Tennessee Housing Development Agency Weatherization 2023 Health and Safety Plan

1.0 – General Information

Purpose of the THDA's Weatherization Program 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 or Weatherization Readiness funds, if determined allowable by THDA.

Major Health and Safety Repair Definition: Repair costs that **meet or exceed $1,237.50**.

- This figure is determined by 2023 Program Year DOE WAP budget cap of $8,250 x 15%
- Examples of major health and safety repairs include, but not limited to: large areas of mold removal, structural repair, major electrical wiring replacement, extensive roof repair, pest infestation, 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 $1,237.50**.

- Examples of minor health and safety repairs include, but not limited to: minor water leak repair, electrical junction box 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 of health and safety measures must be included in the client file. ***This includes documentation to all Lead Safe Practices.***

2.0 – Budgeting

Grantees are encouraged to budget H&S costs as a separate category and, thereby, exclude such costs from the Average Cost Per Unit (ACPU) cost limitation. This separate category also allows these costs to be isolated from energy efficiency costs in program evaluations. H&S costs that are budgeted and reported under the Program Operations category rather than the H&S category, the related H&S costs must be included in the calculation of the ACPU and cost-justified through the Grantee's Department of Energy (DOE)-approved energy audit tool.	
Select which option used below.	
Separate H&S Budget ☑	Contained in Program Operations ☐

3.0 – H&S Expenditure Limits

H&S expenditure limits and justification explaining the basis for setting the limits.

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.

Utilizing the spreadsheet embedded below, provide a full list of H&S measures using historical data from your program, including average cost, and frequency rate. If installing more than a single instance of one measure in a unit (e.g. multiple CO alarms), Grantees may aggregate costs so that frequency does not exceed 100%, or enter a justification into the measure column, which explains why that measure has a frequency rate of over 100%. The spreadsheet will auto calculate your expected Total Average H&S Cost per Unit.

Instructions: Double-click icon directly below to open, view and edit Measure Matrix Spreadsheet. Complete the spreadsheet by entering the required information. To save, close the spreadsheet and it will save to this document.

Measure Matrix Final.xlsx

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 22-7, WPN 19-5 and the THDA Weatherization Program Manual.

Measure categories in this plan will identify common measures which may overlap in definitions between an incidental repair or health and safety measure.
Readers shall refer to the **WPN 19-5 Flow Chart** to aid in their decision making.

- **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 potentially be funded under health and safety.
- **If the measure is not tied to a specific ECM**, the measure may potentially be funded under health and safety.

All measures must be clearly documented and meet the definition under which they are funded.

5.0 – Occupant Pre-Existing or Potential Health Conditions and Hazard Identification and Notification Form(s)

Grantees must include policies/procedures for informing clients of the aspects of weatherization that may put a client with pre-existing health conditions at risk during installation of measures. This screening may occur as part of the initial application for weatherization and/or during the energy audit. Procedures must include what steps will be taken and/or available to the client to ensure that weatherization work will not aggravate pre-existing health conditions. Additionally H&S assessments are required to identify hazards in the home. For those hazards identified, appropriate testing is required when applicable. The client/landlord/property manager must be informed in writing of all testing results, including identification of a hazards revealed by the testing that will lead to deferral/referral.

Grantees are required to develop documentation forms that include at a minimum:

- *Occupant Pre-existing or Potential Health Conditions;*
  - *Screen occupant(s) to self-report known or suspected health concerns either as part of initial application for weatherization, during the energy audit, or other parts of the weatherization process as specified;*
  - *Inform client in writing of any known risks; and*
  - *Provide client with Subgrantee point of contact information in writing so client can inform of any issues.*
- *Hazard Identification Notification Form*
  - *The occupant(s) (and Landlord's, if applicable) name and address;*
  - *Date(s) of the energy audit/assessment and when the occupant(s) (and Landlord, if applicable) 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 occupant(s) (and Landlord's, if applicable) signature(s) indicating that they understand and have been informed of their rights and options.*

Procedure for soliciting occupants' health and safety concerns related to components of their homes

Subgrantees and energy auditors allow for multiple occasions to create opportunity for the building occupant to state health and safety concerns related to components of their dwelling.
Subgrantee intake staff will verbally inquire of general and common building conditions that could impact health and safety.
The weatherization application allows applicants to disclose health and safety concerns related to building components. Energy auditors will conduct a health and safety evaluation during the initial energy audit. The results are communicated to the client.

List of related client health and safety documents are below:

- Weatherization Assistance Application – Single family example
- Deferral Notice – Single Family example
- Client Education Material Consent Form – Single document which verifies through client/energy auditor signature that all required client education notices and brochures were discussed and understood.
    - Mold and Moisture Inspection and Release Form
    - Client Education Checklist
    - Radon Informed Consent Form
    - Repair, Renovation, and Painting Pamphlet – Client acknowledgment

Procedure for determining whether occupants suffer from health conditions which may be negatively impacted by the act of weatherizing their dwelling

The weatherization assistance application includes a question that allows applicants to state health conditions that may be negatively impacted by the act of weatherizing their dwelling. Subgrantee intake staff or the energy auditor will follow up with the applicant on more specifics as necessary.

1. Do any household members have any known or suspected health concerns that would be negatively impacted by weatherization work?

Procedure for addressing potential health concerns including pre-existing health conditions when they are identified

Applicants that disclose health conditions during the application process will be addressed on a case by case basis.

- Clients who are ill from infectious disease will be deferred until the period of contagiousness and symptom(s) subside.
- Clients who suffer from allergic reactions or respiratory conditions which may be exacerbated through the installation of certain weatherization materials will be asked if certain accommodations can be made to avoid exposure. Other options may be presented such as installing alternative materials.
- Clients with physical disabilities will notify weatherization workers of concerns or restrictions that may impact typical weatherization installation.

All health conditions will be treated individually to ensure the respect and comfort of the client is maintained while maximizing weatherization efforts.

Documentation Form(s) have been included for review?
Yes ☑ No ☐
Location where forms have been uploaded/submitted
Separate attachment to SF424 ☐ Separate attachment to H&S Plan ☑

6.0 – HEALTH AND SAFETY CATEGORIES

HEALTH AND SAFETY MEASURES MUST BE ENERGY RELATED AND NECESSARY BEFORE, OR AS A RESULT OF, INSTALLATION OF WEATHERIZATION MEASURES.

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

- *Explain whether you concur with existing guidance from Weatherization Program Notice (WPN) 22-7 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 require comprehensive explanations as to how it meets the intent of DOE guidance.*
- *Where an action/allowability or testing is "required" or "not allowed" through WPN 22-7, Grantees must concur, or choose to defer all units where the specific category is encountered.*
- *Any activities that are marked as deferral/referrals must contain the H&S reasons specified within the Master File Section V.1.2 Box 5 Deferral/Referral.*
- *Unless an alternate funding source(s) is declared, utilize DOE funds to address the particular category.*
- *Describe the explicit methods to address the specific category.*
- *Describe in detail what testing protocols (if any) used to assess the particular category.*
- *Define and quantify minimum thresholds that determine minor, major, and limited definitions and the criteria used to make a determination on a case-by-case basis.*
- *Define "at-risk" occupant(s) and identify minimum documentation requirements for them.*
- *Client Education activities specific to H&S reasons is required within the Master File Section V.8.4 Training and Technical Assistance of the annual application.*
- *Training activities specific to H&S reasons is required within the Master File Section V.8.4 Training and Technical Assistance of the annual application.*

6.1 – Air Conditioning and Heating Systems

Concurrence, Alternative or Deferral

Concurrence with DOE Guidance ☑ Alternative Guidance ☐ Results in Deferral/Referral ☐

Air Conditioning Unallowable with DOE Funds ☐ Heating Unallowable with DOE Funds ☐

Other Funding Source Addresses H&S Issue ☑ **LIHEAP Wx**

Procedure for unsafe or non-functioning primary heating/cooling systems

SAFETY PRECAUTIONS

Unsafe primary heating and cooling systems must be: repaired, or removed and replaced, or rendered inoperable, otherwise *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

Unsafe heating and cooling systems may require a deferral if the client is unable to correct or the subgrantee is unable to address the problem within program guidelines in the **Tennessee Weatherization Field Guide** or through the use of outside funding sources.

ENERGY MODELING 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 as cost-effective. The replacement/repair will be modeled as an 'Itemized Cost' meeting the weatherization program definition of a health and safety measure.

Procedure for unsafe or non-functioning secondary heating systems, including unvented secondary space heaters

UNSAFE SECONDARY HEATING SYSTEMS

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

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

UNVENTED HEATING SYSTEMS

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.

Unvented fossil fueled space heater limitations are defined:

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

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

UNSAFE OR INOPERABLE SECONDARY HEATING SYSTEMS

Replacement or installation of secondary units is not allowed.

Definition of and documentation required for "at-risk" occupants

"AT RISK" DEFINITION

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 heating or cooling in the dwelling.

DOCUMENTATION

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

Testing protocols

GENERAL TESTING PROTOCOLS

Make sure primary systems are present, operable, and performing correctly and the replacement is allowable, meeting health and safety policies included in this document.

HVAC SIZING

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

COMBUSTION SAFETY

All 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, chimney/flue inspection, and other combustion safety diagnostics are included in the testing protocol.

Solid fuel appliance inspection shall check for visual evidence of soot on the walls, mantel or ceiling or creosote staining near the flue pipe.

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**.

Training and Resources

- **BPI's 1200 – S - 2017 Combustion Appliance and Fuel Distribution System Inspection**
- **EPA's Burnwise –** Wood burning appliance use and maintenance
- **HVAC Fundamentals –** Training Course

6.2 – Asbestos (Confirmed and/or Presumed Asbestos Containing Material)

Concurrence, Alternative or Deferral

Concurrence with DOE Guidance ☑	Alternative Guidance ☐	Results in Deferral/Referral ☐
Unallowable Measure with DOE Funding ☐	**Other Funding Source Addresses H&S Issue** ☑	**LIHEAP Wx**

GENERAL PRECAUTION

- **Take all reasonable and necessary precautions to prevent asbestos damage and/or contamination in the home**. When presumed friable asbestos containing materials (ACMs) are present and unless testing determines otherwise, take precautionary measures *as if* the material contains asbestos.

- **Major asbestos problems should be referred to the appropriate state or federal agency.**
  - **Tennessee Department of Environment and Conservation**
  - **US Environmental Protection Agency**

- **Proper respiratory and other personal protective equipment must be used.**

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).

Asbestos on Heating, Ventilation and Air Conditioning (HVAC) systems, distribution, venting and other small surfaces that will be disturbed through the course of weatherization work policy

ENCAPSULATION

Weatherization workers may address ACMs such as asbestos tape on ductwork and HVAC systems as long as it is not observed to be in such a state of degradation-meeting the above definition of "friable".

The encapsulation of this type of material can be completed by using an approved duct mastic to completely cover and seal the tape where friability is no longer a concern. Weatherization technical workers shall use expert judgement in determining the condition of ACMs and whether encapsulation is possible.

REMOVAL

Asbestos removal on HVAC, distribution, venting, and other small surfaces is allowed using DOE health and safety funds. Subgrantees must notify THDA prior to the removal of ACM as approval is on a case by case basis. It is encouraged to inform energy auditors to identify the potential need for such actions prior to bid notification.

MEASURE FUNDING

- **ACM encapsulation and removal on HVAC, distribution, venting, and other small surfaces** is allowed using health and safety funds.
- **Direct costs** associated with the *testing, encapsulation, or removal* of ACMs underlined above may be charged to the health and safety budget category.

Asbestos in attics, walls, floors roofs and foundations that will be disturbed through the course of weatherization work policy

GENERAL PRECAUTIONS

Never cut, drill, or bore through suspected asbestos containing materials in walls, floors, and ceiling coverings.
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.

EXTERIOR SIDING

The existence of asbestos siding that is in good condition does not prevent installing dense-pack insulation from the exterior.
Siding may be removed and reinstalled in order to perform the ECM, and the associated costs may be charged as part of the ECM.
General abatement of asbestos siding or replacement with new siding is not an allowable H&S cost.

Vermiculite that will be disturbed through the course of weatherization work policy

MEASURE FUNDING

Vermiculite *removal* is *not* allowed using health and safety funds.
Encapsulation is allowable using health and safety funding.

VERMICULITE GUIDANCE

When vermiculite is present, assume it contains asbestos unless testing determines otherwise.

Encapsulation is allowed using AHERA certified professionals.

All units where the disturbance of vermiculate is unavoidable shall be deferred. Subgrantees shall find alternative funding sources to remove vermiculite.

Blower door testing policy when asbestos/vermiculite is present

- **It is recommended to pressurize the dwelling** instead of depressurize when conducting blower door diagnostics.
- **The subgrantee or its representative shall contact THDA** if a blower door test *cannot be conducted* due to the potential for ACM contamination in the dwelling.
- **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.

Testing protocols

- **Assess whether suspected ACMs are present** through visual inspection or testing through a certified professional.
- Asbestos Hazard Emergency Response Act of 1986 (AHERA) sample collection and testing must be conducted by a certified tester.

Documentation requirements

CLIENT EDUCATION

- Clients are informed regarding the possibility and hazards regarding asbestos.
- Clients will be instructed in writing not to disturb suspected ACM.
- Clients will be informed of asbestos testing results in writing if testing was conducted.
- When deferral is necessary, provide information in writing describing conditions that must be met in order for weatherization to commence.
    - Refer clients to the **US Environmental Protection Agency**

TEST DOCUMENTATION

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

Training and Resources

- **U.S. Environmental Protection Agency** – Asbestos training

6.3 – Biologicals and Unsanitary Conditions
(e.g., odors, mustiness, bacteria, viruses, raw sewage, rotting wood)

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑ Alternative Guidance ☐ Results in Deferral/Referral ☐

Unallowable Measure with DOE Funding ☐ **Other Funding Source Addresses H&S Issue** ☑ **LIHEAP Wx**

Biological and unsanitary conditions in dwellings policy

REMEDIATION

Remediation of conditions that *may lead to or promote* biological concerns and unsanitary conditions is allowed.

Addressing bacteria and viruses is *not* an allowable cost.

DEFERRAL

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. Units with severe issues identified by the energy auditor or contractor will be deferred. The subgrantee, or its representative, will carefully evaluate the whole house situation and make the determination if deferral is necessary.

If any issues are identified that are beyond the scope of weatherization, alternate funding sources will be considered if available.

ADDITIONAL RESOURCES

See Mold and Moisture and *Infectious Diseases and Preparedness sections for more details.*

Testing protocols

Auditors and contractors utilize primarily sensory inspections to identify issues related to biological and unsanitary conditions. Biological and unsanitary conditions can include: Bulk water/standing water issues, rotten wood, and raw sewage.

The **Tennessee Weatherization Field Guide** offers basic information on these types of occurrences.

Training and Resources

- **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.
- **The US Department of Housing and Urban Development** also offers valuable information to train what constitutes a healthy home.
- **The US Environmental Protection Agency** describes biological pollutants' impact on indoor air quality and provides tips for reducing biological pollutants.

6.4 – Building Structure and Roofing (e.g., roofing, wall, foundation)

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑ Alternative Guidance ☐ Results in Deferral/Referral ☐

Unallowable Measure with DOE Funding ☐ **Other Funding Source Addresses H&S Issue** ☑ LIHEAP Wx

Structural issues in dwellings policy

ALLOWABLE REPAIRS

Health and safety funds may be used for structure and roofing repairs, **as necessary to protect the client and/or weatherization workers**.

DEFERRAL

Building rehabilitation is beyond the scope of the Weatherization Assistance Program. Dwellings that require more than minor repairs must be deferred. *See minor repair definition below*.

Define and quantify minor or allowable structure and roofing issues. At what point are these considered beyond the scope of weatherization?

MINOR REPAIR DEFINITION

Minor repairs in this category cannot exceed $1,237.50. Measures that exceed this cost are considered major repairs. Weatherization will be deferred unless alternative funding is used to make the necessary repairs.

ROOF REPAIRS

Weatherization health and safety funds used for roof repairs **must be associated with bulk water intrusion causing visible biological growth**. All other roof repairs shall be funded through alternative funding sources or as an incidental repair where measure costs are included in the cumulative SIR.

STRUCTURAL AND BUILDING REPAIRS

Repairs in this category that do not exceed the cost cap above are allowed as long as funding definitions are met. Subgrantees shall seek prior approval from THDA using ample written and photo justification if uncertain whether or not a repair is defined as a health and safety measure.

Training and Resources

- **Checklist for Routine Inspection of Buildings** – Kansas State Historical Society

6.5 – Code Compliance

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑ Alternative Guidance ☐ Results in Deferral/Referral ☐

Unallowable Measure with DOE Funding ☐ **Other Funding Source Addresses H&S Issue** ☐ **LIHEAP Wx**

Code compliance issues in dwellings policy

MEASURE FUNDING

Allowable 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.

PRE-EXISTING CODE COMPLIANCE ISSUES

The correction of pre-existing code compliance issues are typically *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 health and safety 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.

DEFERRALS

Condemned properties and/or properties where "red tagged" health and safety conditions exist that cannot be corrected under this guidance shall be deferred.

Training and Resources

- **International Residential Code 2018**

6.6 – Combustion Gases

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑ Alternative Guidance ☐ Results in Deferral/Referral ☐

Unallowable Measure with DOE Funding ☐ **Other Funding Source Addresses H&S Issue** ☑ **LIHEAP Wx**

Combustion gas issues discovered during testing, including those that require an immediate response policy

IMMEDIATE RESPONSE POLICY

If ambient 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.
BPI 1200S –Combustion Appliance Inspection Protocols will be followed.

HVAC AND APPLIANCE REPLACEMENT

Combustion HVAC and appliance replacement are allowable health and safety measures if unsafe conditions whose remediation is necessary to perform weatherization cannot be remedied by repair or tuning.

- **Replacement of gas ovens/stovetops/ranges is not allowed under DOE health and safety funding.** See section Gas Ovens/Stovetops/Ranges
- **Maintain documentation justifying the replacement** with a cost comparison between replacement and repair in the client file.
- **Replacements must meet** manufacturer safety guidelines and those specified in:
  - BPI's 1200 Combustion Safety Standards and the Tennessee Weatherization Field Guide.
- **Energy auditors will verify within the Weatherization Assistant audit tool** to determine if the appliance can be justified as an ECM prior to replacement as an H&S measure.

MEASURE FUNDING

Health and safety funds may be used to test or correct issues related to combustion safety. This includes the repair of combustion appliances. Replacement of combustion mechanicals are allowed using health and safety funds if the above policy guidelines are met.

Testing protocols

GENERAL COMBUSTION SAFETY

Combustion safety testing is required when combustion appliances are present. Documentation of all conducted diagnostic must be included in the client file.

DIAGNOSTICS

THDA currently follows BPI's 1200 – S - 2017 Combustion Appliance and Fuel Distribution System Inspection Protocol.
Diagnostics will occur during the initial energy audit and post weatherization work.

- Test naturally drafting appliances for spillage and CO during CAZ depressurization diagnostics could affect draft.
- Inspect venting of combustion appliances and confirm adequate clearances from combustible materials.
- Proper venting to the outside is required for combustion appliances, including gas dryers and refrigerators, furnaces, vented space heaters and water heaters.

6.7 – Electrical

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑	Alternative Guidance ☐	Results in Deferral/Referral ☐
Unallowable Measure with DOE Funding ☐	**Other Funding Source Addresses H&S Issue** ☑	**LIHEAP Wx**

Electrical hazards, including knob & tube wiring, in dwellings policy

MEASURE FUNDING

Allowable 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.

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 may include:

- Presence and condition of knob-and-tube wiring.
- Wiring or fixture alterations that may create an electrical hazard.
- Breaker size and condition.

KNOB AND TUBE WIRING

Knob and Tube wiring will *not* be replaced using DOE health and safety funds.

Dwellings will be deferred if the presence of knob and tube wiring discovered during the energy audit prohibits weatherization from proceeding.
DOE Weatherization Program Notice 19-4 shall be followed if knob and tube wiring is discovered once a job is in progress which would prevent the installation of an energy conservation measure.

Evaluate and provide sufficient over-current protection and damming (if required) prior to insulating building components containing knob and tube wiring, as required by the authority having jurisdiction.

Define and quantify minor electrical issues. At what point are these considered beyond the scope of weatherization?

MINOR REPAIR DEFINITION

Minor repairs in this category cannot exceed $1,237.50. Measures that exceed this cost are considered **major repairs**.
Weatherization will be deferred unless alternative funding is used to make the necessary repairs.
Minor electrical repairs that remove risks to the worker or occupant are allowed when necessary for weatherization measures.

Examples of major electrical repairs may include:

- Replacement of service panels
- Extensive replacement of wiring due to age and condition
- Overloaded electrical circuits

Training and Resources

- Electrical Safety Foundation
- OSHA Electrical Safety Presentation
- Existing Wiring Evaluation – Old House Web

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

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑ Alternative Guidance ☐ Results in Deferral/Referral ☐

Unallowable Measure with DOE Funding ☐ **Other Funding Source Addresses H&S Issue** ☑ **LIHEAP Wx**

Formaldehyde, VOCs, flammable liquids and other air pollutants in dwellings policy

POLLUTANT REMOVAL

Removal of pollutants is allowed and is required if they pose a risk to workers. If pollutants pose a risk to workers and removal cannot be performed or is not allowed by the client, the unit must be deferred.

Refer to Hazardous Materials Disposal and Ventilation sections for more information.

Testing protocols

Formaldehyde, VOCs and other air pollutants are discovered mainly through visual and sensory inspection.
Formaldehyde vapors may be slowly released by new carpets, waferboard, plywood, etc. VOCs are also emitted by some household cleaning agents and cooking. The sensory inspection will take place during all visits to the dwelling.

The energy auditor will note if there will be a recommendation for pollutant remediation or result in deferral.

Training and Resources

- Tennessee Department of Health offers information how to maintain a healthy home.
- US Environmental Protection Agency offers information how to recognize and reduce effects of VOCs inside a home.

6.9 – Fuel Leaks

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑ Alternative Guidance ☐ Results in Deferral/Referral ☐

Unallowable Measure ☐ **Other Funding Source Addresses H&S Issue** ☑ **LIHEAP Wx**

Fuel leak remediation protocols

MEASURE FUNDING

Fuel leak remediation is not permitted under DOE health and safety funding. Alternative funding sources shall be used when repairing fuel leaks.

FUEL LEAK REMEDITATION PROTOCOLS

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

- All fuel leaks must be repaired prior to weatherization.
- When fuel leak is found on the utility side of service, the utility service or gas company must be contacted before work may proceed.
- 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.

At what point are fuel leaks considered beyond the scope of weatherization?

Minor repairs of fuel leaks cannot exceed$1,237.50. Measures that exceed this cost are considered **beyond the scope of weatherization**.
Weatherization will be deferred unless alternative funding is used to make the necessary repairs.

Fuel leak remediation is required for weatherization services to continue. Therefore, it is important to diagnose and address fuel leaks using available funding outside of DOE health and safety.

Testing protocols

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

Tests are conducted through the use of:

- BPI 1200S approved gas leak detector
- BPI 1200-S Combustion Appliance and Fuel Distribution Inspection Protocols

Training and Resources

- **Tennessee Gas Association**

6.10 – Gas Range/Ovens

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑ Alternative Guidance ☐ Results in Deferral/Referral ☐

Unallowable Measure with DOE Funding ☐ **Other Funding Source Addresses H&S Issue** ☑ **LIHEAP Wx**

Unsafe gas range/ovens policy and testing protocols

MEASURE FUNDING

Health and safety funds may be used to clean, tune, or repair gas ovens and stoves when inspection results indicate unsafe operation.

Replacement of gas ovens or stoves is not allowed using health and safety funds.

GAS OVENS

Gas oven CO levels will be tested. Safe operation must be confirmed.

GAS STOVES

Cooking burners shall be visually inspected for operability and flame quality.

Stovetop CO *testing* is optional.

DIAGNOSTICS

Tests will be conducted in accordance with:

- Tennessee SWS Field Guide
- BPI's 1200 Combustion Safety Standards.

Combustion diagnostics must be recorded in the client file.

Training and Resources

- Tennessee Department of Health offers information how to maintain a healthy home.
- Prevent Fire includes resources how clients can safely operation gas ovens and stoves, reducing risk of injury.
- R.J. Karg Associates – Protocol for gas range CO testing, *if auditor determines to perform this diagnostic.*

6.11 – Hazardous Materials Disposal [e.g., Lead, Refrigerant, Asbestos, Mercury (including CFLs/fluorescents), etc.]

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑ Alternative Guidance ☐ Results in Deferral/Referral ☐

Unallowable Measure with DOE Funding ☐ **Other Funding Source Addresses H&S Issue** ☑ **LIHEAP Wx**

Hazardous materials disposal policy and documentation requirements

GENERAL

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.

DOCUMENTATION

Document proper disposal requirements in contract language with responsible party. THDA's Contract to Provide Services template includes such language.

HAZARDOUS MATERIALS

Lead

Disposal of refrigerants will comply with:

- Regulatory Status of Waste Generated by Contractors and Residents from Lead-Based Paint
- *Collect paint chips, dust, dirt and rubble in plastic trash bags for disposal.*
- *Store larger LBP building parts in containers until ready for disposal.*
- *If possible, use a covered mobile dumpster (such as a roll-off container) to store LBP debris until the job is done.*
- *Contact local solid waste authorities to determine where and how LBP debris can be disposed of.*

Asbestos

Disposal of asbestos will comply with:

- EPA Regulations 40 CFR Part 763, Subpart E Appendix D
- *There must be no visible emissions to the outside air during waste transport.*
- *A transporter should ensure that the asbestos waste is properly contained in leak-tight containers with appropriate labels, and that the outside surfaces of the containers are not contaminated with asbestos debris adhering to the containers.*

Mercury Disposal

Mercury containing materials will be disposed of according to:

- Tennessee Department of Environment and Conservation
- Tennessee Department of Health
  - Mercury Factsheet

Common mercury containing materials:

- Thermostats
- Incandescent and fluorescent lightbulbs
- Batteries

Refrigerant Disposal

Disposal of refrigerants will comply with:

- **EPA Regulations 40 CFR Part 82, Subpart F under**
  - Section 608 of the Clean Air Act.

6.12 – Injury Prevention of Occupants and Weatherization Workers (e.g., repairing stairs and replacing handrails)

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑	Alternative Guidance ☐	Results in Deferral/Referral ☐

Unallowable Measure with DOE Funding ☐ **Other Funding Source Addresses H&S Issue** ☑ **LIHEAP Wx**

Injury prevention measure(s) policy

MEASURE FUNDING

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.

GENERAL

Workers must take all reasonable precautions against performing work on homes that will subject workers or occupants to health and safety risks.
Repairs necessary to allow safe access to areas necessary for weatherization may be performed using health and safety funds.

DOCUMENTATION

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

Define and quantify minor or allowable injury prevention measures. At what point are these considered beyond the scope of weatherization?

MINOR REPAIR DEFINITION

A minor repair shall remain under the cost of $1,237.50
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.

Measure costs in this category exceeding the minor repair definition is considered beyond the scope of weatherization and shall result in deferral of the unit.

Training and Resources

- **OSHA 10 & 30 Training**

6.13 – Lead Based Paint

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑ Alternative Guidance ☐ Results in Deferral/Referral ☐

Unallowable Measure with DOE Funding ☐ **Other Funding Source Addresses H&S Issue** ☑ **LIHEAP Wx**

Lead safe work protocols

EPA RRP

Weatherization workers 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.
It is encouraged for subgrantees to seek out local lead programs to partner in the testing, training, and potential funding of lead safe work.

MEASURE FUNDING

Health and safety funds may be used to address weatherization related costs associated with working in dwellings 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.

DEFERRAL

Deferral is required when the extent and condition of lead-based paint in the house would potentially create further H&S hazards

Testing protocols

Testing to determine the presence of lead in paint that will be disturbed by weatherization 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. Subgrantees shall contact THDA with any questions on lead testing feasibility.

Documentation requirements

DOCUMENTING LEAD SAFE PRACTICES

Job site set up and cleaning verification by a Certified Renovator is required.
Certified Renovators are to provide the Pre-Renovation form signed by the client and photographs to document that the procedures were followed.

Subgrantees will keep on file verification weatherization workers are following lead safe practices through proper documentation which includes:

- EPA RRP Certified Renovator certification
- Written or photo description of on-site lead safe practices
- Photos of site and containment setup
- Lead testing and assessment, if applicable

Training and Resources

- **RRP Training Information**

6.14 – Mold and Moisture
(e.g., drainage, gutters, down spouts, extensions, flashing, sump pumps, dehumidifiers, landscape, vapor retarders, moisture barriers)

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑ Alternative Guidance ☐ Results in Deferral/Referral ☐

Unallowable Measure ☐ **Other Funding Source Addresses H&S Issue** ☑ **LIHEAP Wx**

Moisture related issues in dwellings policy

MEASURE FUNDING

Water damage repair and moisture source control 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.

The costs of surface preparation where weatherization measures are being installed (e.g., cleaning mold off window trim in order to apply caulk) must be charged as an additional cost to the energy conservation measure, not as a separate line item funded through health and safety.

WATER DAMAGE AND MOISTURE SOURCE CONTROL

Water damage repair and source control measures are allowed when necessary in order to weatherize the home and to ensure the long-term stability and durability of the energy conservation measures.
Deferral is required where severe mold and moisture issues cannot be addressed.

Source control is the first step in solving moisture problems.
Examples of source control repairs include:

- **Site drainage/run off modifications** - Regrading along a foundation wall to keep water away from building
- **Gutter repair or minor replacement –** Reduce excess roof runoff along building walls and foundations
- **Down spouts repair/replacement** - Reduce water pooling along building walls and foundations
- **Flashing** - Eliminate or reduce water entry at windows or doors
- **Sump pumps** - Removal of water in a basement or crawl space. Sump pits must be covered with an airtight lid and allow one way drainage of bulk water into the pit.
- **Vapor barriers –** Cover exposed earth in crawlspaces and cellars to reduce migration of water vapor
- **Ventilation –** To remove water vapor inside dwellings. See Ventilation category.

MOLD

Mold cleanup and/or testing cannot be funded through health and safety funds.

Jobs where mold is present may continue with weatherization if:

- The mold is located in an area outside the direct vicinity where weatherization work is taking place and/or won't be disturbed.
- The area containing mold is less than 10 total square feet (appx. 3' x 3') as referenced in EPA's Brief Guide to Mold and Moisture.

Define and quantify minor or allowable moisture-related measures. At what point are these considered beyond the scope of weatherization?

MINOR REPAIR DEFINITION

A minor repair shall remain under the cost of $1,237.50

Minor mold and moisture repairs are considered repairs that can be completed with hand tools. Repairs exceeding the minor repair cost cap or that require heavy machinery are considered outside the scope of weatherization.

Training and Resources

- **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.
- **US Environmental Protection Agency** offers training how to prevent and remediate mold.
- **WxTV** offers a 14 minute episode on mold and moisture concerns

6.15 – Pests

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☐ **Alternative Guidance** ☑ Results in Deferral/Referral ☐

Unallowable Measure with DOE Funding ☐ **Other Funding Source Addresses H&S Issue** ☑ **LIHEAP Wx**

Pests and pest intrusion prevention policy

PEST REMOVAL

Pest removal is allowed only where infestation would prevent weatherization.
Subgrantees will refer clients to alternative programs for assistance to the best extent possible.

PEST PREVENTION

Preventing pest intrusion can occur through air sealing efforts and possibly other common energy conservation measures. If pest intrusion prevention is a specific action in order to install weatherization, the costs shall be modeled as additional costs into the ECM.

Define and quantify pest infestation thresholds. At what point are these considered beyond the scope of weatherization?

MEASURE FUNDING

Pest removal is not allowed using DOE health and safety funds.
Additional costs included in air sealing or insulation is allowed to prevent pest intrusion. Examples include the screening of windows and points of access into attics or crawlspaces.

DEFERRAL

Infestation of pests may be cause for deferral where it poses health and safety concern for workers.

Training and Resources

- **Tennessee Department of Health** offers additional information how to keep a home pest free.

6.16 – Radon

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑ Alternative Guidance ☐ Results in Deferral/Referral ☐

Unallowable Measure with DOE Funding ☐ **Other Funding Source Addresses H&S Issue** ☑ **LIHEAP Wx**

Procedure for radon in dwellings and testing protocols

MEASURE FUNDING

Radon mitigation is not an allowable health and safety cost.
Radon testing is allowable based on the guidance below.

PRECAUTIONARY MEASURES

Exposed ground shall be covered with a vapor barrier, whenever site conditions permit - 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.

Because radon migrates through the soil, precautionary strategies include the following:

- Installing plastic vapor barrier and sealing all seams.
- Sealing the walls and floor of the basement.
- Installing airtight sump pump lids that will also allow for one way drainage into the pit.
- Installing mechanical ventilation

TESTING

Costs associated with radon testing using health and safety funds may be approved on a case by case basis from THDA. Subgrantees and technical workers shall refer to the Tennessee Department of Environment and Conservation on the availability of state funded radon kits.

If known, or tested, radon levels are above 4 pCi/l, the unit will be deferred.

Documentation requirements

Test results shall be delivered to the client. A copy shall be retained in the client file.

All clients must acknowledge receipt of the Radon Informed Consent Form. The form includes a list of precautionary measures WAP may install based on EPA Healthy Indoor Environment Protocols.

Training and Resources

- EPA's Publications about Radon
- Radon Zone Map
- Tennessee Department of Health
- US Environmental Protection Agency

6.17 – Safety Devices: Smoke and Carbon Monoxide Alarms, Fire Extinguishers

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑ Alternative Guidance ☐ Results in Deferral/Referral ☐

Unallowable Measure with DOE Funding ☐ Other Funding Source Addresses H&S Issue ☑ **LIHEAP Wx**

Installation or replacement policy for the following safety devices:

SMOKE ALARMS

Installed 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.
Notify THDA prior to bid release if safety devices are necessary to be installed for occupants that are hearing impaired.

CARBON MONOXIDE ALARMS

All units are required to have an operable Carbon Monoxide Alarm.
Notify THDA prior to bid release if safety devices are necessary to be installed for occupants that are hearing impaired.

FIRE EXTINGUISHERS

Providing fire extinguishers is an allowable using health and safety funds *when solid fuel is present.*

Testing protocols

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

Training and Resources

- NFPA Smoke Alarms
- NFPA Carbon Monoxide Alarms
- NFPA Fire Extinguishers

6.18 – Ventilation and Indoor Air Quality

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑ Alternative Guidance ☐ Results in Deferral/Referral ☐

Version of American Society of Heating Refrigeration and Air-conditioning Engineers (ASHRAE) 62.2 Implemented (optional: identify Addenda used)

ASHRAE 62.2 - 2016

Implementation of ASHRAE 62.2-2016 is required.
Client refusal of mechanical ventilation, when evaluated and called for pursuant to the Standard, **must result in deferral.**

If the ASHRAE normative Appendix A is employed and an existing fan is being replaced or upgraded to meet whole-house ventilation requirements, *do best* to take action to prevent zonal pressure differences greater than 3 pascals across the closed door, if one exists.

Existing exhaust fans do not necessarily need replacement as long as they are properly ducted to the outside, have adequate airflow, and proper controls.

Procedures for complying with implemented ASHRAE standard

ASHRAE 62.2 2016 standards shall be followed and consulted regularly.
Energy auditors will be determine a target exhaust flow rate based on estimated air sealing target along with all existing exhaust ventilation in the dwelling.

Precautions must be made to any combustion appliances that may be impacted through additional ventilation. Make up air shall be installed if necessary.

Impacts of estimated air sealing targets shall be considered by all weatherization workers as any measured air leakage post weatherization may increase the ventilation rate or even remove the need for continuous mechanical ventilation altogether.

QCIs will verify and/or set the actual rate of continuous mechanical ventilation upon final inspection.

ASHRAE 62.2 compliant fans may be installed to provide exhaust, supply, or balanced ventilation.

Testing protocols

Testing includes measuring fan flow of both existing fans and newly installed equipment to verify performance.
Residential Energy Dynamics ASHRAE 62.2 calculation sheet shall be referenced to determine and verify exhaust flow calculations.

Training and Resources

- ASHRAE 62.2-2016 – read only version. Scroll down page to select the ASHRAE 62.2 2016 standard.
- DOE WAP Health and Safety FAQ – Pages 26 through 35 provide descriptive answers to a number of ventilation questions.

6.19 – Window Repair, Door Repair

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑ Alternative Guidance ☐ Results in Deferral/Referral ☐

Unallowable Measure with DOE Funding ☐ **Other Funding Source Addresses H&S Issue** ☑ **LIHEAP Wx**

Window repair and door repair H&S policy

MEASURE FUNDING

DOE health and safety funds will not be used for replacement of windows and doors.
Window and door repair is allowed using health and safety funding as long as guidance below is met**.**

REPLACEMENT AND REPAIR

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 if associated with the removal of visible biological growth.

Lead Safe RRP contractors must be used if windows and doors are being replaced in pre-1978 homes.

DEFERRAL

Deferral may be necessary if windows or doors are in such a state of disrepair that they would prevent weatherization. When deferral is necessary, provide information in writing which describe conditions that must be met in order for weatherization to commence.

6.20 – Worker Safety (e.g., OSHA)

Concurrence, Alternative or Deferral/Referral

Concurrence with DOE Guidance ☑ Alternative Guidance ☐ Results in Deferral/Referral ☐

Unallowable Measure with DOE Funding ☐ **Other Funding Source Addresses H&S Issue** ☑ **LIHEAP Wx**

Federal, state and local worker safety requirements policy

OSHA REQUIREMENTS

Workers must follow OSHA standards where required and take precautions to ensure the health and safety of themselves and other workers.

All subgrantees and contractors must maintain compliance with the current **OSHA Hazard Communication Standards**, including on-site organized Safety Data Sheets (SDS) (formerly called MSDS).

All weatherization technical workers receive training on the use and importance of PPE and safety training appropriate for job requirements.

- **OSHA 10 certification** – Required for energy auditors, QCIs, and weatherization installers.
- **OSHA 30 certification -** Required for weatherization crew leaders.

Training and Resources

- **Tennessee Weatherization Field Guide**
- **OSHA Courses**
- **OSHA Hazard Communication Standards**