venting to the outside for combustion appliances, including gas dryers is required. Combustion safety testing is required when combustion appliances are present. Inspections by the Auditor in the *Home Assessment & Client Evaluation* as listed above, must include:

- Inspections of venting of combustion appliance and confirmation of adequate clearances to combustibles.
- Testing natural draft appliances for draft and spillage under worst case conditions before and after air sealing.
- Inspection of cooking burners for operability and flame quality. Replacement of Cook stoves is not allowed. Repair is an allowable H&S cost if CO readings are high or another health and safety concern is found.
- Testing by approved WAP procedures of ambient air in combustion appliance zones & undiluted flue on applicable appliances.

Clients must be provided information and explanation of 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.

## **Drainage - gutters, down spouts, extensions, flashing, sump pumps, landscapes, etc.**

Drainage repairs are allowed with H&S funds only as they relate to code compliance. A repair is allowed as incidental repair when it is a component of an efficiency measure, but must be cost justified with the ECM(s).

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 bullet below.

What are major drainage issues?

- Where the need for excavating equipment is brought
- Installing gutters on more than half the home
- An area more than 40 square feet where dirt is required to be moved

Clients must be provided information and explanation of the importance of cleaning and maintaining drainage systems, as well as the benefits of landscape design (where applicable).

## **Electrical, other than Knob-and Tube Wiring**

Minor electrical repairs, under \$300, are allowed where health and safety of the occupants is at risk. Upgrades and repairs are allowed when necessary to perform specific weatherization measures such as relocating an electrical outlet to allow for a dryer to be relocated for proper ventilation or proper connection of an existing water heater. Also may include installing a GFCI in a bathroom outlets, replace two wall outlets that are broken or replacement of bad breakers.

Clients must be provided information and explanation on the hazards of overloading circuits, basic electrical safety/risks and over current protection (where applicable). H&S funds should not be used when the repair is a component of an ECM such as a service upgrade to handle increased load of a new HVAC system.

## Electrical, Knob-and Tube Wiring

**If Knob and Tube wiring in a home in Arizona cannot be replaced under an ECM like insulation, that home will be a deferral until the wiring can be upgraded to current wiring codes by homeowner or other program.** Subgrantees are encouraged to seek all available programs to assist low-income households.

Subgrantees are required discuss and provide information and explanation to the client on the hazards of overloading circuits, basic electrical safety/risks and over current protection (where applicable).

## Fire Hazards

Current inspection criteria (by the Initial Auditor/ Inspector in the *Home Assessment & Client Evaluation* as listed above) take into account fire hazards associated with combustion appliances including clearances and venting systems. Through fuel specific checklists, inspectors identify such hazards and make repairs accordingly with respect to budgetary and program limitations. Adherence to appropriate NFPA codes when repairing or replacing equipment is a requirement, also it minimizes the potential for fire hazards.

Correction of fire hazards is allowed when necessary to safely perform weatherization. Home evaluations include checking for fire hazards during the audit. Clients must be informed of observed hazards even if they will not be treated during weatherization.

## Formaldehyde, Volatile Organic Compounds (VOCs) and other Air Pollutants

Formaldehyde and Volatile Organic Compounds (VOCs) – Formaldehyde, tobacco smoke, thinners, solvents, cleaners, and any other substances capable of negatively impacting indoor air quality are identified through the On-site inspection process. Basic strategies such as proper storage and ventilation are used to eliminate problems. Air sealing thresholds are maintained so that the presence of these pollutants are not concentrated and allowed to reach toxic amounts. However, this is primarily an occupant responsibility. In some cases, deferral may be an option.

Removal of pollutants is allowed and is required if they pose a risk to workers. If it is determined, by the Initial Auditor/ Inspector in the *Home Assessment & Client Evaluation* as listed above, that pollutants pose a risk to workers and removal cannot be performed or is not allowed by the client, the unit must be deferred. Removal of pollutants that is not necessary to perform weatherization (e.g. cleaning old paint cans and oil out of the garages) is not allowed.

Clients must be informed of observed conditions and associated risks. Client must be given written information and explanation on safety and proper disposal of household pollutants (where applicable).

## **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.

The Initial Auditors/ Inspectors, as well as workers where jobs are in progress, are to observe if dangers are present that would prevent weatherization. Clients must be informed by auditors and/or workers of observed hazards and associated risks (where applicable)

## **Lead Based Paint**

The cost of lead paint abatement is prohibited. However, the cost to test building materials for the presence of lead paint and the cost of precautions needed to prevent causing a lead paint contamination problem while installing weatherization materials is allowable. Lead-based paint (LBP) was used on the majority of houses built before 1978. It is probable that LBP is present on houses weatherized by the Arizona WAP that were built before 1978. If lead-based paint may be disturbed (cut, scraped, sawn, drilled, etc.) during the weatherization work, that work shall be done in a "lead-safe" manner. Arizona will follow the approach that has been defined by the Environmental Protection Agency under their EPA Lead Renovation, Repair, and Painting Rule.

Read about lead-hazard information for renovation, repair and painting activities in the EPA lead hazard information pamphlet [Renovate Right: Important Lead Hazard Information for Families, Child Care Providers, and Schools](#) (PDF) (11 pp, 1.1MB) | [en español](#) (PDF) (11 pp, 2.4MB)

All providers are required to provide a copy of "Renovate Right: Important Lead Hazard Information for Families, Child Care Providers and Schools" prior to the start of work to an adult of all homes to be weatherized. The inspector will also conduct a client education segment as part of the initial inspection to assure that the occupants are fully aware of the hazards posed by Lead Based Paint exposure. This procedure is documented by a written acknowledgement that the adult resident has received the brochure and that the information was not only distributed, but also explained, or certify in writing that a brochure had been delivered to an adult resident and the provider has been unsuccessful in obtaining a written acknowledgement, as directed in the publication. Confirmation of receipt of this brochure by the client will be maintained in the client file.

State policy mandates all workers on site on any Weatherization project, whether they be a crew based employee of one of the subcontractors or a private sector contractor, must complete an eight (8) hour Lead Safe Worker Practices Workshop. New staff will be required to attend the training within 180 days of their start of employment in the weatherization program. The aim of this course is to inform the worker about Lead hazards and the proper ways to deal with them, and in doing so, to work in such a way as to not expose client families (and their own families) to these hazards. All crews and contractors are required to carry HEPA vacuum machines, respirators, disposable bio suits, and all other items associated with safe Lead Work Practices.

- Wear a tight fitting respirator and disposable coveralls.
- Seal work areas within a home with tape and plastic. Cover furniture, carpet, and other surfaces with plastic drop cloths or tarps.
- Spray water on disturbed areas to minimize dust.
- Clean-up work area each day. Sweep carefully and wet mop as needed. Use a HEPA vacuum cleaner to collect dust and paint chips.
- Keep children away from work area at all times.

While this represents only a summary of the overall Lead Safe Practices and training, it illustrates AZ WX's awareness of the issue and how it is integral to any weatherization project.

Lead Safe Weatherization work practices occur only due to health and safety concerns. It cannot be considered part of an efficiency measure and shall always be calculated and charged as a health and safety cost.

Grantee's monitoring staff will have oversight responsibility in this area. While Lead Safe Work Practices have long been built into the program, the monitors will focus more directly on this area as they conduct their monitoring visits. Subgrantee staff will be required to show that all Lead Based Paint protocols: information sharing, lead safe work practices, proper equipment, and so forth are up to date and in compliance to all regulations whatever they turn out to be. While Grantee monitors visits completed and in progress homes and finds the subgrantee performing weatherization services without working lead safe practices on a home built prior to 1978 the Grantee monitor will report this as an action requiring attention in the monitoring report. The subgrantees, that are not in compliance, will be required to attend the WAP Boot camp which includes LSW course offered by the SWBSTC. Subgrantees that fail to comply and correct their practices for lead safe weatherization, once identified, will face the most serious sanctions that can be leveled: reduced allocation to start with, loss of contract if necessary. Special attention will be aimed at those programs failing to meet requirements in the area of Lead Safe Work Practices since it poses such tangible consequences for the households that are served.

Subgrantees must follow EPA's lead; Renovation, Repair and Painting (RRP). In addition to RRP, Weatherization requires all weatherization crews working in pre-1978 housing to be trained in Lead Safe Weatherization (LSW). Arizona's Deferral Policy will be used in instances where the homeowner or landlord has notified the subgrantee of lead paint issues existing or where lead poisoning has occurred to a member of the household or when the extent and condition of lead-based paint in the house would potentially create further health and safety hazards. . This policy requires referral to other programs, if one is known to exist in the area, designed to address the concerns.

Arizona's current status is as follows: all sub grantees have applied for and received Lead Renovator Firm status. All auditors (inspectors) have acquired Lead Renovator (RRP) certification as well as select crew leaders. Additionally, private contractors (excluding HVAC and Plumbers) have also applied for and received Lead Renovator Firm status. This is a requirement for contracting with the program. Private contractors have also met the requirement of having adequate RRP certified employees among their ranks. In summary, Arizona has met the EPA requirements as they now stand by April 2010 deadline. As new contractors apply to work on WX projects the EPA requirements are explained during the application process. No private contractors will be awarded work on any pre-1978 dwellings that don't meet the EPA rules.

Private contractors will be required to furnish proof of RRP and Lead Renovator Firm status as a condition of working for the WX program. The monitoring staff will routinely check that documentation is on file at each agency verifying compliance to EPA rules.

All weatherization crews working on pre-1978 homes must receive the 8 hour LSW training and a certified renovator must be assigned to the project and be readily available.

State Monitor/Trainers must be Certified Renovators and receive the 8 hour LSW training.

The head of household of every home to be weatherized receives the informational pamphlet: "Renovating Right". The inspector also conducts a client education segment as part of the initial inspection to assure that the occupants are fully aware of the hazards posed by Lead Based Paint exposure.

The RRP requirements of client education apply. The agencies must give the client a copy of the EPA publication: July 2011 Edition of: *The Lead-Safe Certified Guide to Renovate Right Pamphlet* and have the client sign the Sample Pre-Renovation Form located in the back of the Pamphlet to certify the client has been given the pamphlet.

That signed form must be kept in the client's file to show proof the client has received educational material about the dangers of lead paint.

The certified renovator must be physically present at the work site while signs are being posted, containment is being established, and the work area is being cleaned after the renovation to ensure that these tasks are performed correctly. Although the certified renovator is not required to be on-site at all times, while the renovation project is ongoing, a certified renovator must nonetheless regularly direct the work being performed by other workers to ensure that the work practices are being followed. When a certified renovator is not physically present at the work site, the workers must be able to contact the renovator immediately by telephone or other mechanism. In addition, the certified renovator must perform the post-renovation cleaning verification.

## **Mold and Moisture**

The Weatherization Assistance Program does not encompass mold remediation. DOE funds are not to be used to test, abate, remediate, purchase insurance, or alleviate existing mold conditions  
Revised May 1, 2014

identified during the assessment, the work performance period or the quality control inspection. Where multiple funding sources are used, the performance of any of the aforementioned activities must be expensed to a non-DOE funding source. Most typically, weatherization services may need to be delayed. All local agencies must include some form of notification or disclaimer to the client upon the discovery of a mold condition and if corrected, what was specifically done to the home that is expected to alleviate the condition and/or that the work performed should not promote new mold growth.

Where existing mold could pose a health risk to both the inhabitants and the weatherization crew, DOE funds may be used to correct energy-related conditions and/or to assure the immediate health of workers and clients. No more than 16 square feet of water damage repairs can be addressed by weatherization workers if it is in connection with the correction of moisture and mold creating conditions that are allowed when necessary in order to weatherize the home and to ensure the long term stability and durability of the measures. Weatherization of a home, and air-sealing in particular, could potentially increase the risk of moisture and mold in a home, thereby causing structural damage and/or a health risk to the inhabitants, extreme caution should take place when weatherization work is performed not to increase mold or moisture issues. Where severe Mold and Moisture issues cannot be addressed, deferral is required.

**Arizona** – The following protocols have been adopted to ensure that these risks are minimized during weatherization.

#### **A) Moisture Assessment**

All homes should be checked for previous or existing moisture problems. Mold in homes arises from conditions of excess moisture. During initial inspection, field coordinators are to assess the homes with special attention to the following signs: Evidence of condensation on windows and walls indicated by stains or mold; standing water, water stains, etc.

Also, check to see if there are leaking supply or waste pipes; attic roof sheathing shows signs of mold or mildew.

Identification of existing or potential moisture problems shall be documented in the client file.

If existing moisture problems are found, no air sealing should be done unless the source of the moisture can be substantially reduced or effective mechanical ventilation can be added to cost effectively remove the moisture. In some cases, air sealing must be done in order to reduce the source of the moisture (i.e. sealing off crawlspaces from the house, or sealing attic leakage to eliminate condensation on the roof deck). Because air tightening may cause an increase in relative humidity, client education should include information about moisture problems and possible solutions. In the course of weatherization, any low-cost measures that help reduce the humidity levels in the house should be installed.

#### **Examples of these activities are:**

- Venting dryers
- Venting existing bath exhaust fans
- Venting existing kitchen exhaust fans

## **B) Repair or Elimination of Moisture Problems**

Repair of moisture problems that might result in health problems for the client, damage the structure over the short- or long-term, or diminish the effectiveness of the weatherization measures must be done before the weatherization job is completed. Moisture problems can be reduced or eliminated by controlling the source of the moisture.

### **This can involve:**

- Venting dryers to the outside of the building;
- Providing positive drainage away from foundation, if only a small area needs to be addressed, regarding the foundation perimeter is not allowed;
- Repairing small roof leaks and flashing issues
- Educating the client about the sources of moisture that they are able to control.
- Moisture problems can be reduced or eliminated by ventilating areas where excessive moisture is produced, such as bathrooms and kitchens. This should include installation of a high quality exhaust fan in the subject area and informing the client of the related moisture issues and the proper operation and use of the fan.

Major moisture problems that cannot be corrected within the scope of the program such as, but not limited to:

- An enclosed crawlspace or basement that has standing water for 24 hours due to inadequate ground or surface water drainage.
- Any building with no overhangs and no gutters, exhibiting signs of major moisture problems such as blistering paint and extensive mold/mildew on the inside of the house.
- Needing to regrade foundation perimeter to create opposite water flow away from the foundation

The clients must be provided with a disclaimer on mold and moisture awareness

The EPA publication, "A Brief Guide to Mold, Moisture, and Your Home", is available here in [HTML](#) and PDF formats in English ([PDF](#), 20 pp., 257 K) and Spanish ([PDF](#), 20 pp., 796 K). This Guide provides information and guidance for homeowners and renters on how to clean up residential mold problems and how to prevent mold growth.

## **Occupational Safety and Health Administration (OSHA) and Crew Safety**

Workers must follow OSHA standards and OSHA Hazard Communication Standard (HCS) Safety Data Sheets (SDS) and take precautions to ensure the health and safety of themselves and other workers. SDS must be posted wherever workers may be exposed to hazardous materials.

SDS information is monitored during Grantee's compliance monitoring. Field monitoring performs unit file review for evidence of safe work practices. Field monitoring of in progress units will perform assessments to determine if crews are utilizing safe work practices.

OSHA 10 hour training for all workers, including contractors, assessors, and inspectors, is required. OSHA 30 hour training is required for all crew leaders and OEP Monitor/Trainers by June 30, 2012. All new employees must obtain OSHA 10 or 30 depending on their position held within 180 days of hire. This training can be obtained in various ways. The following are suggested resources.

Classroom Training.

### **Construction 10 hour and Construction 30**

1. [Southwest Building Science Technical Center](#)

Online Training

OSHA has accepted the below sites for online outreach training. We suggest that you sample them before choosing.

### **Construction 10 hour**

1. [Advance Online](#)
2. [Click Safety](#) (also Roadway, Cal-OSHA, and Spanish)
3. [Summit Training Source](#) (also Spanish version)
4. [Pure Safety](#) (also Spanish version)
5. Career Safe - ([Youth](#) and [Corporate](#) versions)
6. [Redvector](#)
7. [360Training](#)
8. [University of South Florida](#)
9. [Coastal Training Technologies](#)
10. [Turner Construction](#)

### **Construction 30 hour**

1. [Turner Construction](#) (also Spanish version)
2. [Click Safety](#)
3. [360Training](#)
4. [Summit Training Source](#)
5. [University of South Florida](#)
6. [Pure Safety](#)
7. [Advance Online](#)

### **Information on obtaining OSHA outreach classes in construction**

**To find in-person training conducted by an authorized OSHA Outreach Trainer:**

- a. See [www.OutreachTrainers.org](http://www.OutreachTrainers.org) to find outreach trainers and/or their schedules  
We can send you a list of active trainers in your state – e-mail us if you want this list. Use the lists to contact trainers for information on their training plans.

- b. OSHA Education Center in your area may offer it - [www.osha.gov/dte/edcenters/map.html](http://www.osha.gov/dte/edcenters/map.html)
- c. The OSHA Consultation office in your area may offer it, see [www.osha.gov/dcsp/smallbusiness/consult\\_directory.html](http://www.osha.gov/dcsp/smallbusiness/consult_directory.html)

## Pests

If found, by the Initial Auditor/ Inspector in the *Home Assessment & Client Evaluation* as listed above, any pest infestation within the dwelling or in any area outside of the dwelling where service provider staff or subcontractors would have to work to perform weatherization measure is an allowable expense. Cost of pest control cannot exceed 300 dollars. If the cost is greater than that amount the home will be a deferral until the problem can be handled by another program or the homeowner. (Pests include, but are not limited to: fleas, roaches, rodents, etc.).

Clients must be informed of observed condition and associated risks.

## Radon

Whenever site conditions permit, exposed dirt must be covered with a vapor barrier except for mobile homes without skirting or an exterior under surface that serves as a vapor barrier. In homes where radon may be present, precautions should be taken to reduce the likelihood of making radon issues worse. In extreme cases deferral may be an option.

In the State of Arizona Radon testing or remediation is not an allowable H&S measure. Clients must be provided with the EPA consumer's guide to radon.

## Refrigerant

Refrigerators are allowed to be replaced as an ECM only. All reclaimed refrigerant processes must follow the Clean Air Act 1990, section 608, as amended by 40 CFR82, 5/14/93. All EPA testing protocols must apply to any testing. Clients are to be advised not to disturb refrigerant. Anyone working with refrigerant, within or employed by the WAP, must have the appropriate training, either an EPA-approved section 608 type I or universal certification. For any appliance containing refrigerant, disposal must include refrigerant reclamation.

Non-certified technicians may not attach or disconnect hoses of gauges to measure pressure within the appliances, top-off or remove refrigerant from appliances or otherwise damage the integrity of the appliance.

## Smoke, Carbon Monoxide Alarms, and Fire Extinguishers

1. **ALL HOMES** must have a CO detector installed per ASHRAE 62.2-2013 standard
2. Weatherization agencies must install smoke alarms in dwelling units where these devices are nonexistent or non-functioning.
3. CO alarms must be, UL listed, installed in accordance with the manufacturer's recommendations and located in compliance with state and local building codes and must have the capability to accurately detect and display low levels of carbon monoxide to 10 ppm and comply with other program requirements.

Local agencies must provide the occupant(s) of the dwelling unit with verbal and written information regarding the following:

- a. Dangers of CO and smoke.
  - b. How to operate and reset the CO and smoke alarms.
  - c. How to read the CO alarm if there is a digital display.
  - d. How to respond to CO levels above 10 ppm. (Symptoms of CO poisoning and how the occupant should address the issue should it arise)
    - The most common symptoms of CO poisoning are headache, dizziness, weakness, nausea, vomiting, chest pain, and confusion.
    - If these symptoms are present shut off gas appliances, open windows and doors, get out of the home, seek medical help if needed and call a repair man.
  - e. How to change the batteries of CO and smoke alarms.
4. Smoke alarms must be, installed in accordance with the manufacturer's recommendations, listed in accordance with UL 217, comply with NFPA 72 and other program requirements.
  5. Where multiple smoke alarms are required interconnection is required. Actuation of any one smoke alarm shall activate all of the alarms in the individual unit. Hard wiring and interconnection is not required in existing areas provided:
    - a. The alteration or repair does not cause the removal of wall or ceiling finishes exposing the structure, and
    - b. No attic, crawl or basement is available which can provide access for hard wiring and interconnection without the removal of interior finishes.

6. On average no more than two smoke alarms will be installed in home unless a permit is pulled and code compliance for the municipality the home is located in states differently

7. Providing fire extinguishers is allowed only when solid fuel is present. Fire extinguishers must be installed, according to the manufactures recommendations, be type ABC, UL listed, ≤ 10 lb and with a permanently affixed wall bracket to receive the extinguisher. The client must sign a

written agreement to allow a fire extinguisher to be installed in the home within sight of the solid fuel burning heat system when standing at the unit. The agency must discuss and provide information on the use and upkeep of the extinguisher to the client.

## **Solid Fuel Heating (Wood Stoves, etc.)**

The weatherization agency must inspect the stove, chimney and flue for proper operation. Combustion zone depressurization (CAZ) testing is required per weatherization standards.

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. Replacement of secondary heating units is not allowed. This system must be operational and inspected before any other weatherization begins.

## **Stand Alone Electric Heaters**

Defined as, heaters that do not have a permanent connection to electric power or standalone heaters that have been connected to the power supply against code. Repair, replacement or installation is not allowed. Removal is recommended. Circuitry must be checked to ensure adequate power supply for existing space heaters by a licensed electrician.

Clients must be informed of the hazards associated with these types of heaters and the weatherization agency must collect a signed waiver from the client if removal is not allowed.

## **Space Heaters, Unvented Combustion**

Unvented combustion space heaters are not considered a primary heat source. Removal is required, except as secondary heat source and 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 allowable expense per weatherization standards. All units must have an ANSI Z21.11.2 label.

The client must be informed of the dangers of unvented space heaters – CO, Moisture, NO<sub>2</sub>, CO can be dangerous even if CO alarm does not sound. The replacement system must be inspected, operational and combustion tested per WAP standard test protocols before any other weatherization begins

## Space Heaters, Vented Combustion

These units will be treated as furnaces and test in the same manner as furnaces during an evaluation. The replacement system must be inspected, operational and combustion tested per WAP standard test protocols before any other weatherization begins.

## Spray Polyurethane Foam (SPF)

Use EPA recommendations (available online at [http://www.epa.gov/dfe/pubs/projects/spf/spray\\_polyurethane\\_foam.html](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. Testing will include checking for penetrations in the building envelope. Sensory inspection inside the home for fumes during foam application must also occur.

The client must be informed of plans to use two-part foam and the precautions that may be necessary. Workers using foam products must receive training on the proper use of these various products and understand the specification for each application type. Documentation of installers viewing an installation video or online training and verification of reading and understanding product use information must be kept at the service provider agency. SDS are mandatory for any foam product used and a thorough understanding of the temperature sensitivity of the product in use is required.

## Ventilation

The State of Arizona will follow ASHRAE 62.2 2013 to the fullest extent possible. Per ASHRAE standard 62.2-2013, all homes weatherized are required to have a CO detector/monitor installed. Monitor must meet WAP standards for level of CO readings

## Window and Door Replacement, Window Guards

Replacement, Repair, or installation is not an allowable H&S cost but may be allowed as an ECM if cost justified. If disturbing lead paint, follow LSW practices and the client must be informed on lead risks as indicated in this H&S plan when applicable. Replacement, repair or installation of doors, windows, or window guards is not an allowable H&S cost.

Window Glass pane is an allowable cost if it is an immediate danger to occupants if budget permits

## Deferrals/Referrals

Deferrals, Referral and/or "walkaways" are processed accordingly:

- a.** The client shall be informed in writing as to why the dwelling cannot be weatherized. If there are conditions that the client must correct before service is provided, those conditions must also be stated in writing.
- b.** The service provider is required to refer the client to any alternate program such as home rehab, if one is available in the area.
- c.** The service provider shall clearly indicate in the client file why the dwelling was given "deferral" status.
- d.** The service provider must document all referrals to other programs or services in the client file.
- e.** The client will receive any information prescribed in the Health and Safety section that is appropriate.

## Client Education

This procedure is documented by using a signed receipt from the head of household which confirms that the information was not only distributed, but also explained. This receipt is kept in the client file. Forms have been developed to document all information discussed and given to the clients along with application and onsite interviews to verify preexisting at risk and health concerns.