



Tennessee Housing Development Agency

WEATHERIZATION ASSISTANCE PROGRAM HEALTH AND SAFETY PLAN

Program Year 2020

Tennessee Housing Development Agency

WAP 2020 Health and Safety Plan

❑ POLICY SUBMITTED WITH PLAN

1.0 – GENERAL INFORMATION

Purpose of the WAP Health and Safety Plan

This document exists to provide more informed decision making for state and local weatherization agencies as well as weatherization program technical partners. The plan is designed to provide both financial, programmatic and technical instruction focused on the program's health and safety component.

Federal regulations serving as the foundation of the weatherization program allow for the improvement or elimination of occupant health and safety hazards. **The elimination of health and safety hazards must be energy related and necessary before, or as a result of, installation of weatherization measures.**

Health and safety funding is limited and therefore, the following policies are in place to better instruct program partners how to efficiently and effectively utilize the dedicated funding.

General Information

If a subgrantee is unsure how to handle a Health and Safety measure, the subgrantee will contact THDA for additional guidance on a case by case basis.

- Examples of case by case guidance may include: non-visible knob and tube wiring, hazardous or non- functioning water heaters, suspected asbestos containing materials and other unique situations.
- THDA will offer additional guidance based on review of documentation or conduct a site visit if needed.
- If THDA is unable to reach a conclusion, THDA will seek additional guidance from DOE. Health and Safety measures that are beyond the scope of the WAP may be addressed using LIHEAP Wx funds, if determined allowable by THDA.

Major Health and Safety Repair Definition: Repair costs that meet or exceed \$1,150.00.

- This figure is calculated as 15 percent of the 2020 Program Year DOE WAP budget cap of \$7,669.00.
- Examples of major health and safety repairs include, but not limited to: large areas of mold removal, structural repair, extensive roof repair, pest control, faulty wiring and major moisture issues. Repairs such as these are beyond the scope of weatherization.
- Agencies are encouraged to seek alternative funding sources to conduct major repairs. Dwelling units needing repairs that are beyond the scope of weatherization *must be deferred* until the issues are corrected.
 - If an agency is unsure how to handle a major repair health and safety issue, THDA must be contacted for additional guidance.

Minor Health and Safety Repair Definition: Repair costs below \$1,150.00.

- Examples of minor health and safety repairs include, but not limited to: minor water leak repair, electrical junction boxes and outlet repair, and small areas of mold removal. These examples may be addressed with DOE Health and Safety funds.
 - If an agency is unsure how to handle a minor repair health and safety issue, they will contact THDA for additional guidance.

Partial Weatherization:

Partial weatherization of a unit is not allowed. Units that have health and safety issues that are beyond the scope of WAP *must be deferred*. Units that only receive DOE funded health and safety measures may not be counted as a completed unit.

Health and Safety Measure Documentation:

Written and photo justification must be included in the clientfile. ***This includes all Lead Safe Practices.***

2.0 – BUDGETING

Select which option is used below.

Separate Health and Safety Budget

Contained in Program Operations

3.0 – HEALTH AND SAFETY EXPENDITURE LIMITS

Pursuant to [10 CFR 440.16\(h\)](#), Grantees must set H&S expenditure limits for their Program, providing justification by explaining the basis for setting these limits and providing related historical experience.

Low percentages should include a statement of what other funding is being used to support H&S costs, while larger percentages will require greater justification and relevant historical support. 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 ACPU. For example, if the ACPU is \$5,000, then an average expenditure of \$750 per dwelling would equal 15 percent expenditures for H&S.

15 percent is not a limit on H&S expenditures but exceeding this amount will require ample justification. These funds are to be expended by the Program in direct weatherization activities. While required as a percentage of the ACPU, if budgeted separately, the H&S costs are not calculated into the per-house limitation. DOE strongly encourages using the table below in developing justification for the requested H&S budget amount. Each H&S measure the Grantee anticipates addressing with H&S funds should be listed along with an associated cost for each measure, and by using historical data the estimated frequency that each measure is installed over the total production for the year.

It is also recommend reviewing recent budget requests, versus expenditures to see if previous budget estimates have been accurate. The resulting "Total Average H&S Cost per Unit" multiplied by the Grantee's production estimate in the Annual File should correlate to the H&S budget amount listed in the Grantee's state plan.

Should a Grantee request to have more than 15 percent of Program Operations used for health and safety purposes, DOE will conduct a secondary level of review. DOE strongly encourages use of this H&S template and matrix to help expedite this process

Per-Unit Average Percent: 15%

Each unit is unique and offers different challenges, there is not a specific amount per unit. The state will provide each subgrantee with the maximum amount of their funding which they can use to address eligible Health and Safety measures as defined in the Tennessee WAP Health and Safety Plan. The state will limit such expenditures to *no more than 15%* of total DOE funds allocated to program operations in the annual plan budget, although the amount used by an individual agency may be less than 15% of their funding, depending on the need of their housing stock. The subgrantee will be allowed the flexibility to use their funds across the units they weatherize, provided they are also installing energy conservation measures. There will not be a specific cap on the amount of health and safety funding allowed per unit, but rather the subgrantee may not exceed the total health and safety funding allocation for their agency as defined by the grantee for that program year.

Tennessee housing stock includes a high incident of unvented space heaters. Per DOE policy, these unvented space heaters that serve as the primary heating source must be addressed in order for weatherization to proceed. The expense associated with replacing unvented spaced heaters, along with costs associated with complying with the requirements of this health and safety plan and the implementation of ASHRAE 62.2 - 2016 to the fullest extent possible, require Tennessee to request that a minimum of 15% of the funds available be used to address health and safety issues.

4.0 – INCIDENTAL REPAIR MEASURES

Incidental Repairs – (DOE WPN 19-5) A repair necessary for the effective performance or preservation of newly installed weatherization materials, but not part of a standard installation. IRM installations must be associated with a specific ECM or group of ECMs. IRMs must be justified by written and photo documentation in the client file. IRM costs must be included the SIR calculation of the total package of weatherization measures.

Certain measures included in this current health and safety plan may meet either incidental repair or health and safety measure definitions. Funding source distinction will adhere to DOE incidental repair and health & safety measure definitions and policies set forth in WPN 17-7, WPN 19-5 and the THDA WAP Manual. Measure categories in this plan will identify common measures which may overlap in definitions between an incidental repair or health and safety measure. The specific measures where definition crossover applies will be identified under the “Funding” category found in each section. Only those sections where multiple definitions may apply will be labeled.

If a repair measure can be tied to a specific energy conservation measure, then it may be funded as an incidental repair. If the package of measures falls below 1.0 SIR after the inclusion of the repair, the measure may be funded under health and safety. If the measure is not tied to a specific ECM, the measure will be funded under health and safety.

All measures must be clearly documented and meet the definition under which they are funded. Refer to DOE's WPN 19-5 Flow Chart found in the back of this document.

5.0 – DEFERRAL/REFERRAL POLICY

Deferral of services may be necessary if H&S issues cannot be adequately addressed according to WPN 17-06 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. If, in the judgment of the subgrantee or auditor, any conditions exist which may endanger the health and/or safety of the workers or occupants, the unit should be deferred until the conditions are corrected. Deferral may also be necessary where occupants are uncooperative, abusive, or threatening. Grantees must be specific in their approach and provide the process for clients to be notified in writing of the deferral and what conditions must be met for weatherization to continue. Grantees must also provide a process for the client to appeal the deferral decision to a higher level in the organization.

Grantee has developed a comprehensive written deferral/referral policy that covers both H&S, and other deferral reasons?

Yes No

Where can this deferral/referral policy be accessed?

[The Tennessee WAP Manual](#) - Chapter 5

6.0 – HAZARD IDENTIFICATION AND NOTIFICATION FORM(S)

Documentation forms must be developed that include at a minimum: the client's name and address, dates of the audit/assessment and when the client was informed of a potential H&S issue, a clear description of the problem, a statement indicating if, or when weatherization could continue, and the client(s) signature(s) indicating that they understand and have been informed of their rights and options.

Documentation Form(s) have been developed and comply with guidance?

Yes No

[The Tennessee WAP Manual](#) – Refer to templates found in chapters 18 & 19.

- Deferral Notice – Single Family
- Deferral Notice – Multi Family
- Mold and Moisture Inspection and Release Form
- Client Education Checklist
- Radon Informed Consent Form
- Repair, Renovation, and Painting Pamphlet – Client acknowledgment

7.0 –HEALTH AND SAFETY CATEGORIES

For each of the following H&S categories identified by DOE:

- Explain whether you concur with existing guidance from WPN 17-06 and how that guidance will be implemented in your Program, if you are proposing an alternative action/allowability, or if the identified category will not be addressed and will always result in deferral. Alternatives must be comprehensively explained and meet the intent of DOE guidance.
- Where an Action/Allowability or Testing is “required” or “not allowed” through WPN 17-06, Grantees must concur, or choose to defer all units where the specific category is encountered.
- “Allowable” items under WPN 17-06 leave room for Grantees to determine if the category, or testing, will be addressed and in what circumstances.
- Declare whether DOE funds or alternate funding source(s) will be used to address the particular category.
- Describe the explicit methods to remedy the specific category.
- Describe what testing protocols (if any) will be used.
- Define minimum thresholds that determine minor and major repairs
- Identify minimum documentation requirements for at-risk occupants
- Discuss what explicit steps will be taken to educate the client, if any, on the specific category if this is not explained elsewhere in the Plan. Some categories, like mold and moisture, require client education.
- Discuss how training and certification requirements will be provided for the specific category. Some categories, like Lead Based Paint, require training.
- Describe how occupant health and safety concerns and conditions will be solicited and documented

7.1 – Air Conditioning and Heating Systems

(Space heaters and solid fuel heating are covered in Attachment A)

Concurrence, Alternative, or Deferral

Concurrence with Guidance <input checked="" type="checkbox"/>	Alternative Guidance <input type="checkbox"/>	Results in Deferral <input type="checkbox"/>
Air Conditioning Unallowable Measure <input type="checkbox"/> Heating Unallowable Measure <input type="checkbox"/>		

Funding

DOE <input checked="" type="checkbox"/>	LIHEAP <input checked="" type="checkbox"/>	State <input type="checkbox"/>	Utility <input type="checkbox"/>	Other <input type="checkbox"/>
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How do you address unsafe or non-functioning primary heating/cooling systems?

SAFETY PRECAUTIONS

Unsafe primary heating and cooling systems must be repaired, replaced and removed, or rendered inoperable, or *deferral is required*.

“Red tagged,” inoperable, or nonexistent primary heating system may be replaced, repaired, or installed where climate conditions warrant, consistent with this guidance.

If a system has CO readings that are above acceptable levels, the subgrantee representative must advise the occupant of the dangers and the problem must be corrected prior to any weatherization work being performed, unless the excess CO will be addressed during the work scheduled to be performed under the program.

DEFERRAL

If the customer cannot correct the problem or the agency is unable to address the HVAC problem using guidance in the [Tennessee Weatherization Field Guide](#) and within program guidelines, or through the use of outside funding sources, the unit must be deferred until further action can occur.

ENERGY AUDIT REQUIREMENT

An attempt to cost-justify the HVAC measure must be made prior to replacing/repairing with health and safety funds. The original audit will include modeling the existing system. A copied audit will be completed if the measure is not recommended (cost-effective) and the replacement/repair will be modeled as an 'Itemized Cost' meeting the definition of WAP health and safety.

How do you address unsafe or non-functioning secondary heating systems, including unvented secondary space heaters?

NOTE: Replacement or installation of secondary units is not allowed.

Unsafe secondary units, including space heaters, must be repaired, removed or rendered inoperable, or deferral is required.

The sub-grantee will clean, tune, or remove secondary *unvented space heaters* if they pose a health and safety concern.

No secondary unvented heating source will be replaced using DOE funds and the secondary unit must meet DOE guidance on British Thermal Units (BTU) limitations.

Limitations are defined:

- **40,000 BTUs max:** Living space
- **10,000 BTUs max:** Bedroom
- **6,000 BTUs max:** Bathroom

Additional information can be found later in this plan within section: *Unvented Gas and Liquid Fueled Space Heaters Attachment A*

Indicate Documentation Required for At-Risk Occupants

At risk clients are defined as: individuals who are under age 6, age 60 years or older, disabled, or have a specific health condition that is exacerbated by the lack of air conditioning in the home.

Acceptable documentation includes disability income eligibility forms and doctor's notes regarding health condition.

Testing Protocols

GENERAL HVAC REPLACEMENT PROTOCOLS

Make sure primary systems are present, operable, and performing correctly and the replacement is allowable, meeting H&S policies. This may include:

- Verify within the Weatherization Assistant audit tool to determine if the system can be installed as an energy conservation measure (ECM) prior to replacement as an H&S measure.
- Determine and document presence of “at-risk” occupants when installing air-conditioning as a Health and Safety (H&S) measure.
- On combustion equipment, inspect the chimney and/or flue. Diagnostics which document worst case depressurization for Combustion Appliance Zone (CAZ) depressurization.
- For solid fuel appliances look for visual evidence of soot on the walls, mantel or ceiling or creosote staining near the flue pipe.

HVAC SIZING

Use proper sizing protocols (ACCA HVAC sizing calculations, state approved sizing protocols, NEAT/MHEA outputs, etc.) based on post-weatherization housing characteristics, including installed mechanical ventilation, when installing or replacing a heating or cooling appliance.

COMBUSTION SAFETY

Combustion appliances will be tested for both efficiency and safe operation of the unit.

Tennessee currently follows [BPI's 1200 – S - 2017 Combustion Appliance and Fuel Distribution System Inspection](#) protocol. Chapter 7 of the standard practices document outlines the protocol.

Carbon monoxide action levels, worst case depressurization, and other combustion safety diagnostics are included in the testing protocol.

The appliances to be tested include furnaces, boilers, space heaters, gas stoves, and gas fireplaces. Gas appliances that exceed the acceptable levels for CO must be addressed. These levels and corrective actions are defined in the [Tennessee Weatherization Field Guide](#).

Additional training on proper use and maintenance of wood burning appliances can be found at the [EPA's Burnwise](#) site.

Client Education

Client education, including information on the proper operation of the equipment, shall be provided.

Checks shall be made to insure that other components, like electrical wiring and chimneys, are in good condition and that no obvious building code violations or other safety hazards related to the space heating are evident.

When deferral is necessary, provide information to the client, in writing, describing conditions that must be met in order for weatherization to commence. A copy of this notification must also be placed in the client file.

- Discuss appropriate use and maintenance of units.
- Provide all paperwork and manuals for any installed equipment.
- Discuss and provide information on proper disposal of bulk fuel tanks when not removed as part of the weatherization work.
- Where combustion equipment is present, provide safety information including how to recognize depressurization.

Training

The State trains the proper use of combustion appliance testing through regular Energy Auditor, QCI, contractor, RIT, and Crew Leader training, and via technical memorandums. The State requires licensed contractors to remain up to date for all training requirements of the weatherization program.

Additional training resources:

[Tennessee Weatherization Field Guide](#) serves as an additional resource. Additional training and technical assistance may be provided on an as-needed basis.

Licensing and/or certification for HVAC installers as required by authority having jurisdiction (AHJ).

[HVAC Fundamentals](#) – training course

Additional training and technical assistance may be provided on an as-needed basis.

7.2 - Asbestos - All

What is the blower door testing policy when suspected Asbestos Containing Material (ACM) is identified?

GENERAL PRECAUTION:

When friable asbestos containing materials are present, unless testing determines otherwise, take precautionary measures as if the material contains asbestos AND take all reasonable and necessary precautions not to damage suspected asbestos containing materials (ACMs). Proper respiratory and other personal protective equipment must be used.

BLOWER DOOR TESTING: Where blower door tests are conducted, it is a best practice to pressurize the dwelling instead of depressurize.

THDA will closely watch for results of pending DOE Vermiculite Study that is analyzing the effects of airborne ACM particulates potentially disturbed by various methods of blower door diagnostics.

DEFINITIONS:

- **Friable** - the ACM can be crumbled, pulverized, or reduced to powder by the pressure of an ordinary human hand.
- **Encapsulation** - the treatment of ACM (Asbestos Containing Material) with a material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent the release of fibers, as the encapsulant creates a membrane over the surface (bridging encapsulant) or penetrates the material and binds its components together (penetrating encapsulant).

7.2a – Asbestos - in siding, walls, ceilings, etc.

Concurrence, Alternative, or Deferral

Concurrence with Guidance Alternative Guidance Results in Deferral

Funding

DOE LIHEAP State Utility Other

How do you address suspected ACMs in siding, walls, or ceilings that will be disturbed through the course of weatherization work?

GENERAL PRECAUTION:

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

Major asbestos problems should be referred to the appropriate state or federal agency.

- [Tennessee Department of Environment and Conservation](#)
- [US Environmental Protection Agency](#)

ASBESTOS REMOVAL ON SIDING

Removal and reinstallation of siding: is allowed to perform energy conservation measures. *This will be included as part of the ECM cost.*

- The existence of asbestos siding that is in good condition does not prevent installing dense-pack insulation from the exterior.
- Some siding may be removed and reinstalled in order to perform the ECM, and the associated costs may be charged as part of the ECM.
- The cost of removing asbestos siding will be included in the wall installation measure as an ECM and must have a SIR of 1 or more to be justified.

NOTE: General abatement of asbestos siding or replacement with *new* siding is *not* an allowable health and safety cost. All precautions must be taken not to damage siding.

Never cut or drill suspected ACM in siding, or on floor, wall, and ceiling coverings.

Cutting or boring through asbestos siding is prohibited. Contractors must take all precautions to ensure that no inhalation of dust takes place.

Safety equipment must be worn at all times during the handling of asbestos materials.

Testing Protocols

Visually inspect exterior wall surface and subsurface, floors, walls, and ceilings for suspected ACM prior to drilling or cutting.

Auditors and contractors in Tennessee are not required to be certified asbestos testers or abatement specialists.

Asbestos Hazard Emergency Response Act of 1986 (AHERA) sample collection and testing must be conducted by a certified tester.

Client Education

Clients are informed in writing that suspected ACMs are present and what precautions will be taken to ensure the occupants' and workers' safety during weatherization.

Formally notify client in writing of results if ACM testing was performed.

- Refer clients with known asbestos issues to the [US Environmental Protection Agency](#)

When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.

Occupant must provide documentation that a certified professional performed the remediation before work continues.

Training and Certification Requirements

Energy Auditors, QCIs, contractors, RITs, and Crew Leaders are trained to identify possible asbestos conditions.

Training resources :

- [U.S. Environmental Protection Agency](#)
- [Tennessee Department of Environment and Conservation](#)

7.2b – Asbestos - in vermiculite				
Concurrence, Alternative, or Deferral				
Concurrence with Guidance <input checked="" type="checkbox"/>	Alternative Guidance <input type="checkbox"/>	Results in Deferral <input type="checkbox"/>		
Funding				
DOE <input checked="" type="checkbox"/>	LIHEAP <input checked="" type="checkbox"/>	State <input type="checkbox"/>	Utility <input type="checkbox"/>	Other <input type="checkbox"/>
<p>NOTE: Vermiculite <i>removal</i> is <i>not</i> allowed using DOE or LIHEAP health and safety funds.</p> <ul style="list-style-type: none"> DOE funds may be used to encapsulate asbestos by an appropriately trained professional, if applicable. 				
How do you address suspected ACMs in vermiculite that will be disturbed through the course of weatherization work?				
<p>When vermiculite is present, assume it contains asbestos unless testing determines otherwise.</p> <p>BLOWER DOOR TESTING: Where blower door tests are performed, ensure it does not disturb asbestos and become airborne.</p> <ul style="list-style-type: none"> Conduct blower door diagnostic using pressurization instead of depressurization. THDA will closely watch for results of pending DOE Vermiculite Study that is analyzing the effects of airborne ACM particulates <u>potentially</u> disturbed by various methods of blower door diagnostics. <p>If vermiculite is present, it will follow the same protocols as asbestos.</p>				
Testing Protocols				
<p>BLOWER DOOR TESTING: Where blower door tests are performed, ensure it does not disturb asbestos. See section above.</p> <p>Auditors and contractors in Tennessee are not required to be certified asbestos testers or abatement specialists.</p>				
Client Education				
<p>Clients are informed regarding the possibility and hazards regarding asbestos. Clients will be instructed in writing not to disturb suspected ACM.</p> <ul style="list-style-type: none"> Refer clients to the US Environmental Protection Agency <p>Additionally, clients will be informed of asbestos testing results, if testing was conducted.</p> <p>When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence. Occupant must provide documentation that a certified professional performed the remediation before work continues.</p>				
Training and Certification Requirements				

As stated in the above Funding category:

- DOE funds *can* be used to remove asbestos pipes, furnaces, and other small covered surfaces as a health and safety measure if requested and approved by the State.
- The removal can only be performed by an AHERA asbestos control professional. This applies only to the removal of asbestos on *pipes, furnaces, and other small covered areas*.

Testing Protocols

Assess whether suspected ACMs are present.

AHERA sample collection and testing is allowed and must be conducted by a certified tester.

Client Education

Clients are informed regarding the possibility and hazards regarding asbestos.

Clients will be instructed in writing not to disturb suspected ACM.

- Refer clients to the [US Environmental Protection Agency](#)

Additionally, clients will be informed of asbestos testing results, if testing was conducted.

When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.

Occupant must provide documentation that a certified professional performed the remediation before work continues.

Training and Certification Requirements

Energy auditors, QCIs, contractors, RITs, and Crew Leaders are trained to identify possible asbestos conditions.

Additional training:

[U.S. Environmental Protection Agency](#)

Training
<p>Energy auditors, QCIs, contractors, RITS, and Crew Leaders are trained to identify issues related to biologicals and unsanitary conditions.</p> <p>Tennessee Department of Health offers information how to maintain a healthy home. It is encouraged auditors, QCIs, contractors, and so forth are familiar with this information to better guide their observations in a home.</p> <p>The US Department of Housing and Urban Development also offers valuable information to train what constitutes a healthy home</p> <p>The US Environmental Protection Agency describes biological pollutants’ impact on indoor air quality and provides tips for reducing biological pollutants.</p> <p>Tennessee Weatherization Field Guide offers additional training concepts.</p>

7.6 – Building Structure and Roofing				
Concurrence, Alternative, or Deferral				
Concurrence with Guidance <input type="checkbox"/>	Alternative Guidance <input checked="" type="checkbox"/>		Results in Deferral <input type="checkbox"/>	
Funding				
DOE <input checked="" type="checkbox"/>	LIHEAP <input checked="" type="checkbox"/>	State <input type="checkbox"/>	Utility <input type="checkbox"/>	Other <input type="checkbox"/>
<p>MEASURE CATEGORY: Minor structure and roof repairs may be funded as health and safety measures or as incidental repairs. Clear documentation to the funding source and category is necessary to be retained in the client file.</p>				
What guidance do you provide Subgrantees for dealing with structural issues (e.g., roofing, wall, foundation) in homes slated for weatherization?				
<p>Building rehabilitation is beyond the scope of the Weatherization Assistance Program. Homes that require more than minor repairs must be deferred.</p> <p>DOE health and safety funds may be used for allowing safe access to areas being weatherized, as necessary to protect the client and weatherization workers. All other minor building and roof repairs will be considered incidental repairs and included in the calculation of the cumulative SIR.</p>				
How do you define “minor” or allowable structure and roofing repairs, and at what point are repairs considered beyond the scope of weatherization?				
<p>A minor repair shall remain under the cost of \$1,150.00</p> <ul style="list-style-type: none"> Minor roof repairs include, but not limited to: patching loose or removed roofing materials, flashing near roof penetrations, etc. <p>Minor building repairs include, but are not limited to: crawlspace and attic access repair which are necessary for safe entry.</p> <p>Subgrantees will seek prior approval from THDA if uncertain whether or not the repair is considered “minor”.</p>				

Subgrantees are strongly encouraged to leverage funds from outside programs to repair major structural and roofing repairs that are beyond the scope of weatherization.
If priority lists are used, and these repairs are designated as Incidental Repairs, at what point is a site-specific audit required?
N/A
Client Education
Client will be notified of structurally compromised areas when resulting in a deferral. When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.
Training
Energy auditors, QCIs, contractors, RITs, and Crew Leaders receive training to identify building and roofing issues. The above weatherization roles primarily rely on visual inspections when determining structural or roofing issues. The following is a helpful resource to help identify common roof related issues: Checklist for Routine Inspection of Buildings – Kansas State Historical Society

7.7 – Code Compliance

Concurrence, Alternative, or Deferral

Concurrence with Guidance Alternative Guidance Results in Deferral

Funding

DOE LIHEAP State Utility Other

MEASURE CATEGORY: Code compliance corrections may be funded as health and safety measures or as incidental repairs. Clear documentation to the funding source and category is necessary to be retained in the client file.

What guidance do you provide Subgrantees for dealing with code compliance issues in homes receiving weatherization measures?

Correction of preexisting code compliance issues is not an allowable cost *unless triggered by weatherization measures being installed in a specific room or area of the home.*

- When correction of preexisting code compliance issues is triggered and paid for with WAP funds, *cite specific code requirements* with reference to the weatherization measure(s) that triggered the code compliance issue in the client file.

State, local, or the authority having jurisdiction (AHJ) codes must be followed while installing weatherization measures, including health and safety measures.

Condemned properties and properties where “red tagged” health and safety conditions exist that cannot be corrected under this guidance should be deferred.

What specific situations commonly trigger code compliance work requirements for your network? How are they addressed?

Code compliance related to a specific weatherization measure that is being installed would not lead to deferral unless code compliance would lead to expensive rehabilitation of the home and/or available funding for such compliance is not available.

Examples of code compliance situations beyond the scope would be the complete re-wiring of a home, or hard wiring all smoke and CO detectors, etc.

Client Education

Client will be informed in writing of observed code compliance issues when resulting in a deferral.

When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.

Training

It is the responsibility of the subgrantee to have knowledge, or ready access to, local codes in their service territory. It is encouraged each sub-grantee keep open communication with local building officials to prepare inspectors of Tennessee’s weatherization program standard work specifications.

The [Tennessee Weatherization Field Guide](#) addresses *some* code compliance scenarios.

The Contract to Provide Services found in [Tennessee’s WAP Manual](#) includes a clause that requires

If CO is above 9ppm and is linked to a malfunctioning combustion appliance within the living space, clients must be notified immediately and a follow up must be made in writing to the client. This information is contained in the [Tennessee Weatherization Field Guide](#).

Client Education

The client will be notified of any danger related to combustion gases as discovered.

Provide client with combustion safety and hazards information.

Training

Tennessee currently follows [BPI's 1200 – S - 2017 Combustion Appliance and Fuel Distribution System Inspection](#) Protocol.

All WAP energy auditors and QCI inspectors are trained to these standards during the certification process.

Additional information for auditors and contractors is located in the [Tennessee Weatherization Field Guide](#). Combustion analysis definitions, diagnostic procedures, and health effects of excessive CO are some of the subjects covered in the guide.

7.9 – Electrical				
Concurrence, Alternative, or Deferral				
Concurrence with Guidance <input checked="" type="checkbox"/>	Alternative Guidance <input type="checkbox"/>		Results in Deferral <input type="checkbox"/>	
Funding				
DOE <input checked="" type="checkbox"/>	LIHEAP <input checked="" type="checkbox"/>	State <input type="checkbox"/>	Utility <input type="checkbox"/>	Other <input type="checkbox"/>
<p>MEASURE CATEGORY: Minor electrical repairs may be funded as health and safety measures or as incidental repairs. Clear documentation to the funding source and category is necessary to be retained in the client file.</p>				
What guidance do you provide Subgrantees for dealing with electrical hazards, including knob & tube wiring, in homes slated for weatherization?				
<p>Knob and Tube Wiring: Evaluate and if necessary, provide sufficient over-current protection and damming (if required) prior to insulating building components containing knob and tube wiring, as required by the AHJ.</p> <p>NOTE: Knob and Tube wiring will <i>not</i> be replaced using DOE health and safety funds. Replacing electrical wiring due to its age and condition may be beyond the scope of WAP. These units will be deferred if the presence of knob and tube wiring prohibits weatherization from proceeding.</p> <p>General Electrical Hazards Electrical repairs should be kept to a minimum as funding is limited and hazard repairs are meant to be associated to energy conservation measures. Electrical hazards are primarily determined through visual inspection. Voltage drop and detection testing is allowed. Examples of electrical hazards auditors, QCIs, and weatherization contractors may inspect include:</p> <ul style="list-style-type: none"> • Presence and condition of knob-and-tube wiring. • Alterations that may create an electrical hazard. • Breaker size and condition 				
How do you define “minor” or allowable electrical repairs, and at what point are repairs considered beyond the scope of weatherization?				
<p>A minor repair shall remain under the cost of \$1,150.00</p> <p>Minor electrical repairs includes items such as installing junction boxes where electrical wires are spliced together and the installation of properly sized breakers for weatherization related measures.</p> <p>Major wiring issues and electrical problems may be beyond the scope of WAP. If it is discovered that major issues are present with the existing electrical system, the unit will be deferred. Such items could include, but is not limited to: replacement of service panels, replacement of all wiring, overloaded electrical circuits, etc.</p>				

If priority lists are used, and these repairs are designated as Incidental Repairs, at what point is a site-specific audit required?
N/A
Client Education
<p>Clients will be notified in writing of imminent dangers, hazards, and code compliance issues related to electrical systems when resulting in a deferral.</p> <p>When electrical issues are the cause of a deferral, provide information to client on over-current protection, overloading circuits, and basic electrical safety/risks.</p> <p>When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.</p>
Training
<p>Energy auditors, QCIs, contractors, RITs, and Crew Leaders are trained in identifying electrical hazards and the related code compliance. Guidance is available in the Tennessee Weatherization Field Guide.</p> <p>Additional training resources:</p> <ul style="list-style-type: none"> • Electrical Safety Foundation • OSHA Electrical Safety Presentation • Existing Wiring Evaluation – Old House Web <p><i>Refer to Code Compliance section for more details.</i></p>

7.10 – Formaldehyde, Volatile Organic Compounds (VOCs), Flammable Liquids, and other Air Pollutants				
Concurrence, Alternative, or Deferral				
Concurrence with Guidance <input checked="" type="checkbox"/>	Alternative Guidance <input type="checkbox"/>		Results in Deferral <input type="checkbox"/>	
Funding				
DOE <input checked="" type="checkbox"/>	LIHEAP <input checked="" type="checkbox"/>	State <input type="checkbox"/>	Utility <input type="checkbox"/>	Other <input type="checkbox"/>
What guidance do you provide Subgrantees for dealing with formaldehyde, VOCs, flammable liquids, and other air pollutants identified in homes slated for weatherization?				
<p>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.</p> <p><i>Refer to Hazardous Materials Disposal section for more information.</i></p>				
Testing Protocols				

Formaldehyde, VOCs and other air pollutants are discovered mainly through sensory inspection.

Formaldehyde vapors may be slowly released by new carpets, waferboard, plywood, etc. VOCs are also emitted by some household cleaning agents. The sensory inspection will take place during all visits to the dwelling.

During the pre-audit, the auditor will note if there will be a recommendation for remediation or deferral.

Client Education

Clients will be notified in writing of observed hazardous conditions and associated risks.

[Tennessee Department of Health](#) offers information how to maintain a healthy home. It is encouraged auditors, QCIs, contractors, and so forth are familiar with this information to better guide their observations in a home.

When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.

Training

Energy auditors, QCIs, contractors, RITs, and Crew Leaders are trained to recognize potential hazards and when removal is necessary.

The [US Environmental Protection Agency](#) offers information how to recognize and reduce effects of VOCs inside a home.

7.11 – Fuel Leaks

Concurrence, Alternative, or Deferral

Concurrence with Guidance Alternative Guidance Results in Deferral

Funding

DOE LIHEAP State Utility Other

Remediation Protocols

Fuel leak remediation is not permitted under DOE Health and Safety funding.

Test exposed gas lines for fuel leaks from utility coupling into, and throughout, the home. This is conducted through the use of a BPI 1200S approved gas leak detector.

Conduct sensory inspection on bulk fuels to determine if leaks exist.

If a fuel leak is discovered, appropriate actions must take place.

- When a minor gas leak is found on the utility side of service, the utility service or gas company must be contacted before work may proceed.
- Fuel leaks that are the responsibility of the client (vs. the utility) must be repaired before weatherizing a unit.

NOTE: If a fuel leak is discovered *after* weatherization is complete during post audit or quality assurance inspection, the utility service or gas company must be contacted to further test and repair the leak.

How do you define allowable fuel leak repairs, and at what point are repairs considered beyond the scope of weatherization?

All fuel leak repairs are beyond the scope of DOE weatherization.

Client Education

Clients will be informed of any fuel leaks determined by the auditor, contractor, or inspector. Potential hazards of these leaks will be explained to the client.

A written deferral notice will be provided to the client.

Training

The State instructs on the proper use of combustion appliance testing through regular auditor, contractor, RIT, and Crew Leader training and via technical bulletin memorandums. The State requires licensed contractors to remain up to date for all training requirements of the weatherization program.

Tennessee currently follows [BPI's 1200 – S - 2017 Combustion Appliance and Fuel Distribution System Inspection](#) Protocol.

All WAP energy auditors and QCI inspectors are trained to these standards during the certification process.

The [Tennessee Weatherization Field Guide](#) serves as an additional resource.

Training

The State educates on the proper use of combustion appliance testing through regular Energy Auditor, QCI, contractor, RIT, and Crew Leader training and via technical bulletins memorandums.

The State requires licensed contractors to remain up to date for all training requirements of the weatherization program.

Auditors, QCIs, and all associated weatherization contractors may refer to the:

- [Tennessee Weatherization Field Guide](#)
- [BPI 1200 Combustion Safety Standards](#)
- [R.J. Karg Associates](#) – Protocol for gas range CO testing, *if auditor determines to perform this diagnostic.*

Additional training and technical assistance may be provided on an as- needed basis.

7.13 – Hazardous Materials Disposal
[Lead, Refrigerant, Asbestos, Mercury (including CFLs/fluorescents), etc.]
(please indicate material where policy differs by material)

Concurrence, Alternative, or Deferral

Concurrence with Guidance Alternative Guidance Results in Deferral

Funding

DOE LIHEAP State Utility Other

Client Education

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

Training

Auditors, contractors, RITs, and Crew Leaders receive hazardous material disposal training covering the following topics:

- [Tennessee Weatherization Field Guide](#) – Chapter 1.9.6 Appropriate Personal Protective Equipment (PPE) for working with hazardous waste materials.
- Disposal requirements and locations – See disposal procedures below.
- [Tennessee Department of Health](#) - Risks related to hazardous materials.

Additional training can be found through [OSHA Hazard Communication Standards](#)

It is also required all weatherization contractors keep all relevant **Safety Data Sheets (SDS)** readily available.

Disposal Procedures and Documentation Requirements

Hazardous Waste Materials generated in the course of weatherization work shall be disposed of according to all local laws, regulations and/or Federal guidelines, as applicable.
 Document proper disposal requirements in contract language with responsible party.

Lead and Asbestos – Refer to these sections in this health and safety plan for more information on proper disposal.

Mercury Disposal – Mercury containing materials will be disposed of according to Tennessee Department of Environment and Conservation and the Tennessee Department of Health’s Communicable and Environmental Disease Services.

Such common mercury containing materials associated with weatherization include but not limited to: thermostats, lightbulbs, and batteries.

The attached links provide additional resources how to dispose of specific mercury containing materials.

- [Tennessee Department of Environment and Conservation](#)
- [Tennessee Department of Health](#)
 - [Mercury Factsheet](#)

Refrigerant Disposal – Disposal of refrigerants will comply with **EPA Regulations 40 CFR Part 82, Subpart F under [Section 608](#)** of the Clean Air Act.

7.14 – Injury Prevention of Occupants and Weatherization Workers (Measures such as repairing stairs and replacing handrails)

Concurrence, Alternative, or Deferral

Concurrence with Guidance Alternative Guidance Results in Deferral

Funding

DOE LIHEAP State Utility Other

MEASURE CATEGORY: DOE funds will only be used to make minor repairs that are *necessary in order to effectively weatherize the home*. Measures under this category may be funded as health and safety measures or as incidental repairs. Clear documentation to the funding source and category is necessary to be retained in the client file.

What guidance do you provide Subgrantees regarding allowable injury-related repairs (e.g., stairs, handrails, porch deck board)?

Workers must take all reasonable precautions against performing work on homes that will subject workers or occupants to health and safety risks.

Minor repairs shall remain under the cost of **\$1,150.00**.

Minor repairs and installation may be conducted only when necessary to effectively weatherize the home; otherwise these measures are not allowed.

Repairs necessary to allow safe access to areas necessary for weatherization may be performed using DOE health and safety funds.

The case file must document the need for the repair/replacement and its connection to the weatherization work being performed.

NOTE: Under no other circumstance will DOE health and safety funds be used to replace porches, stairs, handrails, or lighting *on the exterior of the home*.

If weatherization work cannot be completed because the lack of these safety devices, deferral may be necessary.

Clients shall be informed of these observed hazards and provided with recommendations and referral options.

How do you define “minor” or allowable injury prevention measures, and at what point are repairs considered beyond the scope of weatherization? Quantify “minor” or allowable injury prevention measures.

A minor repair shall remain under the cost of \$1,150.00

Minor repairs such as the installation of *interior* stairs and handrails that are *necessary in order to effectively weatherize the home* are allowed. Without the repair or installation, the weatherization worker would be subject to possible injury.

Training

Energy Auditors, QCIs, contractors, RITs, and Crew Leaders receive certification in [OSHA-10](#) and [OSHA-30](#).

Additional resources can be found using the [Tennessee Weatherization Field Guide](#).

7.15 – Lead Based Paint

Concurrence, Alternative, or Deferral

Concurrence with Guidance Alternative Guidance Results in Deferral

Funding

DOE LIHEAP State Utility Other

DOE health and safety funds may be used to address weatherization related costs associated with working in homes where lead based paint may exist and weatherization work may disturb the paint.

- Only those costs directly associated with the testing and lead safe practices for surfaces directly disturbed during weatherization activities are allowable.

NOTE: Deferral is required when the extent and condition of lead-based paint in the house would potentially create further health and safety hazards.

Safe Work Protocols

Crews must follow EPA's Lead; Renovation, Repair and Painting Program (RRP) when working in pre-1978 housing unless testing confirms the work area to be free.

Testing Protocols

Testing to determine the presence of lead in paint that will be disturbed by WAP measure installation is allowed with EPA-approved testing methods.

- If not tested, then all work in pre-1978 units must be completed by an RRP certified contractor and Lead Safe work practices must be followed.

Testing methods must be economically feasible and justified.

Job site set up and cleaning verification by a Certified Renovator is required.

Subgrantees will keep on file verification crews are following lead safe practices through proper documentation. See Documentation category below.

Client Education

As required under the RRP rule, targeted clients will be provided a copy of the EPA booklet "Renovate Right – Important Lead Hazard Information for Families, Child Care Providers and Schools". This document is found in the [Tennessee WAP Manual](#).

When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.

Training and Certification Requirements

All Energy Auditors, QCIs, contractors, RITs, and Crew Leaders working in pre-1978 units are required to have Renovation, Repair and Painting Program (RRP) Certification training. Contractors are also required to be a EPA RRP certified firm.

All employees and contractors working on pre-1978 homes must receive training to install measures in a lead-safe manner in accordance with the SWS and EPA protocols.

[RRP Training Information](#)
[Tennessee Weatherization Field Guide](#)

A certified renovator must be present on jobs as required under RRP. Documentation that certification has been completed will be retained by the sub-grantee.

It will be the Contractor's responsibility to train members of their crew.

It will be the Contractor's responsibility to ensure his company is a certified firm and are in full compliance with EPA's requirements and following lead safe weatherization practices.

Documentation Requirements

The Certified Renovator must provide proof that they followed the RRP and Lead Safe procedures. They are to provide the Pre-Renovation form signed by the client and photographs to document that the procedures were followed.

Documentation in the client file must include:

- EPA RRP Certified Renovator and Certified Firm
- Any training provided on-site;
- Description of specific actions taken;
- Lead testing and assessment documentation, if necessary.
- Photos of site and containment set up. Include the location of photos referenced if not in file.

A minor repair shall remain under the cost of \$1,150.00

Minor mold and moisture repairs are considered repairs that can be completed with hand tools. Foundation repair that require heavy machinery are considered outside of the scope of weatherization.

Surface preparation where weatherization measures are being installed (e.g., cleaning mold off window trim in order to apply caulk) must be charged as part of the ECM, not to the H&S budget category.

Health and Safety funds cannot be used to remove mold, but may be used to provide ventilation.

Mold Remediation Protocols:

Jobs where mold is present may continue with weatherization if:

1. The area containing mold is less than 10 total square feet (appx. 3' x 3') or;
2. The mold is located in an area outside the direct vicinity where weatherization work is taking place and/or won't be disturbed.

Health and Safety funds may be used to alleviate moisture related issues that have the potential to promote mold growth or have a negative effect on the indoor air quality. Recommended energy conservation measures may also reduce mold and moisture concerns, such as air and duct sealing. Deferring a unit because of mold must be a thoughtful decision by the auditor and well-documented in the client file.

The job should be deferred and the client should contact professionals when:

- The mold covers more than 10 square feet;
- There is evidence of extensive water damage;
- The water and/or mold damage was caused by sewage or other contaminated water
- There is a health concern of the client or weatherization worker and alleviation of the concern is beyond the scope of the WAP.

Client Education

All WAP clients are provided a mold and moisture pamphlet titled, "A Brief Guide to Mold, Moisture, and Your Home" issued by the EPA. This can be found in the [Tennessee WAP Manual](#).

[Tennessee Department of Health](#) offers additional resources concerning cleaning/maintaining drainage systems and proper landscape design.

[Department of Energy](#) also offers information on moisture control in the home.

When deferral is necessary, provide information, in writing, describing conditions that must be met in order for weatherization to commence.

Training

The [Tennessee Weatherization Field Guide](#) addresses preventing moisture problems.

Auditors and QCIs will include visual assessment of potential moisture concerns. Diagnostics such as moisture meters are recommended at pre - and post - audit, but not required.

The [EPA](#) offers training how to prevent and remediate mold.

[WxTV](#) offers a 14 minute episode on mold and moisture concerns

In addition, Energy Auditors, QCIs, contractors, RITs, and Crew Leaders are trained regarding moisture issues and how they can best be addressed within the program’s scope during annual technical training.

7.17 – Pests				
Concurrence, Alternative, or Deferral				
Concurrence with Guidance <input type="checkbox"/>	Alternative Guidance <input checked="" type="checkbox"/>	Results in Deferral <input type="checkbox"/>		
Funding				
DOE <input type="checkbox"/>	LIHEAP <input checked="" type="checkbox"/>	State <input type="checkbox"/>	Utility <input type="checkbox"/>	Other <input type="checkbox"/>
What guidance do you provide Subgrantees for dealing with pests and pest intrusion prevention in homes slated for weatherization?				
<p>NOTE: Pest removal is not allowed using DOE health and safety funds.</p> <ul style="list-style-type: none"> Screening of windows and points of access into <i>air sealing practices</i> is allowed to prevent pest intrusion <p>Infestation of pests may be cause for deferral where it poses health and safety concern for workers.</p>				
Define Pest Infestation Thresholds, Beyond Which Weatherization Is Deferred				
<p>Infestation of pests may be cause for deferral when it cannot be reasonably removed by the client or poses health and safety concern for workers.</p> <p>Subgrantees will refer clients to alternative programs for assistance to the best extent possible.</p>				
Testing Protocols				
No DOE health and safety funds will be used to test for pests outside of visual inspection.				
Client Education				
<p>Clients will be informed of potential health and safety risks and notified according to the deferral standards found in the Tennessee WAP Manual.</p> <p>The Tennessee Department of Health offers additional information how to keep a home pest free.</p> <p>When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.</p>				

Training
<p>Training regarding deferrals is addressed during annual training for Energy Auditors, QCIs, contractors, RITs, and Crew Leaders.</p> <p>The Tennessee Department of Health offers additional information how to keep a home pest free.</p> <p>US Environmental Protection Agency pest control practices.</p>

7.18 – Radon				
Concurrence, Alternative, or Deferral				
Concurrence with Guidance <input checked="" type="checkbox"/>	Alternative Guidance <input type="checkbox"/>	Results in Deferral <input type="checkbox"/>		
Funding				
DOE <input checked="" type="checkbox"/>	LIHEAP <input checked="" type="checkbox"/>	State <input type="checkbox"/>	Utility <input type="checkbox"/>	Other <input type="checkbox"/>
NOTE: Radon mitigation is not an allowable health and safety cost.				
What guidance do you provide Subgrantees around radon?				
<p>NOTE: <i>Whenever site conditions permit, exposed dirt shall be covered with a vapor barrier except for mobile homes. Mobile homes may have a vapor barrier if the home is on a permanent foundation. Otherwise, the vapor barrier will not be installed in a mobile home.</i></p> <p>Because radon migrates through the soil, mitigation strategies include the following:</p> <ul style="list-style-type: none"> • Installing plastic ground barrier and sealing seams. • Sealing the walls and floor of the basement. • Installing sealed sump pump covers <p>Installing ventilation and ground covers/vapor barriers are allowable Health and Safety expenses.</p>				
Testing Protocols				
If known radon issues are above an acceptable level (4 pCi/l), the unit will be deferred.				
Client Education				
<p>The client will be provided with the EPA’s Citizen’s Guide to Radon. Confirmation that this guide was received and discussed with the client must be retained in the case file.</p> <ul style="list-style-type: none"> • This guide will be found in the Tennessee WAP Manual or EPA’s Publications about Radon <p>NOTE: All clients must sign the Radon Informed Consent Form. The form includes a list of precautionary measures WAP may install based on EPA Healthy Indoor Environment Protocols.</p> <p>In conjunction with this consent form, the client must receive education on the benefits of weatherization including energy savings, energy cost savings, improved home comfort, and increased safety.</p> <p>Radon Zone Map</p>				

Training and Certification Requirements
Radon is addressed in the Tennessee Weatherization Field Guide and through auditor and contractor training. Additional training on radon can be found at: <ul style="list-style-type: none"> • Tennessee Department of Health • US Environmental Protection Agency
Documentation Requirements
If the unit is tested for radon, the test results must be included in the client file.

7.19 – Safety Devices: Smoke and Carbon Monoxide Alarms, Fire Extinguishers				
Concurrence, Alternative, or Deferral				
Concurrence with Guidance <input checked="" type="checkbox"/>	Alternative Guidance <input type="checkbox"/>	Results in Deferral <input type="checkbox"/>		
Funding				
DOE <input checked="" type="checkbox"/>	LIHEAP <input checked="" type="checkbox"/>	State <input type="checkbox"/>	Utility <input type="checkbox"/>	Other <input type="checkbox"/>
What is your policy for installation or replacement of the following:				
Smoke Alarms: There must be an operable smoke alarm in every bedroom and at least one in the common space on every floor of the unit. Smoke alarms may be installed where not present or are inoperable.				
Carbon Monoxide Alarms: All units are required to have an operable Carbon Monoxide Alarm.				
Fire Extinguishers: Providing fire extinguishers is an allowable using DOE health and safety funds when solid fuel is present.				
Testing Protocols				
Auditors and QCIs shall test smoke and carbon monoxide alarms to ensure they are operable.				
Client Education				
Clients are instructed regarding installation of smoke detectors and carbon monoxide detectors if applicable.				
Client education materials can also be found in the Training category.				
Training				
Energy Auditors, QCIs, contractors, RITs, and Crew Leaders receive instruction on where to install smoke/CO alarms and compliance with local codes.				
Training resources include:				
NFPA Smoke Alarms				
NFPA Carbon Monoxide Alarms				
NFPA Fire Extinguishers				
The Tennessee Weatherization Field Guide provides additional information.				

7.22 – Window and Door Replacement, Window Guards				
Concurrence, Alternative, or Deferral				
Concurrence with Guidance <input checked="" type="checkbox"/>	Alternative Guidance <input type="checkbox"/>		Results in Deferral <input type="checkbox"/>	
Funding				
DOE <input checked="" type="checkbox"/>	LIHEAP <input type="checkbox"/>	State <input type="checkbox"/>	Utility <input type="checkbox"/>	Other <input type="checkbox"/>
<p>MEASURE CATEGORY: Window and door replacement is not allowed using DOE health and safety funds. Window and door repair can be funded as an incidental repair or health and safety measure. Clear documentation to the funding source and category is necessary to be retained in the client file.</p>				
What guidance do you provide to Subgrantees regarding window and door replacement and window guards?				
<p>WAP health and safety funds will not be used for replacement of windows and doors.</p> <ul style="list-style-type: none"> Window and door replacement will be determined by the energy audit tool as an energy conservation measure or meet the definition of an incidental repair. Window and door repair may be funded as a health and safety measure. <p>Deferral may be necessary if windows or doors are in such a state of disrepair that they would prevent weatherization.</p> <p>When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.</p>				
Testing Protocols				
N/A				
Client Education				
Provide written information on lead risks wherever issues are identified. Client will receive EPA				
Training				
Lead Safe RRP contractors must be used if windows and doors are being replaced in pre-1978 homes.				

8.0 - Resources

List of Health & Safety Resources Located Throughout the Plan

THDA WAP Policies and Procedures <ul style="list-style-type: none"> • Tennessee Weatherization Field Guide • Tennessee WAP Manual • COVID-19 Field Operations Guidelines 	National Fire Protection Agency <ul style="list-style-type: none"> • NFPA Smoke Alarms • NFPA Carbon Monoxide Alarms • NFPA Fire Extinguishers 	
Tennessee Department of Health <ul style="list-style-type: none"> • Tennessee Healthy Homes 	Weatherization Television <ul style="list-style-type: none"> • Mold and Moisture 	
Tennessee Department of Environment and Conservation <ul style="list-style-type: none"> • Asbestos • Radon 	Occupational Safety and Health Administration <ul style="list-style-type: none"> • OSHA 10 • OSHA Hazard Communication Standards • OSHA Electrical Safety Presentation 	
Department of Energy <ul style="list-style-type: none"> • WPN 17-7 • WPN 19-5 • 10 CFR 440 • Moisture Control 	Environmental Protection Agency	
	<ul style="list-style-type: none"> • Lead Renovation, Repair, and Painting Program • Radon • Asbestos 	<ul style="list-style-type: none"> • Indoor Air Quality • Pests • Burnwise • Mold & Moisture • Refrigerant
American Society of Heating, Refrigeration, Air Conditioning Engineers <ul style="list-style-type: none"> • 62.2 2016 Read-Only Version 	Residential Energy Dynamics – Rick Karg <ul style="list-style-type: none"> • RedCalcs • Combustion Safety Protocol 	
Building Performance Institute <ul style="list-style-type: none"> • 1200-S Basic Analysis of Buildings 	US Department of Housing and Urban Development <ul style="list-style-type: none"> • Healthy Homes 	
Prevent Fire <ul style="list-style-type: none"> • Oven and Stove Safety 		

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

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

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

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

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

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

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

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

Inspection/Evaluation:

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

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

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

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

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

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

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

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

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

Primary Heat Sources:

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

Secondary Heat Sources:

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

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

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

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

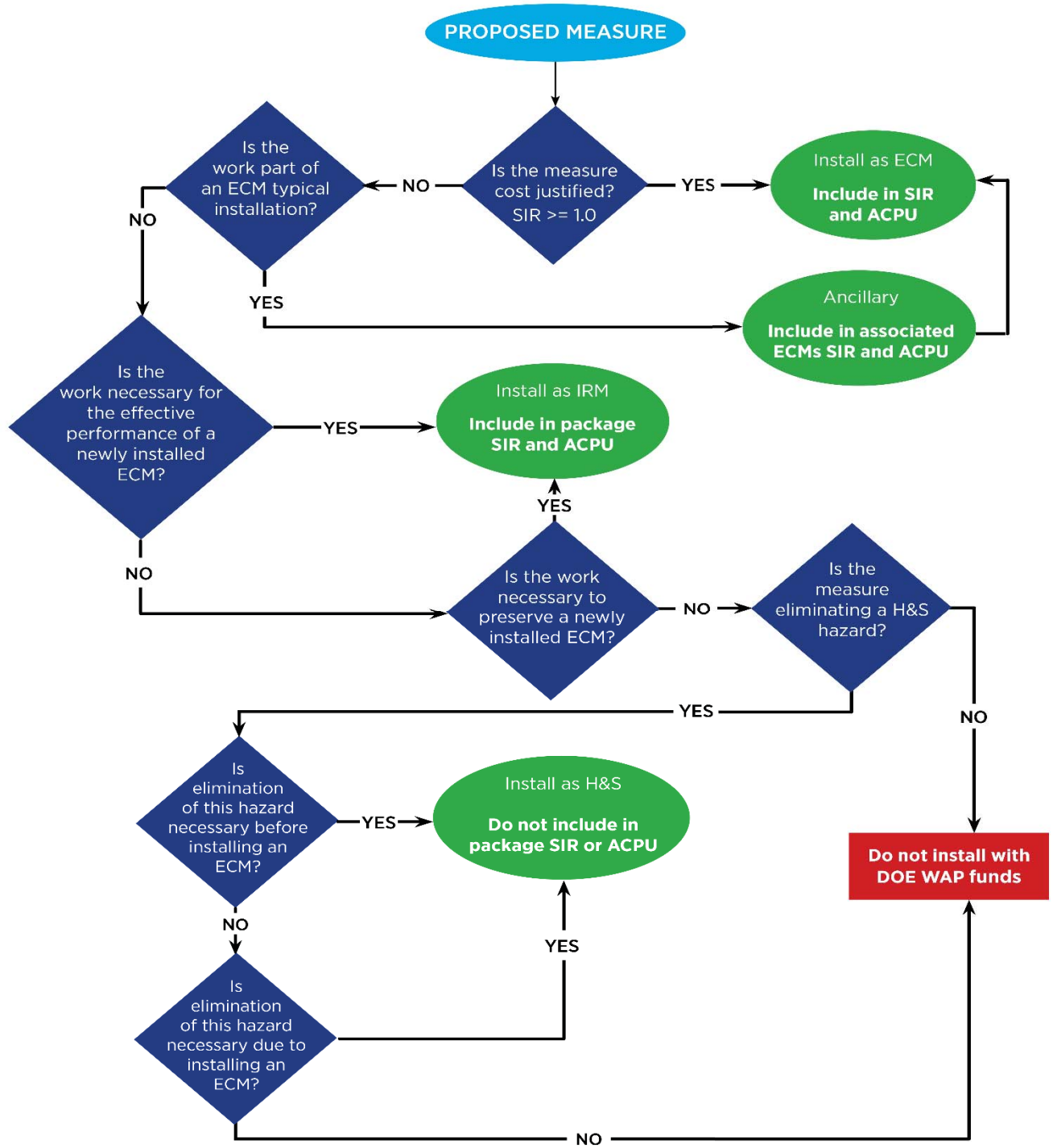
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- Is equipped with an oxygen-depletion sensing safety shut-off system; and
- The bathroom has adequate combustion air;
- One listed wall-mounted space heater in a bedroom if permitted by the authority having jurisdiction, which --:
 - Has an input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

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

Attachment 1 - WPN 19-5 Definition Flow Chart

The decisions relating to measure categorical classification are complex and it is difficult to predict all the potential items that may be considered in a Weatherization Assistance Program project. The following flow chart was developed to assist Grantees in properly categorizing measures within Department of Energy guidance.



ACRONYMS

ACPU: Average Cost Per Unit
ECM: Energy Conservation Measure
H&S: Health & Safety

IRM: Incidental Repair Measures
SIR: Savings to Investment Ratio