SECTION E: HEALTH & SAFETY PLAN

E1. GENERAL POLICY

The Utah WAP has developed this Health & Safety Plan to ensure reasonable precautions are taken to protect clients and personnel. Contained in this policy are guidelines for identifying Health & Safety (H&S) issue(s), and determining whether issue(s) should be remedied, referred, deferred, or result in partial weatherization.

This guidance is based off of WPN 17-7, and is more stringent in some areas where other funding sources are available or place other constraints on the program. When an agency identifies an issue that is not specifically addressed in this policy they should consult with the State WAP staff to determine the best course of action.

All applicable codes must be followed and manufacturer approved materials and instructions must be used while installing H&S measures.

E1.1. Definition of a Health & Safety Measure (HSM):

Allowable energy related H&S actions are those actions necessary to maintain the physical well-being of both the occupants and weatherization workers where:

- Costs are reasonable, as determined by DOE, and are in accordance with the Grantee's approved Annual Plan; **AND**
    - The actions must be taken to effectively perform weatherization work; **OR**

- The actions are necessary as a result of weatherization work.

No HSM's can be performed in a home unless ECM's are also part of the scope of work.

E2. BUDGETING

E2.1. Separate Health & Safety Budget

DOE gives its weatherization grantees the option to select which of the two budgeting approaches they will operate under. Grantees may either, create a separate budget category to cover H&S expenses or, cost-justify all H&S expenses as IRM's. Utah WAP has opted to create a Separate H&S budget category. This means HSM's need not be cost-justified by the energy audit, and are not included in the average cost per unit (ACPU) calculation. It also means, agencies must evaluate and report all HSM expenses separate from other expenses in their respective contracts.

E2.1.a. H&S funds cover the cost of testing and the installation of measures

E2.1.b. Client education or training costs can be charged to Training and Technical Assistance budget

E2.1.c. Each Client file must include documentation that separates all costs into the appropriate budget category including H&S.

E3. HEALTH & SAFETY EXPENDITURE LIMITS / USE OF FUNDS

E3.1. H&S Expenditure Limits

E3.1.a. Based off of PY20 data, Utah WAP has set the H&S expenditure limits for all PY 21 funding sources at 14.9% of the allocated Program Operations budget. The statewide H&S ACPU(including all funding sources) should not exceed $1158 for the program year. This applies to all active contracts that have a Health & Safety line item in the budget. This percentage will be adjusted annually based off the previous year's expenditures.

E3.2. Use of Funds

E3.2.a. All measures that are listed as allowable under *E7 Health & Safety Table of Issues* are eligible for use of these funds. If the repair constitutes a Major Repair as defined in *E3.3*, It must be approved by State WAP.

E3.2.b. Unused H&S funds will be re-budgeted to Program in the 3rd quarter of the program year for that funding source upon written request of the sub-grantee.

E3.2.c. The material and labor cost to install an approved HSM shall be charged to the health and safety budget category of its respective contract.

E3.2.d. When another funding source, such as Dominion Energy or Crisis, is used to mitigate a H&S issue it is subject to the rules of that funding source and shall be charged to that funding source.

E3.2.e. Labor to conduct Health & Safety inspections and testing is an allowable H&S expense.

E3.2.f. HSM vs. ECM: There are some instances where, depending on circumstances, a measure can qualify as either an ECM or an HSM. When a measure can be cost justified it must be treated as an ECM. The measure may be considered an HSM only after it is determined that the measure is not cost-effective.

E3.3. Cost Limits

E3.3.a. According to the definition of an HSM, the cost of a measure must be reasonable. The Utah WAP uses the following definitions of Major and Minor repair to help determine when the cost of a measure is reasonable.

- **Minor Repair** – A repair that DOES NOT exceed the projected H&S ACPU during the given program year established in *E3.1.a*.
- **Major Repair** – A repair exceeding the projected H&S ACPU during the given program year established in *E3.1.a.* ***Major repairs other than water heater replacement require state approval.***

i. If a measure meets the definition of a Minor repair the cost is considered reasonable and the measure should be installed.

ii. If a measure meets the definition of a Major Repair (except for water heater replacement) it is considered NOT reasonable. The measure, shall not be addressed as an HSM. If the measure cannot be addressed through other funding sources, the measure, or as appropriate the entire job, shall be deferred.

iii. If the cost of a measure exceeds the definition of a Minor repair, but the agency feels that the cost is reasonable, it can submit a written justification for why to cost is reasonable to the State WAP for consideration on a case-by-case basis. If the State determines the cost is justified it shall provide the agency with written approval, the measure shall be installed and a copy of the justification and approval shall be included in the client file.

iv. The cost to replace a water heater with a Direct Vent water heater is considered reasonable when the cost of materials and labor is less than $3,000.

E3.4. Case-by-case Measure Approval Process

When a HSM is beyond the scope of a Minor Repair, or other circumstances require a case-by-case decision, the following process will be followed:

E3.4.a. Agency shall submit a written request which describes the situation, explains why it may be eligible for consideration and includes a cost justification to a member of the State WAP staff. Justification shall include estimated MMBtu's that will be saved if measure is approved. Request shall include:

- Clients Name and address
- Current status of weatherization
- Detailed description of the situation
- Explanation of why it is felt the situation warrants state approval
- Estimated cost justification
- Estimated MMBtu's saved (as calculated by approved audit tool)
- Any other information that would have bearing on the case

E3.4.b. State WAP staff will review the request using the following criteria:

- Verify the action is not prohibited by DOE guidance
- Verify the issue cannot be addressed as a NAM
- Verify there is an opportunity for more than 15 MMBtu's in energy savings
- Verify the costs are not excessive compared to readily available materials within the agency's service area

E3.4.c. State WAP staff will provide a written approval/rejection response.

E3.4.d. Agency will keep a copy of State WAP response in the client file as part of the justification for installing the measure, or to document why the measure or the job was deferred.

E4. INCIDENTAL REPAIR VS. HEALTH & SAFETY

E4.1. IRM vs. HSM

E4.1.a. Knob & Tube wiring mitigation is the only Health & Safety issue that shall always be addressed as an IRM and should never be applied to the H&S budget category. Evaluating Knob & Tube mitigation as an IRM allows the energy savings of the individual job to determine the cost effectiveness of the mitigation.

E4.1.b. All other allowable issues listed in *E7 Health & Safety Table of Issues* shall be installed as HSM's unless specified otherwise. For more info on IRM's see *B9.5.c.vi*. DOE requires that the specific treatment of measures be applied consistently throughout the state, and therefore will not allow the decision to charge these measures as HSM or IRM to be made in the field.

E5. DEFERRAL/REFERRAL POLICY

Deferral of services may be necessary When H&S issues cannot be adequately addressed. 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 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. Agencies shall follow this policy when service is deferred.

E5.1. Deferred Service

The most important aspect of Deferred Service is setting and managing the Clients expectations. Sub-grantees should make every effort to clearly communicate to the client the reason for deferral and exactly what is required of them for the weatherization process to proceed.

E5.1.a. Client Notification

Clients must be notified, in writing, of the reason they are being placed in Deferral Status. Attachment #24 Deferral Notification maybe used or the sub-grantee may develop a form letter. A copy of the notification shall be placed in the client file. The Notification shall include:

- Client name and address of the unit in question.
- Date, time, location which the hazard was identified.

- Nature & extent of the problem /concern related to the Weatherization of the dwelling
- Any corrective action required prior to the resumption of Weatherization work with a related time frame to correct the situation: and,
- An explanation regarding the right to appeal and the appeals process
- Signature of the client or their authorized agent indicating receipt of the notification .

E5.1.b. Deferral Description and Corrective Action

Sub-grantees shall clearly describe and detail each reason the client is being deferred and the corrective action required by the client to allow weatherization activities to resume. If there is more than one reason for deferral there shall be a corrective action for each deficiency.

E5.1.c. Time Limits

Sub-grantee shall notify the client of the time limits for correction of the cause for deferral. A minimum of thirty (30) calendar days will be afforded to the client per deferral notification.

E5.1.d. Notice of Termination

After the time limits of the deferral have been met the Sub-grantee may close the client file and remove the client from its waiting list. A client can always reapply for the program in the future.

i. If Deferral was prior to installation of any materials the home will not be reported as a completion and will not be subject to the Re-Weatherization provisions of Section *C1.9.a.i*.

ii. If materials have been installed on the dwelling it shall be considered a Partial Weatherization and reported according to Section *A5.2 Partial Weatherized Unit*.

E5.2. Deferred Service Appeals Procedure

Applicants who are denied Weatherization assistance will be assured an opportunity to have a fair administrative hearing regarding the deferral of services pertaining to the Deferred Service Policy.

E5.2.a. Local Resolution

It is the desire of HCD to see these issues resolved at the local level when possible. When contacted by a client HCD will first contact the sub-grantee to help facilitate a local resolution.

E5.2.b. State WAP Resolution

When necessary, State WAP may intervene to help resolve the matter. This may be accomplished by State WAP staff or the assistance of other sub-grantees to help facilitate a resolution.

E5.2.c. Formal Appeal

If the client disagrees with the decisions, they have the right to a hearing before an impartial Hearing Examiner. To request a hearing, they must ask for it within 60 days of the date of notice. Send a written request and a copy of the deferral letter to the Department of Workforce Services, Division of Adjudication; P.O. Box 45244, Salt Lake City, UT 84145-0244.

E5.3. **Referral of Service**

E5.3.a. There will be times that the needs of the client exceed the abilities of the program. Agencies should make reasonable effort to direct the client to other programs or organizations that might be able to assist them. The intent is to find assistance for the client that will allow the weatherization activities to proceed.

E5.4. **Tracking of Deferrals**

E5.4.a. Local Agencies shall develop and maintain a tracking system for jobs that are Deferred. This systems shall track by job at a minimum the following:

i. Each reason for deferral

ii. Data of notification (letter)

iii. Date of re-inspection

iv. Date home was weatherized

v. Work Start Date

vi. Deferral Date

vii. Deferral Removal Date

viii. Job Closed Date

ix. Client Re-Application date

x. Weatherization Completion Date

E6. H&S Inspection, Identification and Notification

A Health & Safety inspection must be performed in each home to identify any hazards. When Hazards are identified, appropriate testing must be performed, and the client/landlord/property manager must be informed in writing of all testing results.

E6.1. Health & Safety Inspection

Prior to any weatherization activities being implemented, agencies must inspect each dwelling for health and safety issues that will impact the weatherization work; and determine if any actions are necessary to maintain the physical well-being of the occupants and weatherization workers. Energy auditors shall perform this inspection as part of each energy audit. This inspection shall meet the BPI 1200 standards. Auditor's shall use Attachment 20: Health & Safety Assessment to guide this inspection and to serve as the notification form per *E6.3*.

The Health & Safety Inspection shall include, as applicable, an inspection and testing of everything listed under the sub-heading "Testing" in *E7 Health & Safety Table of Issues.*

E6.2. Occupant Health Risk Evaluation

As part of the Health & Safety Inspection, auditors must inform clients of the aspects of weatherization that may put a client with pre-existing health conditions at risk during installation of measures, and, must identify what steps will be taken to ensure that weatherization work will not aggravate pre-existing health conditions.

Agencies should not solicit specific health conditions from clients, but should inform the client how certain aspects of weatherization may affect them if they have certain medical conditions. Agencies are expected to explain to the client, "Mrs. Jones, we will be doing x,y, and z to your home. Parts of this work may generate a lot of dust during installation. If you or any other residents have health conditions that might put them at risk during this work, let's talk about precautions we can take to avoid that risk." It is an opportunity to discuss with the client precautions that can be taken either by the client themselves, such as finding another place to be during the riskiest time of the installation, or by the agency.

When a health risk is identified, the risk and the plan to avoid the risk shall be documented on Attachment 20 Health and Safety Assessment, and shall be signed by the client.

E6.3. Health & Safety Notification Form

Attachment 20 Health & Safety Assessment form shall be used to document that the client/landlord/property manager were informed in writing the results of health and safety testing, and any hazards identified by the testing.

This form shall include the client's name and address; dates of the audit/assessment and when the client was informed of a potential H&S issue(s); a clear description of any problem(s); a statement indicating if, or when weatherization could continue; and it must be signed by auditor/assessor and by the client(s) indicating that they understand and have been informed of their rights and options.

E6.4. Life Threatening Hazards—Immediate Response

When agencies discover problems during testing of combustion gases or when other Life Threatening Hazards are observed which require immediate response, the agency is responsible to:

E6.4.a. Make the client aware of the hazard(s)

E6.4.b. Take reasonable actions to prevent injury

E6.4.c. Prepare a written corrective action to temporarily and/or permanently fix the hazard. The plan must detail when and what the agency will do to correct the hazard, and what the client is responsible to do to prevent the hazard. The plan shall meet the requirements of *E6.3* and be signed by the client and an agency rep. The WCDT form or Attachment 20: Health and Safety Assessment forms can be used for this.

E6.4.d. If the hazard is CO levels in excess of BPI 1200 standard with spillage into the envelope, the agency must immediately disable and Red-Tag appliances.

E6.4.e. If the repair or replacement is within the scope of weatherization, agency must return and repair the issue as soon as possible.

E6.4.f. When the Hazard is beyond the scope of Weatherization, the agency shall detail in the corrective action plan that it is the clients responsibility to correct the hazard, refer the client to any other resources and defer the job per *E5 Deferral/Referral Policy*.

E7. HEALTH & SAFETY TABLE OF ISSUES

This section lists the most common Health & Safety issues faced in Utah WAP. Each issue is formatted to include information about Action/Allowability, Testing, Client Education, and Training.

No H&S measures can be performed in a home unless ECM's are also part of the scope of work.

The rationale for performing each HSM in an individual home and its relationship to the ECM that necessitated it must be clearly documented in the client file. The guidance in *B9.5.b HSM—Health & Safety Measure* shall be followed to document this. Documenting a related ECM is not required for any testing, or for ASHRAE 62.2 Compliance, Smoke & CO Alarms, and Vapor barriers.

- Action/Allowability: This section lists actions that can or must be taken when an issue exists. If an action or measure is listed under this section as required or allowable it is an approved HSM and can be paid for with Health & Safety funds. If an action or measure is not allowed or prohibited, Health & Safety funds cannot be used.
- Testing: This section lists inspections that must be performed and testing that must be conducted when an issue exists. If testing or inspection is listed under this section as required or allowable it is an approved HSM and can be paid for with Health & Safety funds. If testing or inspection is not allowed or prohibited, Health & Safety funds cannot be used.
- Client Education: Client education is required only when an issue exists. For example, client education regarding drainage issues is only required where drainage problems are identified. Labor and materials for Client Education shall be charged to T&TA and is not an allowable H&S expense.
- Training: This section lists training that Weatherization staff should receive in order to conduct testing and inspections, and or to perform the allowable actions. Agencies are responsible to ensure that staff has received all appropriate training. Workers must be qualified and adequately trained to implement the DOE Standard Work Specifications and codes specific to the work being conducted. Workers shall be trained to know when the performance of certain tasks requires a licensed professional. All training shall be charged to T&TA and is not an allowable H&S expense.

E7.1. Air Conditioning and Heating Systems/Units

E7.1.a. Action/Allowability

When a space conditioning system does not qualify as an ECM or a NAM, the following conditions must be met before the unit can be replaced or repaired as an HSM.

i. "Red tagged," inoperable, or nonexistent primary heating systems may be replaced, repaired, or installed. Climate conditions throughout the state require every dwelling to have a primary heating system.

ii. Primary air conditioning system replacement, repair, or installation is not allowed as an HSM. Unsafe air conditioning units shall be addressed following the Air conditioning policy, or deferral is required. See *B8.24 Air Conditioners*.

iii. Use proper sizing protocols (Manual J, or NEAT/MHEA outputs) based on post-weatherization housing characteristics, including installed mechanical ventilation, when installing or replacing a heating or cooling appliance.

iv. Unsafe primary units must be repaired, replaced and removed, or rendered inoperable, or deferral is required.

v. Replacement or installation of secondary units is not allowed.

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

vii. See *E7.13Hazardous Materials Disposal* section for more information.

viii. For additional guidance see WAP WPN 17-7 Attachment A: Additional Health and Safety Guidance Related to Heating Systems. This guidance may be limited by provisions of state guidelines.

ix. **Space Heaters:**

1. Electric Space Heaters: repair or replacement of electric space heaters is not an allowable HSM.
2. Masonry Chimneys: Masonry chimneys used by vented space heaters should be properly lined in compliance with the International Fuel Gas Code (IFGC). Preexisting venting issues can be addressed as an HSM per *E7.8.a.iii*. If new equipment is installed, the masonry chimney can only be used as a chase for a new venting system. The new venting system cost shall be included in the new equipment costs.
3. Solid-Fueled Space Heaters: Repair or removal of unsafe fireplaces, and wood, coal, and pellet stoves as primary or secondary heating sources is an allowable HSM. Repair of flues and proper installation (eg. Protection of combustibles, adequate combustion air), is required on all solid fuel heating appliances. As with all HSM's the cost of this measure is limited to a Minor Measure per *E3.3* and all other provisions of this guidance including *E7.1.a.iv*, *E7.1.a.v*, *E7.1.a.vi*.
4. Unvented Gas-and Liquid-Fueled Space Heaters:

a. **Primary System:** DOE will not permit any DOE-funded weatherization work on a home where the primary heating system is an unvented gas or liquid fueled space heater. The primary heat source must be replaced with a vented unit prior to weatherization. If replacement cannot be accomplished the job must be deferred.
b. **Secondary System:** Repair of secondary unvented heating units is not an allowable weatherization measure. For guidance on when a secondary unit must be removed see WAP WPN 17-7 Attachment A: Additional Health and Safety Guidance Related to Heating Systems

5. **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.

E7.1.b. Testing

i. All systems used for heating and cooling shall be inspected and tested for health & safety concerns

ii. Make sure primary systems are present, operable, and performing correctly.

iii. Check DOE-approved audit to determine if the system can be installed as an energy conservation measure (ECM) prior to replacement as an H&S measure.

iv. On combustion equipment, inspect chimney and flue; test that combustion is within BPI 1200 standard; test for presence of CO in supply air stream; test for proper venting of the appliance; and test for any concerns with Combustion Appliance Zone (CAZ) depressurization.

v. On manufactured housing, ensure heating appliances are mobile home approved.

vi. For solid fuel appliances look for visual evidence of soot on the walls, mantel or ceiling or creosote staining near the flue pipe.

vii. For evaporative cooling systems look for damage to structure, mold or moisture issues, proper distance from combustion gases

viii. To evaluate the operation of other combustion appliances in homes where a Solid-Fuel appliance (fireplace, pellet stove, coal stove) is the primary heating unit, or is regularly used to help heat the home, a blower door shall be used during the worst-case CAZ testing to mimic the airflow dynamics likely when the fireplace is in use. The blower door shall be set to depressurize the home at 300 CFM at 50PA.

E7.1.c. Client Education

i. 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.

ii. Discuss appropriate use and maintenance of units.

iii. Provide all paperwork and manuals for any installed equipment.

iv. Discuss and provide information on proper disposal of bulk fuel tanks when not removed as part of the weatherization work.

v. Where combustion equipment is present, provide safety information including how to recognize depressurization.

E7.1.d. Training

i. Auditors/QCI: WAP H&S policy training, BPI Energy Auditor certification which includes CAZ depressurization test and inspection training, and the Rocky Mountain Gas Association (RMGA) certification.

ii. Technicians: Employer must hold S350 HVAC license and Techs must have RMGA and EPA 608 Certifications. NATE certification is also recommended.

E7.2. Asbestos - in Siding, Walls, Ceilings, etc.

E7.2.a. Action/Allowability

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

ii. Do not perform Blower door depressurization tests in homes where there is a risk of asbestos becoming airborne and being drawn into the dwelling. Follow *E7.3.a.ii* for blower door testing in homes with suspected ACM.

iii. The existence of asbestos siding that is in good condition does not prevent installing dense-pack insulation from the exterior.

iv. Siding may be removed and reinstalled in order to perform the ECM, and the associated costs may be charged as part of the ECM.

v. General abatement of asbestos siding or replacement with new siding is not an allowable H&S cost.

E7.2.b. Testing

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

E7.2.c. Client Education

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

E7.2.d. Training

i. Auditors/QCI: BPI Healthy Home Evaluator (HHE) Certification

ii. Field Technicians: IWTC Healthy Home Training (HHT) course which includes: How to identify suspected ACM, & Safe practices for siding removal and replacement.

E7.3. **Asbestos - in Vermiculite**

E7.3.a. Action/Allowability

i. When vermiculite is present, assume it contains asbestos and do not disturb it, unless testing determines otherwise.

ii. Do not perform Blower door depressurization tests in homes where there is a risk of asbestos becoming airborne and being drawn into the dwelling, or when there are other circumstances where the blower door test could cause health or safety problems.

1. Agencies shall perform positive pressure blower door testing in homes where suspected ACM is present, and the agency sees no potential that ACM could be introduced into the home.
2. If blower door testing is not conducted the agency shall document in the audit the reasons for not testing including indicators of the risk of asbestos being drawn into the dwelling.
3. On homes where no blower door testing was conducted Duct Sealing and Infiltration Reduction shall be performed as one combined NAM, the total cost shall be limited to $500, and shall follow the air-sealing prioritization guidance in *B9.8.k.i.3*

iii. Use proper respiratory protection while in areas containing vermiculite.

iv. Encapsulation or Removal of Vermiculite containing Asbestos is not an allowable program expense.

v. When deferral is necessary due to vermiculite, asbestos, or suspected ACM, occupant must provide documentation that a certified professional performed the remediation before work continues.

E7.3.b. Testing

i. A visual assessment of attic insulation, and HVAC duct or piping systems, shall be conducted prior to blower door testing to determine presence of vermiculite or other suspected ACM.

ii. Utah DEQ sample collection and testing of vermiculite is an allowable H&S expense, and must be conducted by a certified tester deemed qualified by the State of Utah DEQ. Vermiculite testing is the only asbestos testing that is allowed.

E7.3.c. Client Education

i. When suspected ACM is found, agency's must instruct clients in writing not to disturb suspected ACM, and provide them with asbestos safety information.

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

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

E7.3.d. Training

i. Auditors/QCI: BPI HHE Certification

ii. Field Technicians: IWTC HHT course which includes training on how to identify and safely work near suspected ACM

iii. Asbestos Inspector/Sample Collector: Certified by Utah Division of Environmental Quality as Asbestos Inspector in order to conduct testing.

E7.4. Asbestos - on Pipes, Furnaces, other Small Covered Surfaces

E7.4.a. Action/Allowability

i. Assume asbestos is present in suspect covering materials on pipes, furnaces, and duct.

ii. When suspected friable ACM is present, take precautionary measures as if it is asbestos.

iii. Do not perform Blower door depressurization tests in homes where there is a risk of asbestos becoming airborne and being drawn into the dwelling. Follow *E7.3.a.ii* for blower door testing in homes with suspected ACM.

iv. Encapsulation by an appropriately trained asbestos control professional is allowed. It is limited to a minor measure *E3.3.a.i,* and should be conducted prior to blower door testing if the materials are friable.

v. Asbestos Containing Material (ACM) less than the Small Scale Short Duration (SSSD), which is less than 3 square feet or 3 linear feet, is not regulated by the State of Utah Department of Environmental Quality (DEQ). ACM that is less than SSSD may be encapsulated or removed to facilitate new HVAC system installation, and is an allowable HSM.

vi. ACM above SSSD and below National Emission Standards for Hazardous Air Pollutants (NESHAP), which is equal to 260 linear feet, 160 square feet, 35 cubic feet, can **ONLY** be removed by a Weatherization Agency, for installation of a new HVAC system **when**: 1) Agency staff is certified by Utah DEQ as Asbestos Certified Renovator **and** 2) The Agency is certified by Utah DEQ as a Certified Asbestos Renovation Company **and** 3) The Agency carries Pollution Occurrence Insurance

vii. Only those costs directly associated with encapsulation, or removal of ACM can be charged to the H&S budget category.

viii. When deferral is necessary due to asbestos, occupant must provide documentation that a certified professional performed the remediation before work continues.

E7.4.b. Testing

i. Visual inspection to assess whether suspected ACMs are present.

E7.4.c. Client Education

i. Instruct clients in writing not to disturb suspected ACM.

ii. Provide asbestos safety information to the client.

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

E7.4.d. Training

i. Auditors/QCI: BPI HHE Certification

ii. Field Technicians: IWTC HHT course which includes training on how to identify and safely work near suspected ACM

E7.5. Biologicals and Unsanitary Conditions

Odors, Bacteria, Viruses, Raw Sewage, Rotting Wood, etc.

E7.5.a. Action/Allowability

i. Remediation of conditions that may lead to biological concerns or unsanitary conditions is allowed but limited to $100 in materials and labor.

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

iii. Deferral may be necessary in cases where conditions in the home pose a health risk to occupants and/or weatherization workers.

iv. See *E7.16 Mold and Moisture* section for more information.

E7.5.b. Testing

i. Sensory inspection.

E7.5.c. Client Education

i. Inform client in writing of observed conditions.

ii. Provide information on how to maintain a sanitary home.

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

E7.5.d. Training

i. Auditors/QCI: BPI HHE Certification

ii. Field Technicians: IWTC HHT course which includes training on how to identify and safely work near suspected ACM

E7.6. **Building Structure and Roofing**

E7.6.a. Action/Allowability

i. Roof repairs are allowable as a HSM if:

1. It resolves a bulk water intrusion issue that is the cause of visible biological growth, and
2. The roof repair is well documented with written explanation and photos of the biological growth in the client file.

ii. Major roof repair, and building rehabilitation is beyond the scope of the Weatherization Assistance Program.

iii. Homes that require more than minor repairs must be deferred.

iv. See *E7.16 Mold and Moisture*, *E7.7 Code Compliance*, and *E7.18 Pests* sections for more information.

E7.6.b. Testing

i. Visual inspection.

ii. Ensure that access to the portions of the home where weatherization will occur are safe for entry and performance of assessments, work, and inspections.

E7.6.c. Client Education

i. Notify client in writing of structurally compromised areas.

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

E7.6.d. Training

i. Auditors/QCI: BPI HHE Certification

ii. Field Technicians: IWTC HHT course which includes training on how to identify structural and roofing issues.

E7.7. **Code Compliance**

E7.7.a. Action/Allowability

i. 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.

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

iii. Follow State and local or Authority Having Jurisdiction codes while installing weatherization measures, including H&S measures.

iv. Condemned properties and properties where “red tagged” H&S conditions exist that cannot be corrected under this guidance must be deferred.

v. Gas Appliances in Hazardous or Prohibited Locations: Gas fired appliances shall not be located in sleeping rooms, bathrooms, toilet rooms or in a space that opens into such rooms or spaces unless the appliance is a sealed combustion or Direct vent appliance, or the appliance meets one of the Exceptions listed in Section 4.4 of the Dominion Energy Good Practices Guide. Correcting preexisting issues with Gas Appliances in Prohibited Locations is an allowable HSM as long as there is one or more ECM's as part of the scope of work. The following corrective actions are allowable: Replace natural draft water heater with Direct Vent water heater, move appliance(s) to an approved location, build a wall and/or add a door to remove appliance(s) from prohibited location (make sure conditions after repair will meet the requirements of the Good Practices Guide).

E7.7.b. Testing

i. Visual inspection.

E7.7.c. Client Education

i. Inform client in writing of observed code compliance issues when it results in a deferral.

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

E7.7.d. Training

i. Auditors/QCI: BPI HHE certification which includes training on how to determine what code compliance may be required.

E7.8. **Combustion Gases**

E7.8.a. Action/Allowability

i. Adequate Combustion Air, and proper venting to the outside for combustion appliances; including gas dryers and refrigerators, furnaces, vented space heaters and water heaters is required.

ii. Appliance CO must be below the BPI 1200 Standard's Threshold Limit for Fossil-Fuel Fired Combustion Appliances.

iii. Correct venting, High CO, and combustion air issues when testing indicates a problem. Addressing preexisting venting and combustion air issues is an allowable HSM when the issue will be exacerbated by weatherization and there is one or more ECM's that are part of the scope of work.

iv. Furnace Repair and replacement for Combustion Gas Safety: see *E7.1 Air Conditioning and Heating Systems*/Units

v. Water Heater Replacement: Replacement of a natural draft water heater with a direct vent water heater is an allowable HSM when the existing water heater no longer drafts due to weatherization activities. For Water Heaters in Prohibited Locations see *E7.7 Code Compliance*.

vi. Other Appliances Replacement: If unsafe conditions whose remediation is necessary to perform weatherization, or is a result of weatherization, cannot be remedied by repair or tuning, replacement is an allowable HSM unless prevented by other guidance herein.

vii. When a combustion appliance is replaced as an HSM the agency must maintain documentation justifying the replacement with a cost comparison between replacement and repair in the client file.

viii. Replacement units must meet manufacturers safety guidelines and BPI 1200 standards.

ix. Un-vented combustion space heaters will be addressed in accordance with DOE Weatherization Program Notice 8-4

x. See *E7.1 Air Conditioning and Heating Systems*/Units section and WAP WPN 17-7 Attachment A for more information.

xi. Combustion appliances in unapproved or prohibited locations should follow *E7.7 Code Compliance*

E7.8.b. Testing

i. Combustion safety testing is required when combustion appliances are present.

ii. Worst Case Draft Test (WCDT): Test naturally drafting appliances (and any appliances that share a flue with naturally drafting appliances per BPI-1200 standard) for spillage and CO during CAZ depressurization testing pre- and post-weatherization and before leaving the home on any day when work has been done that could affect draft (e.g., tightening the home, adding exhaust). Use Attachment 9 Worst Case Draft Test form or equivalent, and place copies of all WCDT's in the client file.

iii. Inspect venting of combustion appliances and confirm adequate vent operation and clearances.

iv. Inspect and verify adequate Combustion Air is available for combustion appliances per Questar Good Practices Guide. Auditor's should calculate combustion air for any appliance which is not installed as a direct vent appliance. The calculation should be documented in the client file.

v. On forced-air heating systems, test for presence of Carbon Monoxide in supply air and inspect heat exchanger(s) for cracks and combustion leakage into supply air.

vi. Check DOE-approved audit to determine if the appliance can be justified as an ECM prior to replacement as an H&S measure.

vii. Identify and address any non-vented space heaters

viii. Identify possible dangers in the home where the client's sleeping arrangements might create a code conflict with the location of combustion appliances.

ix. When testing identifies an immediate risk to the occupants, the agency shall take immediate action to mitigate the risk per *E6.4 Life Threatening Hazards—Immediate Response*

E7.8.c. Client Education

i. Provide client with combustion safety and hazards information.

E7.8.d. Training

i. Auditors/QCI: BPI Energy Auditor or BPI QCI certifications

ii. Field Technician (if conducting WCDT): Worst Case CAZ depressurization test Training which includes training on how to perform appropriate testing, determine when a building is excessively depressurized, and the difference between air free and as-measured CO, and BPI 1200 CO action levels.

E7.9. **Electrical**

E7.9.a. Action/Allowability

i. When the H&S of the occupant/worker(s) is at risk, minor repairs per *E3.3.a*, are allowed as an HSM when necessary for weatherization measures.

ii. Knob & Tube mitigation or other Major electrical repairs necessary for weatherization measures shall be addressed as an IRM and is not an allowable H&S measure. Knob & Tube guidance is located in Section *B8.30.*

iii. If Knob & Tube or other major repairs are not cost effective as an IRM follow the measure removal process in *B9.5.c.v*. If the repairs are preventing more than 15 MMBtu's in energy savings, the job should be deferred until another funding source can be identified to address the problem.

E7.9.b. Testing

i. Visual inspection for presence and condition of knob-and-tube wiring.

ii. Check for alterations that may create an electrical hazard.

iii. Voltage drop and voltage detection testing are allowed.

iv. Use of a licensed electrician who can determine code compliance

E7.9.c. Client Education

i. When electrical issues are the cause of a deferral, provide information to client on over-current protection, overloading circuits, and basic electrical safety/risks.

E7.9.d. Training

i. Auditors/QCI: BPI HHE Certification which includes How to identify electrical hazards.

ii. Electrician: Must hold an E200 Utah Electrical Contractors License

E7.10. **Formaldehyde, VOCs, Flammables and other Pollutants**

E7.10.a. Action/Allowability

i. Removal of pollutants is allowed and is required if they pose a risk to workers and if they are not hazardous waste.

ii. If pollutants pose a risk to workers and removal costs are not reasonable, removal cannot be performed or is not allowed by the client, the unit must be deferred.

iii. Refer to *E7.13 Hazardous Materials Disposal* section for more information.

E7.10.b. Testing

i. Sensory inspection.

E7.10.c. Client Education

i. Inform client in writing of observed hazardous condition and associated risks.

ii. Provide client written materials on safety issues and proper disposal of household pollutants.

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

E7.10.d. Training

i. Auditors/QCI: BPI HHE Certification

ii. Field Technicians: IWTC HHT course which includes training on how to recognize potential hazards and when removal is necessary.

E7.11. **Fuel Leaks**

E7.11.a. Action/Allowability

i. When a minor gas leak is found on the utility side of service, the utility service must be contacted before work may proceed.

ii. Fuel leaks that are on the clients side of the meter (vs. the utility) which can be addressed as a minor repair per *E3.3.a* must be repaired before weatherizing a unit. Addressing a preexisting fuel leak is an allowable HSM when there is one or more ECM's that are part of the scope of work. Major repairs are beyond the scope of weatherization.

iii. Notify utilities and temporarily halt work when leaks are discovered that are the responsibility of the utility to address.

E7.11.b. Testing

i. Test exposed gas lines with a combustible gas detector for fuel leaks from utility coupling into, and throughout, the home.

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

E7.11.c. Client Education

i. Inform clients in writing if fuel leaks are detected.

ii. Client Education must Follow BPI 1200 Standard's Required actions in Response to Ambient CO Measurements

E7.11.d. Training

i. Auditors/QCI: BPI Energy Auditor or BPI QCI Certification and Rocky Mountain Gas Association (RMGA) certification

ii. Field Technicians: IWTC HHT course which includes training on Fuel gas safety.

E7.12. **Gas Ovens /Stovetops/Ranges**

E7.12.a. Action/Allowability

i. When testing indicates a problem, entities may perform standard maintenance on or repair gas cooktops and ovens.

ii. Replacement is not allowed as an HSM.

iii. If weatherization will exacerbate the problem and replacement is not possible via other funding sources the job must be deferred.

E7.12.b. Testing

i. Test gas ovens for CO levels per BPI 1200 Standard.

ii. Inspect cooking burners and ovens for operability and flame quality.

E7.12.c. Client Education

i. Inform clients of the importance of using exhaust ventilation when cooking and the importance of keeping burners clean to limit the production of CO.

E7.12.d. Training

i. Auditors/QCI: BPI Energy Auditor, or QCI and HHE Certification

ii. Field Technicians: IWTC HHT course which includes training on Combustion appliance safe work practices and BPI 1200 CO actions levels

E7.13. **Hazardous Materials Disposal**

Refrigerant, Asbestos, Lead, Mercury, including CFLs/Fluorescents

E7.13.a. Action/Allowability

i. 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.

ii. Agencies must maintain all documentation required by local laws, regulations and/or federal guidelines. Language requiring proper disposal requirements and documentation must be in contract language with subcontractors.

iii. Refer to Lead and Asbestos sections for more information on those topics.

E7.13.b. Testing

i. Not applicable.

ii. Refer to *E7.15 Lead Based Paint* and *E7.2*, *E7.3*, & *E7.4* Asbestos sections for more information on those topics.

E7.13.c. Client Education

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

E7.13.d. Training

i. Auditors/QCI: BPI HHE Certification

ii. Field Technicians: IWTC HHT course which includes training on working with Hazardous materials; appropriate Personal Protective Equipment (PPE) for working with hazardous waste materials; disposal requirements and locations; and Health and environmental risks related to hazardous materials.

E7.14. Injury Prevention

--of Occupants and Weatherization Workers -- Repairing Stairs, Replacing Handrails, etc.

E7.14.a. Action/Allowability

i. When necessary to effectively weatherize the home, workers may make Minor Repairs and installations, to prevent injury of occupants and/or weatherization workers.

ii. If the cost to make the injury prevention repair or installation is beyond a minor repair per *E3.3.a*, the ECM(s) that triggered the HSM for Injury Prevention must be deferred. If removal of the ECM(s) reduces the estimated energy saved by more than 15 MMBtu's the agency should defer the entire weatherization job until another funding source can be found to pay for the Injury Prevention repairs.

E7.14.b. Testing

i. Inspect for dangers that would prevent weatherization.

E7.14.c. Client Education

i. If conditions will not be repaired, inform client in writing of observed hazards and associated risks.

E7.14.d. Training

i. Auditors/QCI: BPI HHE Certification

ii. Field Technicians: IWTC HHT course which includes training on Hazard identification.

E7.15. **Lead Based Paint**

E7.15.a. Action/Allowability

i. Agencies must follow EPA's Lead Safe Renovation, Repair and Painting Rule (RRP) when working in pre-1978 housing (see rule in 40 CFR 744 Subpart E).

ii. Lead testing on pre-1978 homes is an allowable HSM. Lead Safe RRP work for ECM's shall always be an HSM charged to Health & Safety. Lead Safe RRP work for NAM's must be included in the cost of the NAM and cannot be charged to Health & Safety.

iii. Deferral is required when the extent and condition of lead-based paint in the house would potentially create further H&S hazards. Hiring a Lead Risk Assessor to help make this determination is allowable (see *E7.15.b.v* Testing below).

iv. Only those costs directly associated with the testing and Lead Safe RRP practices for surfaces directly disturbed during weatherization activities are allowable HSM's.

v. Workers shall follow OSHA standards for PPE for Lead Safe RRP work. Costs for PPE for Lead Safe RRP are allowable H&S expenses.

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

vii. Documentation in the client file must include Certified Renovator certification; any training provided on-site; description of specific actions taken; lead testing and assessment documentation; and, photos of site and containment set up. This shall be documented using Attachment #28 RRP Declaration and Checklist

E7.15.b. Testing

i. Testing to determine the presence of lead in paint that will be disturbed by WAP measure installation is required on all pre-1978 housing.

ii. This testing will be conducted with X-Ray Fluorescence (XRF) devices with a current calibration certification and leak test.

iii. Lead testing results shall be recorded using software reports provided by the XRF manufacturer or other agency created form. Testing results shall include: client information, location each test was taken, and the positive or negative results of each building component tested. A copy of testing results shall be kept in the client file.

iv. Agencies will develop an internal process to ensure once a positive result is found that every person working on that job is aware of the presence and location of lead. This process will ensure that both the client and the worker are protected.

v. Agencies are not required to conduct a Lead Inspection (R307-842-3(2)), Hazard Screen (R307-842-3(3)), Risk Assessment R307-842-3(4)). As defined by Utah Administrative Code. Since these defined inspections/testing would not ensure the sampling of areas where weatherization activities would be conducted. Hiring a third party to conduct a Lead Inspection and/or Hazard Screen when it is suspected that the extent and condition of lead-based paint in the house would potentially create further H&S hazards is allowable.

vi. Agencies are responsible to ensure crews and contractors are using lead safe work practices. Lead safe work practices shall be verified using required photographic documentation along with work in-progress verification. State WAP personnel will also verify that agencies are using lead safe work practices as part of its annual monitoring.

E7.15.c. Client Education

i. Agencies must Follow Information distribution requirements of EPA's RRP (see 40 CFR 745.84 Subpart E) to ensure that the Owner and/Occupants have received EPA's Renovate Right pamphlet and obtain written acknowledgment that the pamphlet was delivered.

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

E7.15.d. Training

i. Lead Inspector: A person conducting a Lead inspection will be licensed by the State of Utah DEQ as a Utah Lead-Based Paint Inspector (R307-842-2).

ii. All sub-grantees will retain qualified staff or contractors who hold current RRP Certifications pursuant to Utah Annotated Code R307-841-8(1) and R307-842-2.

iii. All sub-grantees and any contractors they employ to conduct RRP are required to be certified as a Lead Renovator Firm; regulated by the Utah Department of Environmental Quality (DEQ) pursuant to Utah Annotated Code R307-842.2(5)

iv. All employees and contractors working on pre-1978 homes must either, be an EPA Certified Lead Renovator, or receive training to install measures in a lead-safe manner in accordance with the SWS and EPA protocols, and installation must be overseen by an EPA Certified Lead Renovator.

v. State Monitors: must be EPA Certified Lead Renovators.

E7.16. **Mold and Moisture**

Including but not limited to: drainage, gutters, down spouts, extensions, flashing, sump pumps, dehumidifiers, landscape, leaking roofs, vapor retarders, moisture barriers, etc.

E7.16.a. Action/Allowability

i. Limited water damage repairs that can be addressed by weatherization workers are allowed HSM's when necessary in order to weatherize the home and to ensure the long-term stability and durability of the measures.

ii. Source control (i.e. correction of moisture and mold creating conditions) is allowed as an HSM when necessary in order to weatherize the home and to ensure the long-term stability and durability of the measures. Source control is independent of latent damage and related repairs.

1. Clothes Dryer and Exhaust Fans: Must vent to the outdoors. Venting installation or Repair is an allowable HSM.
2. Vapor Barrier: Whenever site conditions permit, Install a vapor barrier over exposed dirt floors to prevent water vapor from migrating out of the soil and into building materials and building cavities.

iii. Water damage repairs and Source control shall not exceed the cost limits of a minor repair per *E3.1*.

iv. Where severe Mold and Moisture issues cannot be addressed, deferral is required.

v. Mold cleanup is not an allowable HSM.

vi. 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.

vii. Identification of existing or potential moisture problems shall be documented on H&S Form 1.

E7.16.b. Testing

i. Visual assessment including exterior drainage.

ii. Diagnostics such as moisture meters are allowed pre-weatherization and at the final inspection.

iii. Mold testing is not an allowable cost.

E7.16.c. Client Education

i. Provide client with EPA pamphlet 402-K-02-003, A Brief Guide to Mold, Moisture, and Your Home, which includes information on importance of cleaning and maintaining drainage systems, proper landscape design and how this impacts site drainage and moisture control.

ii. Mold & Moisture problems found must be pointed out and discussed with the client.

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

E7.16.d. Training

i. Auditors/QCI: BPI HHE Certification

ii. Field Technicians: IWTC HHT course which includes training on Dampness and Mold Growth

E7.17. **Occupant Pre-existing or Potential Health Conditions**

E7.17.a. Action/Allowability

i. When a person's health may be at risk and/or WAP work activities could constitute an H&S hazard, the occupant will be required to take appropriate action based on severity of risk.

ii. Failure or the inability to take appropriate actions must result in deferral.

E7.17.b. Testing

i. Clients shall complete the Applicant Health & Safety Evaluation (Attachment 20) prior to, or during the Energy Audit.

ii. Agencies shall use the Applicant H&S evaluation (Attachment 20), and A07 Health & Safety Assessment together to screen occupants to reveal known or suspected health concerns as part of initial application for weatherization, and during the audit.

iii. Caution shall be used to ensure screening process does not require or collect any Protected health information under HIPPA.

E7.17.c. Client Education

i. Inform client in writing of any known risks.

ii. Provide client with Agency point of contact information in writing so client can inform of any issues.

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

E7.17.d. Training

i. Energy Auditor: How to assess occupant preexisting conditions and determine what action to take if the home is not deferred.

ii. Auditors/QCI: BPI HHE Certification

iii. Field Technicians: IWTC HHT course which includes training on potential hazards and allowable actions.

E7.18. **Pests**

E7.18.a. Action/Allowability

i. Minor pest problems that can be addressed with a bug bomb or hornet spray that allow work to proceed are allowable—Limit of $100 in materials and labor.

ii. Infestation of pests beyond a minor pest problem shall be cause for deferral where it cannot be reasonably removed or poses H&S concern for workers.

E7.18.b. Testing

i. Assessment of presence and degree of infestation and risk to worker.

E7.18.c. Client Education

i. Inform client in writing of observed condition and associated risks.

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

E7.18.d. Training

i. Auditors/QCI: BPI HHE Certification which includes training on how to assess presence and degree of infestation, associated risks, and deferral policy.

ii. Field Technicians: IWTC HHT course which includes training on pest infestation and control

E7.19. **Radon**

E7.19.a. Action/Allowability

i. Radon mitigation is not an allowable H&S cost.

ii. Clients must sign an informed consent form prior to receiving weatherization services. This form must be kept in the client file.

iii. Radon Precautionary Measures: Since every county in Utah is in radon Zone 1 or 2, work scope should include the precautionary measures below which are based on EPA Healthy Indoor Environment Protocols for Home Energy Upgrades, to reduce the possibility of making radon issues worse:

1. Vapor Barrier: Whenever site conditions permit, Install a vapor barrier over exposed dirt floors to prevent radon from migrating out of the soil and into the building.
2. Other precautions may include, but are not limited to, sealing any observed floor and/or foundation penetrations, including open sump pits, isolating the basement from the conditioned space, and ensuring crawl space venting is installed.

E7.19.b. Testing

i. Radon testing is allowed on a case-by-case basis with written permission from state WAP.

E7.19.c. Client Education

i. Provide all clients EPA's A Citizen's Guide to Radon and inform them of radon related risks.

ii. Attachment 20: Radon Informed consent form must signed by the client and a copy included in the client file

E7.19.d. Training

i. Auditors/QCI: BPI HHE Certification which includes training on radon, what it is and how it occurs, including what factors may make radon worse, and precautionary measures that may be helpful.

ii. Field Technicians: IWTC HHT course which includes training on radon, what it is and how it occurs.

iii. Field Technicians: must be trained in proper vapor retarder installation.

iv. A zonal map can be located at http://www.epa.gov/radon/pdfs/zonemapcolor.pdf

E7.20. **Safety Devices: Smoke and Carbon Monoxide Alarms**

E7.20.a. Action/Allowability

i. Smoke Alarms shall be installed where alarms are not present or are inoperable. There should be 1 detector on each habitable level, and at least 1 detector in each sleeping room and each hallway or space immediately adjacent to a sleeping room. Smoke alarms must be, installed in accordance with the manufacturer's recommendations, listed in accordance with UL 217, comply with NFPA 72

ii. CO Alarms must be installed on each habitable level where alarms are not present, are inoperable. Alarms should be placed in the immediate vicinity of all sleeping areas. CO Alarms shall also be installed in the CAZ of Fireplace(s) in homes where the Fireplace is the primary source of heat.

1. To be eligible for Thermwise air-sealing rebates, CO alarms shall:

a. UL listed to ANSI/UL 2034-09
b. Include an electrochemical sensor
c. Be powered by long-life lithium type battery
d. Include a digital readout that automatically displays the current CO level detected when an alarm signal is activated
e. Include a data feature which is activated when the test/reset or memory button is pressed, and the readout shall include the current CO level detected down to 10 parts per million (ppm), the highest level detected down to 10 ppm, and for how long the peak level was detected
f. Battery shall be factory pre-installed within a compartment which has a separate battery door that is locked closed with a tamper-resistant screw
g. Battery compartment shall not be accessible without removing alarm from its mounting

iii. Fire extinguishers may NOT be provided as part of weatherization.

E7.20.b. Testing

i. Check existing alarms for operation.

ii. Verify operation of newly installed alarms.

E7.20.c. Client Education

i. Provide client with verbal and written information on how to operate, test and maintain devices installed.

E7.20.d. Training

i. Auditors/QCI: BPI HHE Certification

ii. Field Technicians: IWTC HHT course which includes training on where to install alarms and local code compliance.

E7.21. **Ventilation and Indoor Air Quality**

E7.21.a. Action/Allowability

i. Every home weatherized must meet ASHRAE 62.2-2016 ventilation requirements. Mechanical ventilation for ASHRAE 62.2-2016 shall be installed as a HSM. All costs associated with ASHRAE 62.2 compliance are allowable H&S expenses.

ii. When an existing fan is being replaced or upgraded to meet whole-house ventilation requirements, agencies must take actions to prevent zonal pressure differences greater than 3 Pascal across the closed door, if one exists.

iii. Local exhaust ventilation may be installed or repaired as an HSM to decrease ASHRAE Local Exhaust deficit or for moisture control.

iv. Positive or Neutral ASHRAE ventilation: To prevent pollutants from being drawn in to the building, positive or neutral pressure is required for ASHRAE continuous dwelling-unit ventilation when: there is a partial or missing vapor barrier; or there is vermiculite in the attic, or ACM or suspected ACM which could be drawn into the building under negative pressure.

v. The ASHRAE 62.2 standard will not be applied to homes that are not supplied with commercial power with written approval from the State WAP

vi. In units that are heated solely with solid fuel agencies will implement ASHRAE 62.2 standards to the fullest extent possible without endangering the clients. This may require a supply or balanced system installation.

vii. Client refusal of mechanical ventilation, when evaluated and called for pursuant to the ASHRAE 62.2 Standard, must result in deferral of the job.

viii. Clothes Dryer and Exhaust Fans: Must vent to the outdoors. Venting installation or Repair is an allowable HSM.

E7.21.b. Testing

i. An ASHRAE 62.2 evaluation to estimate required ventilation, and to formulate a compliance strategy, shall be conducted during the energy audit, and documented on Attachment 22 ASHRAE Calculator or approved alternate.

ii. An ASHRAE 62.2 final calculation and evaluation to determine required ventilation shall be conducted upon completion of all measures that effect building ventilation, and documented on Attachment 22 ASHRAE Calculator or approved alternate.

iii. Measure and document fan flow of existing fans and of installed equipment to verify performance.

iv. Measure zonal pressure difference across a closed door where an existing fan is replaced to meet whole-house ventilation requirements.

E7.21.c. Client Education

i. Provide client with information on function, use, and maintenance (including location of service switch and cleaning instructions) of ventilation system and components.

ii. Provide client with equipment manuals for installed equipment.

iii. Include disclaimer that ASHRAE 62.2 does not account for high polluting sources or guarantee indoor air quality.

E7.21.d. Training

i. Auditor/QCI/Field Technician: ASHRAE 62.2 training, including proper sizing, evaluation of existing and new systems.

E7.22. **Window and Door Replacement, Window Guards**

E7.22.a. Action/Allowability

i. Replacement, repair, or installation is not an allowable HSM. See *B8.8*, & *B8.9* for guidance on window repair/replacement options as an ECM or NAM.

E7.22.b. Testing

i. Not applicable

E7.22.c. Client Education

i. Provide written information on lead risks wherever issues are identified.

E7.22.d. Training

i. Auditor/QCI: Awareness of guidance.

E7.23. **Worker Safety**

E7.23.a. Action/Allowability

i. Workers must follow OSHA standards and take precautions to ensure the H&S of themselves and other workers.

ii. **Worker Safety Program:** Each agency shall develop a Worker Safety program that contains policies and procedures to ensure a safe working environment for their employees. At a minimum the program shall contain the provisions of this Worker Safety section.

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

iv. **Personnel Protective Equipment (PPE):** Workers must wear appropriate PPE in all operations where there is exposure to hazardous conditions. The cost to provide PPE is an allowable Health & Safety expenditure. Minimum PPE includes: appropriate eye, respiratory, and hearing protection; gloves; ground fault protection; and fall protection equipment. Weatherization vehicles should be equipped with a first aid kit, fire extinguisher, and warning triangles.

v. **Confined Spaces:** Agencies are required to comply with OSHA requirements for confined spaces, per the DOE WAP Memorandum 013. A Confined Space is a space which is: large enough and so configured that an employee can enter, has limited or restricted means of entry and exit, and is not designed for continuous employee occupancy. In addition to the OSHA standard, spaces with openings less than 18" x 22", and areas with a clear height less than 18" or a clear width less than 24" shall be considered "non-accessible" for the purpose of weatherization activities. If a worker is not physically able to fit through these dimensions they should not be required to do so.

E7.23.b. Testing

i. Energy Auditors shall conduct a Health & Safety evaluation of each dwelling to identify and address any potential Worker Safety hazards

ii. Agencies are responsible to ensure workers and contractors wear appropriate PPE and follow safe work practices.

iii. Agencies shall conduct quarterly on-site safety inspections. Inspection documentation shall include: date, time, and location, names of field staff on site, any deficiencies & corrective action taken. Documentation shall be made available for review during Annual Monitoring.

iv. State WAP shall verify that Agencies crews and contractors follow safe work practices at least annually as part of its production monitoring. Safe work practices will be verified through documentation of required training meetings along with occasional work in-progress verification.

E7.23.c. Client Education

i. Not applicable.

E7.23.d. Training

i. ALL: Use and importance of PPE.

ii. All: **OSHA 10 Certification:** All agency Field Staff (which includes persons with any of the following job responsibilities: energy auditor, weatherization technician, HVAC technician, final inspector, production manager, or crew chief), shall obtain the OSHA Construction Industry 10 hour certification within 30 from date of hire.

iii. **OSHA 30 Certification:** Each agency shall have at least 1 person with the OSHA Construction Industry 30 hour certification.

iv. All: **Quarterly Agency Safety Training:** Each agency shall conduct safety training at least quarterly. Trainings should regularly cover Confined Space training and the OSHA "Focus Four Hazards" which are: Fall protection, caught in or between, struck by, and electrocution. Training agendas and sign-in sheets or certificates of attendance shall be retained for review during Annual Monitoring.

v. All: **Confined Space Training:** Agencies are responsible to establish a Confined Space training program that meets the requirements of OSHA publication 3825-09 "Protecting Construction Workers in Confined Spaces: Small Entity Compliance Guide." The Confined Space training program will include the development, training, and implementation of a Confined Space Permit process. The training and permitting will also apply to agency contractors. The agency will have the roles of both Host Employer and Controlling Contractor when using a sub-contractor that enters a confined space on a Weatherization or Crisis Service Call project.