DEPARTMENT OF PUBLIC HEALTH & HUMAN SERVICES

Montana Department of Public Health and Human Services

Weatherization Assistance Program

POLICY MANUAL

2025 - 2026

MONTANA WEATHERIZATION Assistance Program

Contents

INTRODUCTION

Weatherization is the science of improving the energy efficiency of a dwelling. The benefits of weatherization may include reduced energy consumption, reduced energy costs, and increased comfort and durability of the dwelling. Montana DPHHS does not guarantee that any weatherization improvement to a dwelling will result in cost savings to the dwelling occupant or owner or will provide any other benefit to the dwelling occupant or owner.

Guiding Principles of Montana Weatherization Program:

- Weatherization implements energy-saving measures with a Savings-to-Investment Ratio (SIR) of 1.0 or greater.
- Weatherization improves ventilation to enable clients to control moisture and pollutants in the home that may be exacerbated by air-sealing.
- Weatherization implements mandatory health and safety measures and weatherization-related health and safety measures that are necessary to install energy efficiency measures to provide a safe workplace and/or to protect clients.
- Weatherization does not bring entire homes up to “code”, but the measures implemented must comply with applicable codes.
- Measures provided must remain in the home. Measures may not be sold, bartered, or given away during their useful life.
- Sub-grantees are responsible for complying with manufacturer guidelines, and federal, state, and local jurisdiction.
- No matter the condition of the existing home, all work will be performed in a professional and quality manner.
- Weatherization does not finish new construction.
- Weatherization is not a home maintenance or rehabilitation program.
- Weatherization is not a preventative program, meaning it does not replace components simply because they are old.
- Weatherization is not an emergency service program.

The Weatherization Policy Manual is updated annually in conjunction with the Low-Income Weatherization Assistance Program Administrative Rules of Montana (ARM). Policy Bulletins are provided when policies change during the program year.

Prudent Person Principle: The policies and procedures included in the Weatherization Policy Manual are rules for administering the program. It is impossible to foresee and give examples for all situations; therefore, the staff is encouraged to use reason and apply good judgment in making decisions when addressing the specific needs and requests of a household or an unusual situation. Decision-making by staff based on the best information available, program knowledge, experience, and expertise in a particular situation is referred to as the Prudent Person Principle. Prudence may also include discussing specific policy interpretation with the subgrantee’s monitor.

Chapter 1 ELIGIBILITY

1000 Eligibility

All households found to be eligible for the Low-Income Home Energy Assistance Program (LIHEAP), whose homes have not been previously weatherized, are income-eligible for Weatherization services

A household that is otherwise LIHEAP eligible but does not meet the LIHEAP income eligibility may be eligible for "Weatherization Only" services. To be eligible, an otherwise "LIHEAP qualified" household whose income is **no** more than 200% of the Federal Poverty Level (FPL). would be eligible for "Weatherization Only" services if their home has not been previously weatherized.

Note: To be income eligible for LIHEAP the household income for households with one to eight members must be at or below 60% of the state median income. For households of nine or more members, income must be at or below 150% of the FPL.

All households must complete an application for services and renew annually. Applications are only accepted during the LIHEAP heating season, October 1 through April 30, with applications for early fuel accepted beginning September 1 of each year.

Eligibility determination between heating seasons:
Applications are available all year for weatherization services.

When determining eligibility for weatherization during the LIHEAP non-heating season (May 1-September 30) Sub-grantees must follow the eligibility guidelines for the LIHEAP.

1. Tribal weatherization households must be determined eligible for the Tribal Low-Income Home Energy Assistance Program or in accordance with the DOE-approved state plan as if the applicant had applied during the Tribal heating season. Tribal Indian Households are defined in the Memorandum of Understanding (MOU) between the State of Montana and the Tribe residing within the boundaries of the reservation. Indian households on the reservation may be eligible for weatherization through the Department.
2. Sub-grantees must determine the priority for weatherization-only applicants who apply during the non-heating season unless a primary heating or water system emergency exists.

1100 Priority for Weatherization Services

Households must be LIHEAP or "Weatherization Only" eligible to receive weatherization services. Households must be on the priority list supplied by the Department, or the Sub-grantee must determine the weatherization priority. In determining which eligible

households will receive weatherization services and in what order, households in each of the governor's substate planning districts will be ranked according to priority according to the following:

1. In determining which eligible households will receive weatherization services and in what order, priority for weatherization services shall be:
    a. a household with a primary space heat or primary water heater emergency, may be moved the top of the priority list. Emergency must be documented in the client file.
    b. an elderly household member; or
    c. a disabled household member; or
    d. a household with a member who is a child.
    e. If there exists a weatherization-related imminent threat to the health or safety of an eligible household, the home may be given a higher priority. It is the obligation of the household to provide proof of an imminent threat to the health or safety of the household to the local contractor. The local contractor must have documentation of the weatherization related imminent threat to the health or safety of the household in the client file.

2. Giving Preference to Clients:

Local Sub-grantees may give preference for weatherization services to households meeting two or more of the priority criteria listed (e.g. elderly + persons with disabilities). Additionally:

- Sub-grantees that provide weatherization services for Tribal clients must use the information provided by the Tribal Low-Income Energy Assistance Program to determine the priority for weatherization services.
- Sub-grantees must prioritize the weatherization of dwellings based upon the same factors as listed above.
- Households can apply for summer weatherization-only services during the non-LIHEAP heating season (May 1 – September 30). These households will not be reflected on the Department-generated priority list, but the Sub-grantee must determine the weatherization priority based on the same factors as listed above. See example below.

Note: If the household is applying with a primary space heat or primary water heat emergency, they may or may not be on the current priority list.

Example: A household with a member who has a disability has an annual energy consumption of $2,500 with an annual income of $12,000.

Annual Energy Consumption x 1.25 multiplier for the household member with a disability.

- $2,500 x 1.25 = $3,125

Annual Energy Consumption ÷ Annual Income = Energy Burden

- $3,125 ÷ $12,000 = .26 = 26%

26% is the household's energy burden. The household would receive the priority number just after the household with a 27% energy burden.

The Sub-grantee then must compare the calculated priority number to the Department generated priority list to determine when the household will be weatherized. Assign the corresponding priority number to the household.

1. Determine if the household was previously weatherized.
    a. A dwelling is not eligible for re-weatherization services funded with DOE funds if the dwelling has been weatherized within fifteen years following the date of the previous weatherization completion.
    b. A dwelling is not eligible for re-weatherization services funded with LIHEAP and NorthWestern Energy (NWE) funds if the dwelling has been weatherized within five years following the date of the previous weatherization completion.
    c. The Bonneville Power Administration (BPA) weatherization program does not have a re-weatherization date.

2. A household on the priority list will remain eligible for weatherization services until the new priority list is generated by the Department or Sub-grantee. The Priority List may be generated anytime during the program year through CHIMES Reports. Households must be weatherized in order of priority.
3. Sub-grantees can move a household's weatherization priority up based on other factors:
    a. an emergency,
    b. contract considerations (e.g., contract term dates, budget constraints)
    c. travel considerations (e.g., Sub-grantee's next weatherization project is out of town; another dwelling in the area with a lower priority number could also be weatherized during the same time to save on travel costs),
    d. utilizing utility funding on a weatherization project

Priority for weatherization on Tribal reservations will be based upon such factors
1. In determining which eligible households will receive weatherization services and in what order, priority for weatherization services shall be:
    a. a household with a primary space heat or primary water heater emergency, may be moved the top of the priority list. Emergency must be documented in the client file.
    b. an elderly household member;
    c. a disabled household member; or
    d. a household with a member who is a child.

e. If there exists a weatherization-related imminent threat to the health or safety of an eligible household, the home may be given a higher. It is the obligation of the household to provide proof of an imminent threat to the health or safety of the household to the local contractor. The local contractor must have documentation of the weatherization related imminent threat to the health or safety of the household in the client file.

2. Giving Preference to Clients:

Local Sub-grantees may give preference for weatherization services to households meeting two or more of the priority criteria listed (e.g. elderly + persons with disabilities).

1200 Eligible Dwellings

Sub-grantees will perform weatherization services on single-family dwellings where the occupants (owners or renters) have been determined eligible for the LIHEAP or weatherization programs. Eligible dwellings will be prioritized for weatherization as found in WAP 1100.

Multi-family Dwellings:

Sub-grantees may weatherize multi-family dwelling units from the weatherization priority list if not less than 66% (50% for duplexes and four-unit buildings and certain eligible types of large multifamily buildings) of the dwellings in the building are eligible dwelling units. Each dwelling unit should be entered as a separate audit in the Computerized Energy Audit (CEA).

Note: Sub-grantees must receive permission from the Department to weatherize buildings larger than four (4) units. Departmental approval is required for Sub-grantee-owned dwellings.

Note: Montana DEQ Asbestos Control Program sampling requirements apply to dwellings with more than 4 units, even if only a single unit is being weatherized.

A single dwelling unit within a multi-family building:
A single-family unit within a multi-family building can only be weatherized in consultation with the Department of Energy's Project Officer in instances where the following conditions are met:

- The unit is self-contained, without sharing an attic or basement with adjacent units, and has its own individual heating and cooling systems, and water.
- The unit has been audited with a current, approved energy audit tool and protocol that can adequately address a single unit within a larger structure, and
- The scope of work is specific to allowable measures within the eligible unit(s).

Sub-grantee Owned Dwellings:
All Sub-grantee-owned dwelling units to be weatherized require department oversight and pre-approval to ensure that no conflict of interest is present. The Department will review eligibility and approve weatherization measures before work is done.

1. The Department will review the LIHEAP application of tenants in Sub-grantee-owned dwellings to verify weatherization eligibility.
2. Once weatherization eligibility is confirmed, the department will review and approve the proposed weatherization measures. Documentation of approval will be provided via the pre-approval process already established in CDS Energy Audit. The pre-approval reason is “Sub-grantee Owned Dwelling”.

Note: The tenants will not be subject to rent increases unless those increases are clearly related to matters other than the weatherization work performed.

Shelters or Group Homes:
Sub-grantees may weatherize shelters or group homes. The number of dwellings that exist in a shelter or group home is based upon either 800 square feet of the shelter/group home as a dwelling unit or each floor of the shelter/group home.

Note: When shelter or group home residents are residing in the shelter or group home for reasons associated with being low-income and the mission or purpose of the shelter or group home is to serve low-income people, there is no requirement for application for weatherization. If the Sub-grantee documents that the shelter or group home meets these criteria, the shelter or group home can be weatherized.

For shelters or group homes that do not meet the above criteria, Sub-grantees must determine eligibility for weatherizing the shelter or group home based on the occupants at the time of application. Each occupant must complete an application for assistance, including the manager if the manager lives in the dwelling. Eligibility is based on the application and verification provided by each occupant.

1210 Non-traditional Dwelling Units

Non-traditional dwellings are not eligible for weatherization with any current funding source because of the mobility of the dwelling.
To be eligible for weatherization, the non-traditional dwelling must be permanently located (e.g., wheels/axles removed, skirted, or resting on a permanent foundation), preapproval is required.
If approved, the weatherization of a non-traditional dwelling will be funded with LIHEAP WX funding only.

Note: LIHEAP CRF funding of furnace emergency repairs and or replacement may be allowed on LIHEAP-eligible non-traditional dwellings. Eligible LIHEAP recipients residing in non-traditional dwellings will be eligible for CRF emergency assistance and will be subject to the 18/48-hour timelines for assistance.

- If the dwelling is connected to an uninterruptible supply of electricity, the provision of plug-in space heaters may satisfy the timeline requirements until a service person can be arranged to address the heating emergency.
- The provision of a battery, a generator, or fuel for the generator are specifically excluded from CRF emergency assistance.

1220 Owner/Occupant Refusal of Measures (Skipping Measures)

Measure Skipping of cost-justified major measures is not permitted at any time on jobs funded in whole or part by DOE, NorthWestern Energy, or BPA.

"Major Measure" is defined as a high-priority measure, which if skipped, would result in partial weatherization of a unit. Major Measures are as follows:

- Infiltration, including attic air sealing.
- Duct and boot sealing/insulation of ductwork outside the thermal boundary.
- Attic insulation.
- Wall insulation including above-grade, below grade foundation walls and preparations for an air-tight cavity; and
- Floor or belly insulation including preparations for an air-tight cavity.

Alteration of the cost-justified work order must be addressed in the following ways:

Funding limitations: If all funds available to be spent on the job will not cover the entire work scope, then measures may be removed from the work order starting with the lowest Saving Investment Ratio (SIR) measure and working up the list. The overall SIR of the work order must remain cost-effective, or the job must be deferred. Necessary Health and Safety (H&S) measures may NOT be removed from the work order; however, Energy Conservation Measures (ECMs) that are not listed as **major measures** can be removed from the scope of work due to budget constraints.

Note: Jobs funded entirely with LIHEAP Weatherization may exclude ECMs due to budget constraints starting with the lowest SIR ranking, regardless of the measure being defined as a major measure.

Client Refusal: Before work begins, client education regarding the scope of work in the home should be carefully undertaken. If a client objects to the identified scope of ECMs, Sub-grantees may elect to run costs for alternative approaches that utilize approved materials and meet the client's requirements through the audit to determine if the SIR

supports the alternative approach. If no cost-effective alternative to the objectionable measure can be identified, the auditor should explain the “house as a system” approach to weatherization and ask again to proceed with the full scope of work. If a client still declines an ECM that is not a major measure, auditors are required to document the circumstances of the denial in the client file, and CDS EA and work may proceed. If a client refuses Health and Safety related items, or an ECM is defined as a major measure; the job must be deferred due to client refusal. The Sub-grantee must get a signature from the owner/occupant refusing the work and defer the project (an EAP-020 can be used to document client refusal). The dwelling would then be considered deferred for weatherization. A copy of the completed refusal form must be kept in the weatherization case file.

Inadequate Training: A lack of training for Subgrantees is not an allowable reason to skip measures. The standard procedure should be to postpone job(s) requiring priority measures that cannot be installed due to a lack of qualified staff until adequate training is acquired.

After a Job has Begun: Due to scheduling, measures are sometimes installed with a lower priority first. If during the installation process, the client declines a measure with a higher SIR or a Health and Safety related measure, work must stop at the time of client refusal. No further work on the home is allowed and IHSB monitoring staff must be notified. The job will be inspected by a Quality Control Inspector (QCI) and closed out as a completed unit. This should be clearly explained in client file documentation and CDS EA. Sub-grantees are encouraged to include a statement for the client's signature before work begins on the home, that states that the client is aware of the “house as a system” approach to weatherization and that partial weatherization or selecting only some major measure ECMs and Health and Safety measures is not allowed.

Note: It is recommended to have the owner/occupant sign a refusal form when any measure, regardless of the priority of the measure, is refused and retain the refusal form in the weatherization case file.

1230 Dwelling for Sale

No owner-occupied residence shall be weatherized if it is being offered for sale.

No renter-occupied residence shall be weatherized if it is being offered for sale unless it can be demonstrated that the residence will continue to be occupied by eligible tenants.

1240 Owner/Occupant Move or Death

If the owner/occupant moves from the dwelling or passes away after the weatherization work has begun, weatherization of the dwelling may be completed. The Sub-grantee also has the option to defer the dwelling.

1250 Combustion Appliances in Rental Units

The landlord is responsible for replacing or repairing the furnace as per the Montana Residential Landlord and Tenant Act. After providing and/or documenting that backup or temporary heat has been provided, the LIHEAP recipient (tenant/renter) needs to give the landlord written notice informing the landlord of the furnace problem and give the landlord "reasonable" time to fix the problem. Emergency situations, according to Section 70-24-406, Montana Code Annotated must be addressed by the landlord within 3 working days. Montana Legal Services has developed a form the LIHEAP recipient can use to notify the landlord of the emergency.

Montana Legal Services has also developed a Landlord-Tenant Law Information sheet. The LIHEAP recipient should send the Information Sheet to the landlord along with the letter notifying the landlord of the emergency.

In addition, the Sub-grantee should encourage the LIHEAP recipient to contact Montana Legal Services at 1-800-666-6899 for assistance.

Under what is commonly called "The Montana Residential Landlord and Tenant Act of 1977", Montana law provides: (1) 'A landlord:

> (e) shall maintain in good and safe working order and condition all electrical, plumbing, sanitary, heating, ventilating, air-conditioning, and other facilities, and appliances, including elevators, supplied, or required to be supplied by the landlord.
>
> (g) shall always supply running water and reasonable amounts of hot water and reasonable heat between October 1 and May 1, except if the building that includes the dwelling unit is not required by law to be equipped for that purpose or the dwelling unit is so constructed that heat or hot water is generated by an installation within the exclusive control of the tenant. (70-24-303, MCA (2014).

Unless a landlord can demonstrate that they are low-income or have some mitigating circumstances, the responsibility for the maintenance, repair, or replacement of the home heating system in the rental unit is the responsibility of the landlord. Mitigating circumstances may include, but are not limited to:

- The landlord is absentee, and the Sub-grantee cannot contact the landlord, and the maintenance, repair, or replacement of the appliance is necessary to alleviate a health and safety-related issue.
- The landlord refuses to maintain, repair, or replace the appliance and the occupants of the dwelling have a health and safety issue with the appliance.
- The landlord cannot maintain, repair, or replace the appliance in a timely manner to alleviate the health and safety issue.

All mitigating circumstances regarding the landlord not maintaining, repairing, or replacing an appliance in a health and safety-related circumstance must be documented in the client's case file. IHSB strongly encourages Sub-grantees to pursue written documentation of mitigating circumstances from landlords whenever practical. Detailed case notes will suffice if written documentation cannot be obtained. The Sub-grantee can contact the Department for guidance regarding the determination of a mitigating circumstance.
Additional Tenant-Landlord resources (links):

- **Montana Tenants' Rights and Duties Handbook**
  By: Montana Legal Services Association (MLSA)
  A guide to your rights and duties as a tenant in Montana.
- **Tenant/Landlord Guide**
  By: Montana Public Interest Research Group (MontPIRG)
- **Letter to Landlord Requesting Repairs (write-in-the-blank form)**
  By: Montana Legal Services Association (MLSA)
- **Landlord Retaliation if You Ask for Repairs**
  By: Montana Legal Services Association (MLSA)
  Information about what to do if your landlord retaliates against you for requesting a repair.
- **Mold Information**
  By: EPA
- **Letter to Landlord Requesting Repairs (Interactive Form)**
  By: Montana Legal Services Association (MLSA)

1260 Access Agreements

No weatherization work will begin on a dwelling until the occupant and/or owner of the dwelling complete the DPHHS-EAP-013 "Montana Weatherization Assistance Program(s) Access Agreement".
Sub-grantees must verify the dwelling owner and ensure both the occupant and the owner/landlord have signed DPHHS-EAP-013 "Montana Weatherization Assistance Program(s) Access Agreement", as applicable to rental dwellings.

Copies of the signed DPHHS-EAP-013 must be provided to the occupant and/or owner of the dwelling and the original signed copy must be maintained in the Sub-grantee's weatherization file.

Chapter 2 CDS ENERGY AUDIT

2000 Computerized Energy Audit Requirements

The Montana Computerized Energy Audit (CEA) is an Internet-based application used by state and tribal weatherization Sub-grantees to initially determine the cost-effectiveness of weatherization measures that may be performed on a dwelling. The CEA also records the actual costs for weatherization measures performed on a dwelling and final cost-effectiveness calculations as part of the completion process.

After the initial inspection of a dwelling has been completed by the Sub-grantee's Building Performance Institute (BPI) certified weatherization inspector/auditor, information regarding the existing conditions in the dwelling is entered into the CEA. The CEA uses existing condition information gathered during the initial inspection and proposed weatherization-related changes to analyze the dwelling as a whole system. The CEA calculates interactions between the envelope of the dwelling, the heating and air exchange systems, and the lifestyles of the occupants. The CEA uses information regarding the primary and secondary heat types, the efficiencies of the heat systems, annual energy costs, the number of occupants, the number of occupants who smoke, buffer factors, wind exposure, and health and safety hazards.

One of the primary objectives of an auditor performing an energy audit should be to ensure the input values in the audit reflect the most accurate and realistic information available. The certified inspector/auditor enters the proposed weatherization-related changes to the existing conditions that the Sub-grantee may perform on the dwelling into the initial CEA. (Please see part C. Changes to the Computerized Energy Audit.) The estimated or actual costs (Installation and Materials) associated with performing the proposed changes/services are also entered into the
CEA for the respective measures and the CEA determines the cost-effectiveness Savings-To Investment Ratio (SIR) for attic insulation, floor insulation, wall insulation, crawlspace/rim joist/basement insulation, windows, doors, and infiltration measures. Each measure must meet an Individual SIR (Currently 1.0) and the Overall SIR (Currently 1.0) to be performed by the Sub-grantee. Blower door-guided air sealing is an exception that may have an individual SIR of less than 1.0. Please reference section 9500 Infiltration for more information.

Note: Sub-grantee crew/contractor travel costs, transportation costs, or Sub-grantee/contractor overhead costs are not to be entered into the CEA for any measure. These costs are considered overhead costs that are associated with the individual

weatherization project to be expensed to the respective federal funding source. Overhead costs for federal contracts as well as computerized energy audit costs for federal and utility contracts are expensed to the respective contract program operations line item and are considered expenses for the average cost per dwelling.

Amounts expensed in the CEA for performing inspections/repairs on the heating system, health and safety measures, attic air sealing, and the audit costs are not subject to the Individual or Overall SIR calculations but are subject to contractual limitations and/or averages, i.e., Health and Safety expenditures are limited to:

- Department of Energy (DOE) at 20% of state average.
- Bonneville Power Administration (BPA) at 30% of total dwelling costs.
- NorthWestern Energy (NWE) and LIHEAP have no Health and Safety cap.

After the initial CEA is completed, the audit will prioritize, in descending order, the proposed measures by cost-effectiveness. The most cost-effective measures must be completed first during the weatherization of a dwelling.

The CEA does not prioritize work on attic air sealing or health and safety measures. The Sub-grantees should prioritize work on heating systems and water heaters higher than work on air infiltration, insulation, ventilation and moisture control, windows, and doors.

Note: If the proposed costs for the weatherization of a dwelling using LIHEAP or NWE exceeds $15,000, the Subgrantee must request and receive written permission from the Department before proceeding with the project. For DOE and BPA, approval is required if the proposed weatherization costs exceed $9,000. Prior written permission from the Department can be waived in cases of emergency or urgency determined by the Sub-grantee. In these emergency or urgent situations, The Department must be contacted for approval post project or as soon as possible.

The completed CEA must be electronically available for review. The Sub-grantee must, at a minimum, keep a copy of the final Summary Page in the client's case file. The Sub-grantee also has the option to print out the entire CEA to be placed in the case file.

Work orders, per the Work Order Policy Bulletin, must contain the references mentioned below:

1. Detailed performance and installation requirements/objectives to be included in crew/contractor work orders from the completed energy audit, including R-values, U-values, installed equipment efficiencies, infiltration, and duct sealing targets, Grantee's DOE-approved Field Guides and/or SWS, etc.
2. List of all measures performed, the funding category (e.g., ECM, IRM, H&S, GHW etc.) for each, and the funding source for each (i.e., DOE WAP, LIHEAP, etc.).

2100 Changes to the Computerized Energy Audit

Furnace Replacements:
When a furnace replacement can be cost-justified, in Computerized Energy Audit's Heating Fuels measure, the replacement **must** be treated as an ECM. Furnaces that are cost-justified in Energy Audit must be charged to Program Operations.

Standard Work Specifications section 5.01 and Furnace Efficiency Policy Bulletin require all replaced forced air furnaces and boilers to be Energy Star certified or equivalent. If CRF emergency funds are used for the forced air furnace or boiler replacement the Energy Star certification is not required.

For the replacement of through-the-wall direct vent furnaces, wall furnaces, stand-alone quad furnaces, and floor furnaces, when it is not feasible to install a forced air or boiler system, Montana was granted a variance for SWS 500301.1b and 5.0301.3b which allows the installation of a 90%+ Ultra High-Efficiency Direct Vent Furnace. Energy Star certification is not required. If CRF emergency funds are used for the forced air furnace or boiler replacement the Energy Star certification is not required.

NorthWestern Energy will fund the replacement of an NWE customer's primary electric space and/or water heating appliance only if the electric appliance is condemned by a Heating, Ventilation, and Air Conditioning (HVAC) specialist. The HVAC specialist must inspect and condemn the electric appliance before the appliance is dismantled or replaced. To qualify for NWE funding, primary electric space and/or water heating appliances must use electricity supplied by NWE.

The furnace replacement may be considered for H&S replacement only after it is determined that the measure is not cost-effective as determined by the energy audit. Furnaces that are not cost-justified in Energy Audit should be charged to the Health and Safety line within the DOE, NWE, LIHEAP, and BPA contracts. The Sub-grantee must provide documentation of an imminent threat to the occupant's Health and Safety.

If an unvented combustion space heater is the primary heat source the unit must be replaced before weatherization. No home shall be left without a safe primary heating system.

Heating System Seasonal Efficiency:
The Department sets certain parameters in the Computerized Energy Audit (CEA) based upon averaged information for heating system units existing in dwellings. As part of the weatherization of a dwelling, the heating system is inspected, tested and, if necessary, repaired or replaced.

If a heating system is going to be replaced during weatherization work, the seasonal efficiency of the **replacement unit** (not the seasonal efficiency of the unit units being replaced) **must** be reflected in the energy audit.

By requiring Sub-grantees to use seasonal efficiencies of heating systems that will be utilized to address ongoing rather than past heating needs, we are ensuring that decisions regarding which measures to perform are determined based on accurate energy usage characteristics.

Fuel Cost Parameters:
The Department sets certain parameters in the CEA based on averaged fuel cost data for the state. Parameters for fuel costs for natural gas, electricity, propane, fuel oil, coal, and wood are updated by the Department once per year at the start of a contractual period.

In some instances, non-regulated fuel type prices can change during a contract period within a Sub-grantee's service area. If the Sub-grantee can document a fuel type price change by averaging prices gathered from fuel vendors within the service area, the fuel price per unit for that specific fuel type can be changed by the Sub-grantee on the individual CEA. The change in the fuel price used in the CEA must be documented in the comments section of the CEA and the weatherization case file.

Note: The costs for NWE fuel types cannot be changed on the CEA.

Units of fuel types are described as follows:

Fuel Type	Units
Natural Gas	Dekatherm
Electricity	Kilowatt Hour
Propane/Butane	Gallon
Fuel Oil	Gallon
Coal	Ton
Wood/Hardwood	Cord

Heating Degree Days (HDD) and Cooling Degree Days (CDD)

Upon initial creation of an Energy Audit from a LIHEAP Case, the CEA populates both HDD and CDD values that match the city from the Thirty-Year Degree Day Averages Reference page. If no city matches the city on the energy audit, the average HDD and CDD of all cities in the CAA area is used. The Sub-grantee may make changes in an individual energy audit to either or both HDD and CDD fields with documented information.

The Climate Stations Reference Page is a new page created to display Climate Stations information. The information on this page is downloaded from the National Centers for Environmental Information (NCEI) website (hhtps://www.ncdc.noaa.gov/). Currently, NCEI updates this information in June of years ending in 1, like June 2011 and June 2021.

The HDD and CDD values by city listed in the Thirty-Year Degree Day Averages Reference page come from the Climate Stations Reference page.

For all audits, upload into CEA Manage Documents after the data has been entered into CEA before any pre-approvals and/or weatherization work has begun.

1. Completed Standard Audit (EAP-035)
2. All Diagnostic Test Results,
3. Job Work Order,
4. Completed Furnace worksheet (EAP-008)
5. All photos taken at the audit.

2200 Contribution of Individual Measures

If the total material and labor costs to perform a weatherization measure bring the individual Savings-to-Investment Ratio (SIR) below 1.0, the owner/landlord can "contribute" or cost share to bring the SIR up to 1.0 or greater. While DOE encourages owner/landlord financial participation in weatherization activities, partial contributions of ECMs are not allowed.

> ***For example***, the total cost to insulate an attic is $1,000. The CEA will only support $800 to arrive at a 1.0 SIR. The owner of the dwelling is willing to pay $200 as a "contribution" or cost share. With the owner's contribution, the attic can be insulated with funding other than DOE. The $800 will be subject to the SIR calculation and the $200 will be recorded on the CEA as a contribution.

2300 Co-Fund of Individual Measures

Per WPN 22-9, DOE allows leveraged co-funding (not owner contribution) to install measures that do not have an SIR of 1.0 or greater. The co-funded measure(s) must remain the last measure(s) in the package of measures that a SIR is being installed to ensure the co-funded measure(s) do not leapfrog over other measures that are cost-effective on their own merit. If the measure(s) is not the last on the list, monitor approval is needed on a case-by-case basis.

> ***For example***, for LIHEAP, NWE, and BPA the total cost to insulate an attic is $1,000. The CEA will only support $800 to arrive at a 1.0 SIR. Using a $200 LIHEAP, NWE, or BPA co-funding or an owner contribution of $200, the attic can be insulated. The $800 will be subject to the SIR calculation and the $200 will be recorded on the CEA as a LIHEAP, NWE, or BPA co-funding or as a Homeowner contribution.

For DOE, the co-fund of $200 can be leveraged with NWE, LIHEAP, or BPA co-fund funds. DOE does not allow Landlord Contributions on Single-Family-Dwellings. DOE does allow Landlord Contributions in Multifamily Dwellings.

2310 Braiding of Individual Measures

Per WPN 22-9, Braiding is defined as using multiple separate funding sources, NWE, LIHEAP, BPA, and DOE, on one weatherization project to address the different needs within the home, while ensuring each funding source is isolated and tracked independently. Sub-grantees are responsible for tracking the use of various funding sources.

Sub-grantees may braid DOE with specific types of funding sources:

- Sustainable Energy Resources for Consumer (SERC)
- Enhancement and Innovation (E&I)
- Weatherization Readiness Funds (WRF)

The Department of Energy requires that ***measures*** performed with DOE funds cannot be braided with another funding source. Braiding is allowed on a ***job*** funded by DOE but not within a measure. If there is a measure that is to receive a homeowner/landlord contribution this measure cannot be funded with DOE. The Sub-grantees may continue to braid measures with funding sources other than DOE.

In the example below, charges on the DOE line are covered fully whereas the other measures are braided with LIHEAP and BPA. This job was braided with 3 funding sources, but braiding did not occur within a measure if DOE funds were used.

Table 1- Braiding Example

Save / Summary / Calculate	Grand Total	Attic	Walls	Floor	Crawlspace/ Rim Joists	Windows	Doors	Infiltration Reduction	Misc. Measures	Audit	QCI	Space Heat Tune-Up	Water Heater Tune-Up
Total Cost	4643.51	0.00	0.00	748.00	0.00	1532.85	0.00	58.76	69.26	760.00	0.00	475.00	14.60
Remainder	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
Landlord	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Homeowner	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
HRDC Expensed	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
LIEAP CRF	0.00												
○ BPA - 18028310070	1567.85					1032.85		35.00				200.00	
○ DOE - 17028300290	1630.22			748.00					69.26	760.00			14.60
○ LWX - 17028160090	1445.44					500.00		23.76				275.00	

2400 Self-Help Towards Weatherization Measures

If the owner/landlord wishes to contribute self-help the Sub-grantee must execute a written, signed contract with the owner/landlord outlining:

- the specifications of the work to be performed.
- the supplies and materials to be provided.
- the deadline for completion.
- liability rests with the owner/landlord; if work is not performed by the deadline all supplies/materials must be returned to the Sub-grantee.

Note: The Sub-grantee must request and receive written permission from the Department before proceeding. If written permission is granted by the Department, the Sub-grantee must inspect the self-help work to insure proper installation as well as completion of the measure/work.

2500 WPN 22-8 Optional Regional Weatherization Priority Measures List

The Montana Weatherization Assistance Program (WAP) for the LIHEAP and NWE contracts has adopted the DOE Measures List for Single Family and Manufactured Homes. For dwellings requiring measures not included for that dwelling type, or if the dwelling does not meet the basic requirement for the measure, a site-specific Energy Audit must be conducted. A QCI must be performed when an Energy Audit is not performed, and DOE Measure List measures have been completed. The QCI cost is an approved LIHEAP and NWE cost.

DOE WPN 22-8 allows for an energy audit to be conducted using an approved optional predefined measures list. For Single-Family, Manufactured Homes, and Low-Rise Multifamily, less than three stories high and greater than five units, DOE has developed three regional ML zones. Montana is in Region 3, Cold. The complete Measures List is in the Appendix of this manual.

2600 Variance Request

When requesting a change in a Standard Work Specification (SWS) a variance is required. The required variance request form can be found in Appendix F of this manual. Please submit the variance request form to your monitor.

Chapter 3 AIR LEAKAGE TESTING REQUIREMENTS

3000 Air Leakage Testing Requirements

The blower door is a diagnostic tool used by a Sub-grantee to measure air leakage (Infiltration) in cubic feet per minute (CFM) and/or natural air changes (NAC) and to identify areas within the dwelling that need air sealing. Using a blower door, the Sub-grantee can measure air tightness (CFM/NAC) in a dwelling to determine the ventilation rate and energy loss due to infiltration/exfiltration. The blower door either pressurizes or depressurizes the dwelling to test the CFM/NAC infiltration rate. The blower door must also be used as a diagnostic tool for zonal comparisons, and the duct system analysis and repair.

The Sub-grantee is required to document the dates and results of the pre-production, and post-weatherization blower door test results and the Zone Pressure Diagnostic results, as well as the signature of the person performing the tests in the weatherization case file.

Weatherization contracts require that a pre- and post-blower test be performed on each dwelling weatherized. The pre-blower door test is performed during the initial inspection of the dwelling and the post-blower test is performed during the Sub-grantee's final inspection. Production blower door testing is conducted during air-sealing, as well as during pressure pan and zonal testing. (See BPI Standard 1200 for technical guidance). All production blower door testing must be recorded and in the client's file.

If the auditor elects to do a pressurization test as opposed to the more common depressurization test, the final blower door test must also be a pressurization test.

DOE WPN 19-4 states that blower door guided air sealing may have an SIR less than 1.0, if the cumulative SIR of the package of measures is equal to or greater than 1.0, not including H&S measures. Air sealing goals will be based on the Auditor's assessment of the opportunities for cost-effective air sealing in the home. The goal is to reduce the CFM leakage/NAC infiltration rate in the dwelling as is cost-effective and allows mechanical ventilation to ensure adequate indoor air quality.

The pre-blower door and Zone Pressure Diagnostic test results must be recorded in the initial Computerized Energy Audit (CEA). The post-blower door test results must be estimated and input into the CEA based on the dwelling type, the condition of the dwelling, and the Sub-grantee's experience in reducing the CFM/NAC rate with all the proposed weatherization measures to be performed on the dwelling. During the final inspection of the dwelling or at the completion of the proposed weatherization measures/services, the actual post-blower door and Zone Pressure Diagnostic tests will be performed. The actual results must be entered into the weatherization case file and CEA. All production blower door tests must be included in the weatherization case file.

When the pre-blower door test results from the initial inspection of the dwelling and estimated post-blower door test results are entered into the Infiltration section of the initial CEA, the Sub-grantee also must enter the estimated material and labor costs for performing air sealing measures. This information allows the Sub-grantee to have the CEA determine the cumulative cost-effectiveness of all proposed measures, excluding H&S measures.

After the Sub-grantee performs the post-blower door and Zone Pressure Diagnostic tests, the Sub-grantee must input the actual test results in the Infiltration section of the CEA along with the actual material and labor costs (excluding attic air sealing material and labor). When this information is input, the Savings-to-Investment Ratio (SIR) for Infiltration may be less than 1.0 if the cumulative SIR of all proposed measures (excluding H&S) is 1.0 or greater.

When a dwelling has ductwork from a forced air heating system that runs outside of the building's Pressure Boundary, this home will be subject to duct testing at the audit and following any duct sealing measures. This test is to be completed using Pressure Pans in conjunction with the Blower Door test while the home is depressurized to -50 Pascals (pa). Any register that has a Pressure Pan reading with a pressure difference with reference to the house of 1 pa or greater will be assessed for duct sealing measures.

3100 Performing Air Leakage Tests

The blower door and Zone Pressure Diagnostic tests must be performed on a dwelling at the audit and following the installation of weatherization measures.

Note: The Sub-grantee must explain the purpose and procedures for the pre and post-blower door tests to the client. If the client refuses the blower-door testing the Sub-grantee must defer the weatherization of the dwelling.

Note: If vermiculite is present the Sub-grantee must defer the dwelling per section 6100. When a suspected friable or non-friable Asbestos Containing Material (ACM) is present reference sections 6200, 6300, 6400, and 6500. Sub-grantees are allowed to use DOE, LIHEAP, and NWE Weatherization Readiness funds (WRF) to abate vermiculite, friable, and non-friable asbestos or other barriers stopping weatherization work. All WRF costs must be entered in the Computerized Energy Audit (CEA) under the WX Ready link and per the DOE Weatherization Readiness Policy Bulletin, must be entered on the WRF Tracker Template spreadsheet. The homeowner or renter must agree to receive weatherization assistance once the weatherization barriers are removed.

When the dwelling is deferred for weatherization due to potentially hazardous conditions, the Sub-grantee must provide the occupants/owner with a copy of the DPHHS-EAP-023 'Notice of Dangerous Conditions' form.

Under extenuating circumstances, a post-blower door may be omitted with Departmental approval. The reason for the non-completion of the post-blower door test must be documented in the case file and on the Computerized Energy Audit (CEA).

3150 Providing Weatherization Readiness Assistance

When “walking away” or “deferring” low-income weatherization assistance in residences because the dwelling is not “weatherization ready”, regardless of the cause, deferrals create “sunk costs” – the cost of sending field staff out to evaluate a home that cannot ultimately be treated because the Program is unable to address the repairs of the building. DOE Weatherization readiness funding can be used to address issues that are stopping weatherization work, to help avoid deferrals and walk-aways.

Weatherization Readiness funds are distributed to subgrantees proportional to the ratio of its low-income residents, relative to the population of low-income residents in the service area. All remediation of issues associated with weatherization readiness funds must be completed in the program year(s). Invoicing associated with weatherization readiness funds must be submitted no later than 30 days after the end of the program year.

These funds are designated for use by Grantees in addressing structural and health and safety issues of homes that are currently in the queue to be weatherized, but at risk of deferral. Since weatherization is the goal of the weatherization readiness assistance, a dwelling must be currently eligible and on the current weatherization priority list. The homeowners or renters **must agree** to receive weatherization assistance once the weatherization-related barriers are removed.
When DOE Readiness funds are used, the unit must result in a DOE completion defined as “*A dwelling on which a DOE-approved energy audit or priority list has been applied, and weatherization work has been completed*.” At least one DOE-funded energy conservation measure is a requirement. The completion must happen in the same program year. Subgrantees are not allowed to braid DOE Weatherization Readiness funded projects with DOE WAPBIL funds.

Addressing the issue that would cause deferral or walk-away, without completing weatherization work on the dwelling conflicts with the objective of the weatherization readiness assistance.

DOE Allowable costs will include, but not be limited to:

- Costs for work associated with the remediation of issues that prevent the dwelling from being weatherized
- The use of DOE Readiness funds must result in a DOE completion. At least one DOE-funded energy conservation measure (ECM) is required. The measure targeted for readiness funds must prevent weatherization energy conservation measures from being completed.
- Average Cost per Unit is $10,000
- Costs that exceed $10,000 will need prior IHSB approval.
- DOE Administration costs related to the Readiness measure are not allowed.
- All remediation of issues associated with the weatherization readiness funds must be completed in PY25.
- Nature of repairs needed that prohibit weatherization. Where applicable, identify multiple repairs or remediation reasons for a single building. This is not an exhaustive list, and Grantees may add repairs as needed. Roof repair, Wall repair (interior or exterior), Ceiling repair, Floor repair, Foundation or subspace repair, Exterior drainage repairs (e.g., landscaping or gutters), Plumbing repairs, Electrical repair, Clean-up or remediation beyond typical scope of WAP such as Lead paint, Asbestos (confirmed or suspected, including vermiculite), mold and/or moisture.
- Measures not listed under allowable readiness funding source can be reviewed on a case-by-case basis.
- Full roof replacement with approval from IHSB

DOE Unallowable costs include, but are not limited to:

- Replacement of cook stove, refrigerator
- Sewer replacement
- Vermiculite testing, remediation, and any air-clearance testing associated with vermiculite.

LIHEAP and NWE Allowable costs will include, but not be limited to:

- Sub-grantee staff time to identify eligible dwellings and arrange initial inspection
- Sub-grantee staff time for inspection and audit of dwelling to determine scope of enabling weatherization work to be done to become 'weatherization ready'
    - Time may be charged even if no remediation work is done
- Sub-grantee staff time to coordinate the enabling weatherization work, including setting up work agreements with contractors
- Costs for work associated with the remediation of issues that prevent the dwelling from being weatherized
- For LIHEAP, the Weatherization Readiness measure must result with an energy conservation measure.
- For NWE, the Weatherization Readiness measure must be associated with the energy conservation measure.

- The measure targeted for readiness funds must prevent the weatherization energy conservation measure from being completed.
- Average Cost per Unit is $10,000
- Costs that exceed $10,000 will need prior IHSB approval.
- All remediation of issues associated with the weatherization readiness funds must be completed in PY25.
- Nature of repairs needed that prohibit weatherization. Where applicable, identify multiple repairs or remediation reasons for a single building. This is not an exhaustive list, and Grantees may add repairs as needed. Roof repair, Wall repair (interior or exterior), Ceiling repair, Floor repair, Foundation or subspace repair, Exterior drainage repairs (e.g., landscaping or gutters), Plumbing repairs, Electrical repair, and Clean-up or remediation beyond the typical scope of WAP • Lead paint • Asbestos (confirmed or suspected, including vermiculite), mold and/or moisture
- Measures not listed under allowable readiness funding source can be reviewed on a case-by-case basis.
- Full roof replacement with approval from IHSB

LIHEAP and NWE Unallowable costs will include, but not limited to:

- Replacement of cook stove, refrigerator
- Sewer replacement

LIHEAP WRF Reporting:

1. Quarterly, the Sub-grantee must provide the following information to IHSB, and report WRF units in the quarter the readiness work is completed.
   a. The number of completed buildings and the building type receiving WRF.

2. Annually provide the following,
   a. The number of completed buildings and the building type receiving WRF.
   b. Year built.
   c. Nature of repairs needed.
   d. LIHEAP WRF expenditure

   Sub-grantees will utilize the department-provided WRF Tracker spreadsheet to provide the quarterly and annual data.

   Note: The Sub-grantee must enter the weatherization readiness expenditures in CDS Energy Audit. In addition, the “Data Tracking Sheet” must be uploaded in CDS Energy Audit under “Manage Documents” and maintained in the client file.

3200 Pass Rate for Attic Air Sealing of Single-Family Dwellings

For an open (un-floored), unconditioned attic, a pressure difference of 45 Pascals (pa) with reference to the house must be reached while the home is depressurized to -50 pa. If a pressure difference of 45 has not been attained, attic air sealing is to continue. For floored, unconditioned attics, the pass rate will be a pressure difference of 40 pa with reference to the house while the home is depressurized to -50 pa. If the attic is partially floored, a weighted average of floored/un-floored attic area can be used to determine the pass rate.

If it is not possible to reach the pass rate for a home. In these cases, the Sub-grantee must provide photos, and a detailed description of what circumstances prohibited the contractor from reaching the passing zone pressure.

3300 Duct System Testing

Pressure pan testing is required on all homes with ductwork present outside of the pressure barrier of the building; this includes virtually all mobile homes. This test is to be completed while the home is depressurized to -50 pa. The target for each register is a pressure difference of 1 pa or less with reference to the house. This test will aid the auditor in the need for duct sealing measures as well as provide a means to locate the largest leaks in the system. Crews will run a pressure pan test during production to verify the performance of their work and ensure that duct sealing targets have been reached. Results of production-related pressure pan tests must be retained in the client file. If it is determined by the auditor through the initial duct test that duct sealing measures are not needed, then no duct test will be required at the final inspection/test-out.
Note: The registers closest to the air handler are under the highest pressure.

Chapter 4 LEAD SAFETY FOR RENOVATION, REPAIR AND PAINTING (LSRRP)

4000 Lead Safe Practices

All Sub-grantees and contractors performing renovation, repair, and painting projects that disturb lead-based paint in dwellings built before 31 December 1977 must be certified and demonstrate that they use certified renovators who are trained by EPA-approved training providers. All weatherization work will be performed in accordance with the EPA's Lead Safety for Renovation, Repair, and Painting Manual. Please note that work in HUD-owned or assisted facilities, including households that receive Section 8 vouchers, may require adherence to the potentially more restrictive, HUD Lead Safe Housing Rule (LSHR).

The EPA and HUD rules affect paid contracting renovators, maintenance workers in multi-family housing, and painters who are contracted by the Sub-grantee to work in dwellings built before 31 December 1977, including mobile home housing. The requirements apply

to renovation, repair, or painting activities. The rule does not apply to minor maintenance or repair activities where less than six square feet of lead-based paint is disturbed in a room, or where less than 20 square feet of lead-based paint is disturbed on the exterior. Please note that window replacement and demolition are not considered a minor repair regardless of the square footage of the disturbed area. See the HUD Lead Safe Housing Rule (Appendix 2 in the LSRRP Manual) for more restrictive de-minimis area limits when working in HUD-associated facilities.

Sub-grantees will determine the age of the dwelling to be weatherized at the time of the initial inspection. The age of the dwelling will be recorded in the weatherization case file and the computerized energy audit. Any dwelling built before 31 December 1977 may contain lead-based paint unless it has been certified as lead-free. LSRRP practices must be followed to minimize occupant and worker exposure to lead dust and debris. Lead poisoning can affect a person of any age.

4100 Mobile Homes and Lead

Sub-grantees and contractors performing renovation, repair, and painting projects in mobile homes built before 31 December 1977 must determine if the surfaces identified for weatherization activities have been previously painted. If it is determined that surfaces have not been painted, the mobile home can be determined exempt from LSRRP practices. If it cannot be determined if the surfaces have been painted, LSRRP practices must be followed, and appropriate documentation must be maintained in the client file.

4200 Notification of the Possible Presence of Lead-Based Paint

Sub-grantees and/or certified firms operating in LSRRP target housing must provide building owners and occupants with the lead hazard information pamphlet, "The Lead-Safe Certified Guide to Renovate Right" at least seven (7) days, but no more than 60 days, before weatherization work beginning on a dwelling. Additional notice requirements may be triggered in child-occupied and multi-family facilities (refer to EPA, LSRRP manual for details).

Note: Sub-grantees must maintain a signed copy (or copies when working in landlord-owned homes) of the “Confirmation of Receipt of Lead Pamphlet” form in the weatherization file or certification of mailing of the pamphlet from the post office at least seven (7) days before beginning weatherization.

4300 Lead Testing Procedures

Paint testing or an assumption of the presence of lead must be made before the renovation of all surfaces to be affected by the weatherization work. The Sub-grantee can

test paint using the EPA-recognized test kits or they can elect to presume that the paint is lead-based and LSRRP practices must be followed.

Luxfer Magtech LeadCheck, D-Lead, and the State of Massachusetts are the only test kits that EPA has approved, and the only current method authorized for use in determining the presence of lead in painted surfaces. Only certified renovators can perform the lead test. Please refer to Appendix A in the LSRRP Student Manual for lead testing requirements in HUD-owned or assisted facilities.

For more information on Luxfer Magtech Leadcheck swabs:
Lead Test Kits | US EPA
Luxfer LeadCheck™ | Luxfer Magtech

4400 Lead Safety for Renovation, Repair and Painting (LSRRP)

When a Sub-grantee determines that weatherization work will be performed on a dwelling built before 31 December 1977 and not determined to be lead-free, all work will be performed according to the Lead Safety for Renovation, Repair, and Painting Manual. Appendix A in this policy manual contains a quick guide to Lead-Safe Standards and Appendix 2 in the LSRRP Student Manual identifies key differences between the EPA LSRRP and HUD LSHR.

If you will be disturbing **more** than 6 sq. ft. of interior surface or **more** than 20 sq. ft. of exterior surface, **or when replacing a window,** full signage, containment, cleanup practices, cleaning verifications, and recordkeeping, as described in the LSRRP rule, are required. When disturbing less than 6 sq. ft. of interior, or less than 20 sq. ft. of exterior surfaces, workers should take steps to limit dust production and migration; however, the full suite of LSRRP signage, containment, cleanup practices, cleaning verifications and recordkeeping, are not required. Please note that HUD LSHR has stricter de-minimis area regulations outlined above.

All LSRRP required paperwork must be completed and contained in the client file with photographs of the containment work and cleaning verification (CV) card.

Note: In addition to containment photos in the client file, the CDS Energy Audit must contain a sampling of photographic documentation of where the Sub-grantee performs any LSRRP work, including window and/or door replacement or repair (If applicable).

4500 Reporting and Documentation

When EPA-recognized test kits are used, the Certified Firm must provide a report to the client (in case of rental, both the client and the landlord) within 30 days after completion of the renovation. The following must be included in the report:

- The date of testing.
- Identification of and contact information for the Certified Firm and Certified Renovator performing the testing.
- Test kit manufacturer's name and kit identification.
- Locations of surfaces tested, descriptions of the surfaces tested, and the results of the testing.
- Copies of the report and documentation of receipt by the client and landlord must be maintained in the client file.

Any LSRRP work performed on dwellings (including mobile homes) built before 31 December 1977 and not certified as lead-free must be **photographed and documented** in the weatherization file. The photographs must show the measures undertaken during the work performed on the dwelling, **including set-up, safety barriers, and clean-up**. The photographs must include the visual inspection procedure and cleaning verification (CV) procedure, with the results of the clearance test performed by the certified renovator.

4600 LSRRP Record-Keeping

Records must be retained for eight (8) years past the end of the DPHHS Master Contract. During the renovation, the Sub-grantee must ensure the following records are kept at the job site:

- Copies of Firm Certification.
- Certified Renovator Certification.
- The Lead-based paint testing results.
- Proof of owner/occupant pre-renovation education.
- Non-certified worker training documentation.

Upon completion of the renovation project, these records must all be maintained in the client file with all photographs of the LSRRP work and clearance tests.

Appropriate Blood Lead Level (BLL) baseline tests for workers performing LSRRP work must be maintained in the Sub-grantee's files for the term of employee retention plus ten years.

Chapter 5 HEALTH AND SAFETY

5000 Health and Safety-Related Deferrals

The weatherization of a dwelling can be deferred (postponed until a later date) by the Sub-grantee if providing weatherization services would pose a threat to the health and safety of the occupants, Sub-grantee staff, or contractors. The weatherization will be postponed until the conditions that pose a threat to health and safety have been resolved.

Under LIHEAP and NWE contracts, where no Savings to Investment Ratio (SIR) measures are identified in the CDS Energy Audit, it is the Sub-grantee's discretion as to whether the audit will be counted as a 0.0 SIR completion or a 0.0 SIR deferral. A 0.0 SIR completion will trigger re-weatherization prohibition timelines, whereas a deferral will enable the Sub-grantee to return to weatherize the home later. Completions with 0.0 SIR are not allowable under DOE, BPA, or MDU contracts. Deferrals that are only a Health and Safety Furnace Replacement, with no other measures, are **NOT** allowed. A furnace replacement must first be tested in the Heating Fuels/Space Heat measure as an ECM. As an audit, no Measure Skipping of cost-justified measures is permitted. If a furnace is tested, an audit is created, and all SIR-driven Energy Conservation Measures (ECMs) must be tested.

Under DOE, BPA, and MDU contracts, health and safety-related expenditures are **NOT** allowed, unless SIR-driven ECMs are also part of the scope of Weatherization work. This requirement prevents Health and Safety-related expenditures under these contracts from being allowable when an audit is deferred for Health and Safety reasons or deferred because there are no SIR measures present.

DOE Health and Safety funds must be tied to an ECM. If DOE Health and Safety funds are used, then DOE funds must be used towards an Energy Conservation Measure.

Health and safety-related expenditures are allowable under LIHEAP and NorthWestern Energy contracts on deferred audits and zero SIR completions.

In deferred audits and 0.0 SIR completions under LIHEAP and NorthWestern Energy contracts, costs are allowable under Health & Safety, the Heating System, and Miscellaneous Measures sections. The Sub-grantee may expense the contract for: The installation of a water heater wrap; up to 10 feet of pipe insulation for the hot water distribution pipe; low-flow showerheads and faucet aerators; compact fluorescent lamps (CFLs); light emitting diodes (LED), gas appliance inspections and tune-ups; carbon monoxide (CO) alarm and one energy education visit. All Weatherization funding sources will reimburse the Sub-grantee 100% of these costs. Providing these services on deferred audits does not subject the dwelling to the federal re-weatherization dates.

Health and safety circumstances that justify the deferral of weatherization services include, but are not limited to:

- The occupant has a known health condition that prohibits the installation of insulation or other weatherization materials.
- The building structure or the mechanical systems within the dwelling, including electrical and plumbing, are in such a state of failure or imminent failure and the conditions cannot be cost-effectively resolved. (Building integrity creates an inability to weatherize practically or effectively.)
- The dwelling has sewage or other sanitary problems that would further endanger occupants, Sub-grantee staff, or contractors if weatherization work was performed.
- The dwelling was condemned or the electrical, plumbing, or other equipment has been condemned with a Hazard Tag by local or state building officials or utilities.
- There are moisture problems in the dwelling that cannot be cost-effectively resolved under existing health and safety measures or incidental energy-related repairs. Minor repairs are allowed up to $1,600, if the costs exceed $1,600, pre-approval is required.
    - Health and Safety funds can be used for door and window **repair** to resolve a bulk water intrusion issue that is the cause of visible biological growth (mold). Comments in the H&S section are required.
    - DOE and NWE Health and Safety funds cannot be used for door and window replacement.
- LIHEAP funds can replace, repair, or install windows and doors to comply with egress codes when a window or door does not pay back as an ECM in CEA; provided, the WAP installed measure directly causes the egress requirement to apply.
- When dangerous conditions exist due to high carbon monoxide levels in combustion appliances within the dwelling which cannot be resolved under existing health and safety measures, deferral may be justified.
    - However, it is recommended that the Sub-grantee address the high carbon monoxide levels or provide the client with information on how to address the issue.
    - If the Sub-grantee identifies high carbon monoxide levels during the “end of the day CAZ depressurization and spillage test”, the Sub-grantee must address and resolve the high carbon monoxide issues.
- The occupant/owner is uncooperative, abusive, or threatening to Sub-grantee staff and/or contractors who must visit the dwelling to perform weatherization-related measures or services.
- The extent and condition of lead-based paint, mold, or asbestos in the dwelling could create further health and safety risks.
- In the judgment of the Department or weatherization Sub-grantee, any existing condition that may endanger the health and/or safety of the occupant, Sub-grantee staff, or contractor.

- Partial weatherization of a dwelling is not allowable. All Major Measures, identified in the audit as being cost-effective, and all Health and Safety related items must be done. The client must agree to meet ASHRAE 62.2.2016 requirements. LIHEAP funding may exclude ECMs, reference section 1200.
- WPN 22-7 states, "Unsafe secondary units, including space heaters, must be repaired, or removed and disposed of, or deferral is required. The replacement or installation of secondary heat units, including a solid fuel heating appliance, is allowed using LIHEAP funds.
- Secondary unvented space heaters are considered unsafe if they:
  - are not listed and labeled as meeting ANSI Z21.11.2,
  - have an input rating of more than 40,000 BTU/hour,
  - are in a bedroom and have an input rating of more than 10,000 BTU/hour,
  - are in a bathroom and have an input rating of more than 6,000 BTU/hour,
  - are operating in an unsafe manner (e.g., high carbon monoxide (CO) readings, too close to combustible materials, lack sufficient combustion air volume), or
  - are not permitted by the Authority Having Jurisdiction (AHJ).
- If the completed dwelling unit is or will be heated with an unvented combustion space heater as the primary heat source, deferral is required.
- If an occupant will not allow the removal of an unsafe combustion appliance from the home, deferral is required.
- Fireplace or wood stove venting that is left operational must meet current local or the National Fire Protection Association (NFPA) 211 standards or the home must be deferred. NFPA Standards may be accessed here: https://www.nfpa.org/codes-and-standards/nfpa-211-standard-development/211

The reasons for the deferral of a weatherization project must be clearly documented in the weatherization case file and within the CDS Energy Audit. The Sub-grantee must provide the occupant/owner with a copy of a completed DPHHS-EAP-020 Sub-grantee Health and Safety Walk Away or Deferral Notice. The EAP-020 lists the health and safety conditions that must be addressed, by the occupant or owner, before weatherization work begins or continues. The form requests that the Sub-grantee be notified when these conditions have been corrected. A copy of this completed form is given to the occupant, a copy to the owner, and a copy is retained in the weatherization case file.

Once the Sub-grantee has been notified that the reasons for deferral have been resolved the Sub-grantee must verify that the household is still eligible (i.e., on the current priority list or LIHEAP or Weatherization Only eligible) before proceeding with weatherization work.

5100 Health and Safety-Related Repairs

The health and safety of weatherization clients, Sub-grantee staff, and contractors are a prime concern of the Department. Weatherization Sub-grantee staff and contractors must be aware of the potential hazards of the weatherization process and minimize risks to clients, workers, and contractors.

Note: To review workplace safety standards and regulations visit the OSHA website. To review product and material hazards, review the Sub-grantee's Safety Data Sheets (SDS).

Each dwelling audited and/or weatherized by a Sub-grantee must be assessed to determine the existence of potential health and safety hazards to occupants, Sub-grantee staff, or contractors. When a health and safety hazard, situation, or condition is determined by the Sub-grantee that cannot be corrected with weatherization contract funds, the Sub-grantee must defer the weatherization of the dwelling and provide the occupant and owner with a copy of the DPHHS-EAP-020 SUB-GRANTEE HEALTH AND SAFETY Walk Away or Deferral Notice. (See WPN 22-7 and the DOE Weatherization State Plan Health and Safety Section for additional health and safety-related details.) A Sub-grantee can use Weatherization Readiness to address health and safety hazards that would otherwise result in a deferral.

Health and Safety funds allowable expenses:

- minor electrical system repairs,
- minor plumbing repair,
- minor pest removal (When it prevents weatherization),
- injury prevention
- minor moisture (Barrier/Gutters) related repair,
- stand-alone electric space heaters,
- minor biological and unsanitary (sewage) issues,
- minor building structure and roofing repair
    - Window and door **repairs** are allowed with H&S funds to resolve a bulk water intrusion issue that is the cause of a biological growth (mold). Per WPN 19-5 Incidental Repair Measure Guidance and WPN 22-7 Weatherization H&S)
    - DOE and NWE H&S funds cannot be used for window or door **replacement.**
    - LIHEAP funds can be used to replace, repair, or install windows and doors to comply with egress codes when a window or door does not pay back as an ECM in CEA; provided, the WAP installed measure directly causes the egress requirement to apply.
    - Window and door replacement can be an IRM to the wall or floor measure if the replacement is necessary for the performance and preservation of the installed measure as part of the work scope.
- minor fuel leaks

- When a gas leak is found on the utility side of the service, the utility service must be contacted, work must be temporarily halted, and the leak must be repaired before work may proceed.
- Fuel leaks that are the responsibility of the occupant must be repaired before installing weatherization measures in the home.
- The replacement or repair of leaking bulk fuel tanks and/or lines if the connected system will remain after weatherization for client-owned fuel tanks. Monitor approval is required.

Stand Alone (Portable) Space Heaters:

Federal regulation requires permanently installed heating systems in all jurisdictions. After weatherization, all homes must have a permanently installed primary heat source that provides heat for the entirety of the conditioned dwelling space. If a conditioned area of a dwelling has no primary heat source, a heat source must be installed. This new heat source must be tested as an ECM in CEA to determine if it pays back. If not, then it can be charged to Health and Safety.

Unvented fuel-fired space heaters that meet American National Standards Institute (ANSI) Z1.11.2 may be left as secondary heat sources in **house-modular (Single-family)** homes. All unvented fuel-fired space heaters not labeled as meeting ANSI Z1.11.2 are considered unsafe.

All unvented fuel-fired space heaters in **manufactured housing (mobile and double-wide homes)** may not be left in place, even as secondary heat sources. If the client will not permit the removal of an unvented fuel-fired space heater the home must be deferred.

Health and Safety Minor repairs mentioned above are allowed an aggregate total of $1,600. Pre-approval is required if aggregate costs exceed $1,600.

LIHEAP weatherization funds can be used to replace, repair, or install egress windows or doors under Health and Safety Minor Repair when weatherization activities directly cause egress compliance to apply, and the door or window doesn't pay back as an energy conservation measure in the CEA. This is restricted to situations where a code-compliant egress window or door is not currently installed, is inoperable, or is removed. The existing wall framing must support the replacement or installation of a door or window, i.e., an existing header is present in the wall.

When code compliance requires an egress window, in some cases, if it is determined that a bedroom window or windows may be too small to allow an individual to exit in an emergency. Additionally, the existing window framing will not meet the rough opening measurements for an egress window.

Using LIHEAP H&S funds, under Building Structure and Roofing Repair, with monitor pre-approval, the window framing may be changed to accommodate an egress window.

In extenuating circumstances, the existing window framing

The cost associated with installing a code required egress window or door, when the repair or replacement does not meet a SIR of 1.0 or greater, can be entered under the "Building Structure and Roofing Repair" line item in the Health and Safety table in the Energy Audit. Pre-approval is required if the combined minor repair costs exceed $1,600.

Per the Montana Residential Landlord and Tenant Act, landlords are required to maintain the dwelling to comply with all building and housing codes related to a tenant's health and safety. ***The Sub-grantee will need to request landlord contributions for egress-related costs. Any mitigating circumstances that prevent the landlord from paying for or contributing to the costs of the repair or replacement must be clearly documented.*** *Documentation of landlord communications must be maintained in the client file.*

5200 Limitation of Expenditures

The DOE weatherization contract limits the amount of funds available for Health and Safety-related expenditures. This limitation is an average amount per dwelling set at twenty percent (20%) of funds and this amount is designated as a line item in the respective contracts.

NWE and LIHEAP have no contractual cap on Health and Safety-related expenditures.

The Bonneville Power Administration (BPA) weatherization contracts limit the amount of funds available for health and safety measures in a line item. The contract specifies that repair costs, including costs to repair or replace electric heaters or furnaces if they are broken, not working or fail to properly heat the dwelling, cannot exceed an average of 30% of total dwelling costs.

Other weatherization contracts do not limit the amount of funds that can be spent on health and safety conditions. DOE caps Health and Safety state-wide at 20%.

- The accumulated total of health and safety-related minor repairs is allowed up to $1,600.
- Pre-approval is required for costs exceeding $1,600.
- Additional pre-approval is required and will be determined on a case-by-case basis, when the total health and safety minor repairs exceed $1,600.

5210 Other Sources of Funding

In some instances, the weatherization Sub-grantee may determine that a health and safety hazard, situation, or condition in a dwelling being weatherized meets the criteria for Emergency Assistance under the Low-Income Energy Assistance Program (LIHEAP) Contingency Revolving Fund (CRF).

The following is the LIHEAP Emergency Assistance criteria:
“Emergency Assistance under the LIHEAP may be provided to an eligible household in the following circumstances only when such circumstances present an imminent threat to the health and safety of the household.

Note: The household is responsible, at its own expense, for documenting existing circumstances that present a serious, immediate threat to the household. The local contractor may, in its discretion, assist the household in identifying and documenting such circumstances if the contractor has the expertise and resources to do so.

5220 Conditions of Emergency

1. The household's primary energy supply is interrupted due to weather conditions and another supply, or a different type of energy is necessary.

2. Weather or other forces outside the control of the household damage the household's dwelling and cause the dwelling to suffer a severe loss of heat.
3. Hazardous or potentially hazardous conditions exist in the household's primary space heating system, and safety modifications are required (a no-heat situation is considered potentially hazardous, excluding terminations for nonpayment).

4. Any other home energy-related conditions caused by severe weather conditions, fuel shortages, and/or acts of God.

5. Documented Medical Needs from a medical provider.

Note: The identification, removal, and/or abatement of asbestos is not an allowable use of Emergency Assistance funds.

A household eligible for the LIHEAP which has an emergency as defined above is eligible for Emergency Assistance.

A household must apply and be approved for LIHEAP before it is eligible for Emergency Assistance. LIHEAP eligibility determination must be made on or after October 1st for each calendar year. If approved, LIHEAP CRF Emergency Assistance

ends on September 30, and the household must reapply. If the household is not currently LIHEAP eligible, the Sub-grantee may not request and receive reimbursement for the expenditure.

Note: Subgrantees may also use LIHEAP CRF to fund furnace repairs and replacements provided the situation meets one of the conditions of emergency listed above. Emergency Assistance benefits are available year-round.

Emergency Assistance under LIHEAP may be provided to an eligible household in the following circumstances only when such circumstances present an imminent threat to the health and safety of the household.

TIMELINES (18/48 Hour Rule):

In life-threatening situations, the sub-grantee must resolve the emergency within eighteen (18) hours from the request for Emergency Assistance if the household is financially and otherwise eligible to receive such assistance. In all other emergency situations, the sub-grantee must resolve the emergency within forty-eight (48) hours if the household is financially or otherwise eligible to receive such assistance. The sub-grantee must document the request, including the date and time, for Emergency Assistance and the resolution using the LIHEAP Emergency Assistance Request Form (DPHHS EAP-250) or its equivalent.

The above time limits do not apply in a geographic area affected by a disaster or emergency if the Secretary of the U.S. Department of Health and Human Services determines that the disaster or emergency makes compliance with the time limits impracticable. This exception to the time limits applies when the Secretary of the U.S. Department of Health and Human Services designates a natural disaster or if a major disaster or emergency is designated by the President under the Disaster Relief Act of 1974.

The 18 and 48-hour rules apply; therefore, the Sub-grantee will need to ensure the LIHEAP recipient has a back-up heat source. If a backup heat source is not available space heaters will need to be provided.

The Weatherization Sub-grantee must work closely with the LIHEAP program in the identification of health and safety hazards, situations and conditions that meet the LIHEAP Emergency Assistance criteria. Expenditures under the LIHEAP CRF are not considered federal weatherization funds and are not subject to weatherization contract averages and percentage limitations. LIHEAP CRF expenditures completed at the time of weatherization must be entered into the CEA in one of three Health and Safety LIHEAP CRF line items and in the Cost by Funding Source table LIHEAP CRF line.

Note: The household is responsible, at its own expense, for documenting that circumstances exist which present an imminent threat to the household. The sub-grantee may, in its discretion, assist the household in identifying and documenting such circumstances, if the sub-grantee has the expertise and resources to do so.

- CRF can be used to relight a furnace pilot light if it is the primary heat source.
- Emergency cooling assistance is allowable during sustained high temperatures. Cooling assistance will be limited to the purchase of fans, operation or support of local cooling centers, coordination with local social service sub-grantees, relocation to a hotel/motel, and providing an air conditioner to cool one room (where medically necessary). CRF cannot be used to repair or replace central air conditioners.
- Cooling emergency eligibility:
    - LIHEAP eligible household,
    - Which includes a household member that has a life-threatening condition where an air conditioner will eliminate or significantly reduce the possibility of a loss of life or heat-related illness.
    - A letter from a medical provider is required. The letter does not have to include the diagnosis or condition; it must indicate a need for air conditioning and be signed by a qualified medical provider.
- Cooling centers may be activated when the temperatures are expected to reach 90 degrees for at least three consecutive days. Transportation to the cooling center will not be provided.
- The sub-grantee must obtain departmental approval before providing crisis cooling assistance.
- Emergency CRF funds may be used to purchase CO detectors when a furnace is repaired or replaced.
- A one-time crisis benefit up to $250 is available to eligible households in the threat of disconnection of their primary heat source to address fuel shortage situations.
    - A crisis benefit may be used for utility reconnections, emergency deliverable fuel refills, to address the threat of disconnection, and other fuel shortage conditions as determined by Sub-grantee LIHEAP specialists and with approval of IHSB Monitor.

Note: Monitor approval is required for emergency payments of $9000 and greater.
METHOD OF PAYMENT: The sub-grantee will use funds from the Contingency Revolving Fund (CRF) with a voucher or similar internal form. Bids will be obtained. The voucher or similar internal form will then be sent to the awarded bidder. The voucher or similar internal form will specify the amount of payment, the quantity and description of the goods or service and the name of the goods or service recipient.

Note: Emergency Situations **Allowable Weatherization LIHEAP and NWE Only**: Emergency heating system situations might need or require residential weatherization at a previously weatherized home before five years, sub-grantees can submit a work order plan to address the situation(s). Residential weatherization services provided at a previously weatherized home within five years will require monitor pre-approval. Upon approval, IHSB will notify NWE.

5230 Amount of Assistance

CRF Emergency Assistance payments may be made on behalf of the eligible household for actual costs necessary to alleviate the emergency. CRF expenditures exceeding $9,000 require monitor approval.

Requests for Emergency Assistance payments for actual costs can be made after services are rendered, provided all the following conditions are met.

- The recipient contacts the Sub-grantee within a week of the emergency assistance.
- The recipient submits a completed application within a week of reporting the emergency assistance, or has a legitimate reason, such as icy roads, flood, medical condition, etc.
- The Sub-grantee determines eligibility.
- The Sub-grantee documents that the services were necessary to alleviate a life-threatening situation.
- The Sub-grantee obtains Departmental approval.

No Emergency Assistance payments will be made for costs which are the liability of a third party, unless the household assigns to the Department, in writing, its rights to such third-party payments. (The household assigns the rights to third party payments when the application for assistance is signed.) In emergency circumstance call your Department of Public Health and Human Services (DPHHS) Field Monitor for guidance.

LIHEAP Emergency Assistance benefits are available from October 1st through September 30th.

5300 Mold

For dwelling units where mold conditions beyond the scope of weatherization have been identified, the Sub-grantee must provide the occupant with a signed copy of the DPHHS-EAP-032 “Montana Mold Assessment and Release Form”. A copy of the signed form must be maintained in the weatherization file. Department of Energy, LIHEAP, and NWE Weatherization Readiness funds (WRF) are available for mold abatement. All WRF costs

must be entered in the Computerized Energy Audit (CEA) under the WX Ready link and per the DOE Weatherization Readiness Policy Bulletin, must be entered on the WRF Tracker Template spreadsheet.

5450 Lower Explosion Level (LEL)

Per BPI 1200, Chapter 7, the auditor shall monitor indoor ambient combustion gas levels in at least one location per floor of occupied space upon entering the dwelling. For any measured concentrations of ambient combustible fuel gas exceeding 10% of the Lower Explosive Level (LEL), the auditor/inspector shall immediately communicate the dangerous condition to the homeowner/occupants and evacuate the dwelling. Outside the dwelling, the auditor/inspector shall notify the appropriate personnel (e.g., HVAC technician, utility company, emergency services). If ambient combustible gas levels are detected, at any level below 10% LEL and the gas leak cannot be confirmed with a gas leak solution, the auditor/inspector shall notify and advise the homeowner/occupant to notify the gas company or a qualified professional. All confirmed gas leaks must be repaired immediately.

5500 ASHRAE Standard 62.2.2016

Purpose: This standard defines the roles and minimum requirements for ventilation systems, and the dwelling envelope intended to provide acceptable indoor air quality (IAQ) in residential dwelling units.

Scope: This standard applies to spaces intended for occupancy within single-family dwelling units and multi-family dwelling units, including manufactured and modular dwelling units.

- The goal is to prevent major problems that result from poor indoor air quality.
- The standard considers chemical, physical, and biological contaminants that can affect air quality. Local sources of contamination such as excessive moisture, smoke, CO, and chemical Volatile Organic Compounds (VOCs) should be eliminated as much as possible. Spot ventilation of cooking and bathing is addressed with local ventilation with minimum flow rates. Overall air quality is addressed with continuous flow rates.

Subgrantees must use the ASHRAE Standard 62.2 - 2016, including *Appendix A: Existing Building,* to provide mechanical ventilation for all weatherized homes.

Training: MSU Weatherization Training Center (WTC) provides the ASHRAE Standard 62.2 – 2016 *Ventilation and Acceptable Indoor Air Quality in Low-Rise Buildings (Appendix A: Existing Buildings)* specific training and technical assistance.

If the final mechanical ventilation rate for the existing dwelling unit is 15 CFM or less, then installation of an ASHRAE fan is not required.

Final Inspection Form: Subgrantees must use a Grantee-approved final inspection form and the Red Calc ASHRAE 62.2-2016 Ventilation Field Input Form (or equivalent) to document ASHRAE Standard 62.2.2016, including *Appendix A: Existing Buildings* compliance. ASHRAE 62.2-2016 Pro free version is available here: ASHRAE 62.2-2016 | Building America Solution Center

"Dwelling Unit as a System" considerations:

1. Weatherization ECMs' should be done in order of importance as determined in the EA funding table.
2. Tighter dwellings can conflict with open-combustion gas appliances. Consider additional combustion air and improved venting. When atmospheric combustion equipment is present, always perform a Worst-Case Combustion Appliance Zone (WC CAZ) and smoke/spillage test at the initial audit, at the end of each day in which envelope or duct sealing is done, and during the final inspection. If an appliance backdraft, fails the smoke/spillage test, and the back drafting cannot be remedied per BPI-1200 Table D.1.A, referenced in Appendix D of this Manual, the appliance must be shut down until it can be serviced by a qualified professional.
    a. Auditors, HVAC techs, and contractors conducting end-of-day CAZ testing must monitor ambient CO levels during testing see BPI-1200, Chapter 7. If ambient CO levels are equal to or greater than 70ppm, terminate the audit/inspection, notify the homeowner/occupants, and evacuate the building. Once outside the building, notify the appropriate emergency services. Lower ambient CO levels trigger additional actions, reference BPI 1200-S-2017 section 7.3.3.3. However, any detectable level of ambient CO in a dwelling should be investigated. A level of 1 or 2 ppm could indicate a cracked heat exchanger.
    b. Worst Case CAZ testing is not required when no open combustion appliances are present.
    c. Sub-grantees will perform pre-weatherization and post-weatherization WC CAZ depressurization testing and visual inspections to ensure open-combustion fireplaces operate safely. Please see Manual section 8400 for a full description of solid fuel appliance testing protocols.
3. ASHRAE Standard 62.2 – 2016, including *Appendix A*, allows for aggressive air sealing of the home. Acceptable Indoor Air Quality (IAQ) is maintained through a Minimum Ventilation Rate (MVR), as specified in ASHRAE Standard 62.2 - 2016. The energy savings associated with a tighter home exceed the cost of running an ASHRAE fan.
4. Air flow between rooms should be checked to provide adequate mixing of fresh air. Rooms with exhaust fans or HVAC supply/returns should have a pressure differential across a closed door of 3 pascals or less.

5. Tighter houses can be an H&S concern if the client does not use and maintain mechanical ventilation systems.
6. Compartmentalization: the measurement of airtightness changed to 0.3 CFM 50 per square foot of envelope area.
    a. This is not a mandatory threshold.
7. De Minimis: For existing buildings, if the final ventilation requirement (considering deficits and infiltration) is less than or equal to 15 CFM then installation of a fan is **NOT** required.
8. Multifamily units can get an infiltration credit for **horizontally attached** dwelling units.
    a. Duplexes, triplexes, and row houses, etc.
    b. Credit is reduced based on the common wall area (including the garage)
    c. **Stacked dwelling** units do not get an infiltration credit.
9. ASHRAE Standard 62.2 - 2016, Section 6.7, requires a minimum MERV 6 filter or better for all forced air systems.

5550 ASHRAE Client Education and Participation

Client education and benefits:

- Like all weatherization measures, client refusal is NOT an option. Provide Client Education and obtain client permission for the ASHRAE Standard 62.2 – 2016, including *Appendix A* standards, before commencing other weatherization measures.
- Use the State-provided ASHRAE client education brochure to guide the conversation with the client.
    - The program combines additional air sealing with smart, healthy ventilation.
    - Ask about the client's concerns with a focus on Indoor Air Quality (IAQ), Health and Safety, and moisture. Provide information and solutions to address concerns.
    - If air sealing is performed, the savings from reduced infiltration will be greater than the cost of running the fan as prescribed.
    - With potential improvement in IAQ, there may be a reduction in respiratory-related health issues.
    - Client homes should see a decrease in condensation or moisture collection. (Windows, ceilings, etc.)
- Alert occupants to potential hazards contributing to poor IAQ after tightening up a home without installing mechanical ventilation such as moisture, odors, chemicals, smoking, pets, etc. If these are observed, document and consider increasing the flow rate of the continuous fan. (Appendix B includes a disclaimer on ASHRAE Standard 62.2 - 2016)
- Instruct clients on the correct operation of the fans and the importance of periodic maintenance.

- Provide information on relative humidity. When humidity is above 60%, have clients check fans, and increase speed and usage.
- Encourage the occupants to use the kitchen range hood whenever they cook.
- Place a Label on the wall switch stating, “Ventilation Fan, leave on at all times.”, or leave the fan manual.
- Show the client how the controls work and how to clean the fan periodically.

Note: Building positive client relationships is helpful to learn more about how the home is used, and to provide comprehensive education that clients may use in the future.

5600 ASHRAE Health and Safety

- CO detectors must be installed in all dwellings, including dwellings with only electric appliances, please reference section 10100.
- If the home contains an existing CO alarm, assess for replacement. Replace functional CO alarms if they are beyond the manufacturer’s stated lifetime. Replace the CO alarm battery if it is designed to be replaceable.
- Educate the client on the importance of not removing the CO alarm, what it means if the alarm is triggered and what steps to take if the alarm goes off.

5650 ASHRAE Protocol

The use of the blower door during air sealing is required by the SWS 3.01. It allows for tighter homes with increased energy savings and improved Indoor Air Quality (IAQ).

Fan installation: in most cases, fan installation or replacement will take place before attic insulation and other weatherization shell measures.

The following procedures are to be followed in every weatherized home:
The auditor will use the Residential Energy Dynamics calculator (RED Calc) ASHRAE Standard 62.2-2016 Tool to determine the ventilation needs of the dwelling unit. Found at the following link: ASHRAE 62.2-2016 | Building America Solution Center

1. The Auditor will interview the occupants for indications of poor air quality and moisture problems and then must inspect the home for these issues. **Clients cannot refuse this measure and still receive other Weatherization improvements.**
2. Zonal Pressure Diagnostic procedures must be used to determine the potential for attic air sealing. Large bypasses from the basement/crawlspace to the attic will also be sealed.
    a. Priority will be sealing the attic to the pass rate in section 3200.
    b. Common walls between attached garages must also be air-sealed from the living space.

c. Openings in the basement/crawlspace ceiling will only be sealed if it has been defined as the pressure boundary.
d. Air sealing in basements/crawlspaces will be focused on the rim joist and foundation walls.
e. Above-grade framed walls will be sealed last, typically by dense packing.

3. The Auditor will run a calculation to determine the required ASHRAE Standard 62.2 – 2016, including *Appendix A*, mechanical ventilation rate, and develop an installation strategy for each dwelling. The whole building fan flow rate can be determined with the Dwelling-Unit Leakage Rate Solver tool at the bottom of RED Calc**.** The final, whole-building fan setting will be determined by the Inspector at the Final Inspection (based on observed conditions) and will be recorded on the Final Inspection Form.
4. Fan installation design shall prioritize the most cost-effective option that meets the ASHRAE Standard 62.2 – 2016, including *Appendix A* requirements.
5. Replacement of existing bath fans with larger or adjustable 2-speed fans will often be the preferred approach and maybe all required.
6. Crew leaders and installers are required to utilize blower door testing during Air Sealing (per SWS 3.01, BPI 1200 Chapter 10, the Montana Field Guides and WTC training).
    a. Blower door-guided general air sealing may continue if the Infiltration SIR is less than 1.0 and the cumulative SIR is equal to or greater than 1.0.
7. If open combustion appliances exist in the home, the WC CAZ and the smoke/spillage test must be performed at the initial audit, at the end of each day in which envelope or duct sealing takes place, and during final inspections (per BPI 1200, Chapter 7). If spillage/back drafting occurs appropriate actions per BPI 1200 Annex D must be undertaken. **No dwelling shall be left with combustion appliances that fail the spillage test.**
    a. All individuals conducting CAZ testing must always monitor ambient CO levels. Review BPI 1200 Chapter 7.3.3 for ambient CO action levels. If ambient CO levels are equal to or greater than 70 ppm, terminate the audit/inspection, notify the homeowner/occupant, and evacuate the building. Once outside the building, notify the appropriate emergency services.
8. Post weatherization, the dwelling unit will receive blower door testing and fan flow testing of the ventilation systems. These numbers will be used to recalculate and confirm that the dwelling unit meets the ASHRAE Standard 62.2- 2016, including *Appendix A* requirements. This information must be recorded in the CEA and the Final Inspection form.
    a. The cost of implementing the ASHRAE Standard 62.2 – 2016, including *Appendix A*, will be entered in the Health & Safety's Whole House Ventilation Section of the CEA.
    b. Comments in the Health and Safety section of the audit are imperative; please explain what was done regarding ASHRAE.
9. When the ASHRAE Standard 62.2- 2016, including *Appendix A,* may not be feasible or pose significant challenges, the Sub-grantee can request an ASHRAE Waiver.

Documentation of why must be placed in CEA and the client file. Examples of when a request for an ASHRAE Waiver is needed include:

a. Substandard electrical,
b. When outside air quality is worse than indoor air quality, documentation is required.
c. Occasionally, structural or spatial conditions may preclude fan installation.

10. If the ASHRAE Standard 62.2 – 2016, including *Appendix A,* CANNOT be completed; documentation of state approval is required. Documentation that indoor air quality is acceptable shall be placed both in the CEA and the client file.

5700 ASHRAE Ventilation Systems

Local Mechanical Exhaust: Local mechanical exhaust is required in kitchens and bathrooms, per Section 5.1 of ASHRAE Standards 62.2-2016. If the existing kitchen or bath ventilation is insufficient, per ASHRAE Standards 62.2-2016 Appendix A Section 5, the Whole House Ventilation rate can be adjusted to compensate. When practical, natural gas and propane ovens/ranges must have local ventilation installed. When not practical, a whole-building ventilation fan may be used.

1. In dwelling units with an enclosed kitchen, either a demand-controlled or continuous mechanical system may be installed. An enclosed kitchen means the permanent openings to other spaces do not exceed a total of 60 square feet.
2. In dwelling units with a non-enclosed kitchen, only a demand-controlled mechanical exhaust system may be installed.
3. For enclosed and non-enclosed kitchens, use 100 CFM if the fan is a range hood (including appliance-range hood combinations).
4. For all other kitchen exhaust fans, including downdraft, use 300 CFM.
5. If the existing local exhaust in the kitchen and bathrooms does not meet these ventilation requirements, a whole-building exhaust system can compensate with higher flow rates.
6. Airflow deficit for bathrooms shall be 50 cfm and for kitchens, 100 cfm. If there is no exhaust fan or the fan cannot be measured or rated, the fan's airflow shall be assumed to be zero.
7. Half bathrooms and laundry areas do not require exhaust fans.
    a. Half baths are bathrooms that do not contain a bathtub, shower, spa, laundry appliances, or a similar source of moisture.
8. Clothes dryers should be exhausted directly to the outdoors.

Note: Two (2) ventilation systems are optimal and may be required.

Whole Dwelling Unit Ventilation: A mechanical exhaust system shall be designed to be operated continuously. The system may be part of a balanced mechanical system or provide for exhaust only**.**

1. **Periods of Operation:** The system shall be designed to operate during all hours.
2. **Controls and Operation:**
    a. A readily accessible manual ON-OFF control, including but not limited to a fan switch or a dedicated circuit breaker, shall be provided.
    b. Controls need to include a text-based label or an icon indicating the system's function.
    c. For multi-family dwelling units, the manual ON-OFF control shall not be required to be readily accessible.
3. **Ventilation Rates:** Use the Residential Energy Dynamics calculator (RED Calc) to determine the appropriate ventilation rate.
    a. Based on the CFM of ventilation air needed per hour, determine the appropriate fan run time; this may require intermittent fan settings.

4. **Airflow Measurement:** The airflow required for local exhaust is defined as the quantity of exhausted air by the ventilation system installed. This will be measured by using a flow hood, flow grid, or other airflow-measuring device anywhere along the system.
    a. The exhaust fan flow hood test must be performed inside, at the exhaust fan. It is not to be performed outside at the exhaust termination point.
5. **Sound:**
    a. Continuous whole-house exhaust fans shall be rated at a maximum of 1.0 sone.
    b. Demand-controlled kitchen exhaust fans shall be rated for sound at a maximum of 3 sones or less, at one or more airflow settings greater than or equal to 100 CFM.
    c. Demand-control bath exhaust fans shall be rated at a maximum of 3 sones.

5750 ASHRAE System Sizing and Design

Field Data Collection and ASHRAE Ventilation Rate Calculations:

1. The Auditor will collect the following information:
    a. Square footage of conditioned space (interior dimensions)
        i. Includes all above-grade and below-grade finished areas as defined in ANSI Standard Z765, and unfinished below-grade occupiable spaces. An occupiable space is defined as a space within the pressure envelope and intended for human activities.
            a. If the basement is within the pressure envelope, include all its area in your square footage calculation, except for the basement area housing the central heating/cooling equipment.
            1. Finished area: An enclosed area in a house that is suitable for year-round use that is consistent with the rest of the house. (Z765-2013)

2. Grade: The ground level at the perimeter of the exterior finished surface of a dwelling
3. Unfinished basements are not counted as 'floor area.'

b. Number of Bedrooms plus one or the number of occupants, whichever is greater. The capacity of the fan installed must be large enough to meet the number of bedrooms.
c. Pre and Post-weatherization Blower Door Readings.
d. Dwelling unit height is the vertical distance between the lowest and highest above-grade points within the dwelling pressure boundary.
e. Kitchen and Bath fan flow rates, make, and model.
f. If the kitchen or bath has no existing exhaust ventilation, or if existing ventilation is non-operable, 0 cfm must be recorded.
g. The existence of operable Kitchen and Bath windows.
h. Opportunities for improving exhaust ducting will be considered.

2. The Auditor will use RED Calc to compute the required Whole Dwelling Unit Ventilation Rates.

System Design:

1. Auditors should familiarize themselves with the performance and condition of existing fans and the possibilities for running additional ductwork and wiring in the house.
2. The auditor should run a variety of scenarios with the sizing calculator to obtain a preferred system design. The Auditor should consider the following:
   a. Prioritize air sealing and adjust the continuous fan flow rate to compensate. The RED Calc Whole-Building Leakage Rate Solver can help size the fan based on the building air leakage rate. This strategy is more effective at saving energy than leaving a leaky dwelling with a smaller fan.
   b. Upgrading exhaust ventilation ducts or replacing existing fans is more cost-effective than new installations.
   c. Consider the ease of installation, fan location, vent terminus, and wiring connections.
   d. Effectiveness of Ventilation:
      i. Continuous fans are more effective if located high in a central location.
      ii. Target pollution sources with local ventilation.
   e. Client input:
      i. Noise and comfort concerns may dictate location.
      ii. Use the quietest fans possible (see WTC training materials for sone ratings applicable in a variety of fan scenarios)

5800 ASHRAE Equipment

Fans:

- Use HVI-rated fans. Fan and Range hood performance data can be found at: Home Ventilation Institute certified products.
- A list of recommended fans, range hoods, and controls is available at the Montana Weatherization Training Center.
- Sub-grantees will document preferred fan models. They are encouraged to obtain bulk pricing from their suppliers.
- Use a fan with an ECM motor that produces no more than 1.0 sones at maximum speed and has an efficacy of 2.8 cfm/watt or more.
- Mobile homes are often difficult to retrofit. Consider side wall fans or an inline fan mounted under the belly.

Controls:

- A readily accessible manual ON-OFF control, including but not limited to a fan switch or a dedicated circuit breaker, shall be provided.
- Controls need to include a text-based label or an icon indicating the system's function.
- For multi-family dwelling units, the manual ON-OFF control shall not be required to be readily accessible.
- An "Off" switch, located under the fan cover or the wall switch plate is sufficient for access. If an override switch is present on a wall switch plate it must be labeled to ensure that the building is being appropriately ventilated.
- Choose simple, easily understood switches for clients; avoid programmable switches in most cases.

Wiring:

- Per Montana Code Annotated, Chapter 60, Building Construction Standards, Part 6, Electrical Installations Exceptions (4):
    - This part does not in any manner interfere with, hamper, preclude, or prohibit any vendor of any electrical appliance from selling, delivering, and connecting any electrical appliance if the connection does not necessitate the installation of electrical wiring of the structure where the appliance is to be connected.
- A licensed electrician is required to install electrical wiring.
- Identify substandard electrical systems in dwellings; minor electrical repairs are allowable, but if major electrical work is required, please work with your field monitor. Minor repairs are allowed up to $1,600, if the costs are going to exceed $1,600 pre-approval is required.
- Do not connect new ventilation devices to existing knob-and-tube wiring.

Ducting:

- Material:
    - Smooth wall vent pipe (PVC or metal) shall be used.
    - Smooth wall and flexible Aluminum duct should be minimized.
    - Flexible vinyl duct is not allowed.
    - Insulate to a minimum of R-8 in all unconditioned areas.
    - Seal all joints with durable metal tape. Use zip ties to connect flex duct to rigid.
    - Mechanically secure the exterior of the vent hood to the siding or roofing and seal with exterior caulk.
- Layout:
    - Keep the duct runs to the minimum length possible. Use long sweeps instead of sharp corners.
    - Use vent hoods with backdraft dampers. Avoid placing vent hoods on the windward side of dwelling units. Locate either in gable end walls or on the roof.
    - Don't dump exhaust air into the attic or soffit.
    - Where possible, slope all ductwork to the outside of the building. Avoid droops in the ductwork to prevent moisture collection and ponding.
    - Makeup air dampers:
        - Gravity or barometric dampers are not allowable components of passive makeup air systems for combustion appliances.

5850 ASHRAE Legal Authority

DOE: Requiring implementation of the ASHRAE Standard 62.2.2016.

- Regulation: https://nascsp.org/wp-content/uploads/2018/02/wpn2017-720hs208.9.17-1.pdf

Montana Code Annotated, Chapter 60, Building Construction Standards, Part 6, Electrical Installations Exceptions (4)

Other Relevant Codes

International Residential Code (IRC) 2018

1. 3 ACH50 air tightness: N1102.4, Table N1102.4.1.1
2. Mechanical Ventilation: M1501
    a. Clothes Dryer Exhaust: M1502
    b. Range Hoods: M1503
    c. Mechanical Ventilation: M1507
3. Duct Systems (including ventilation) M1601

4. Fuel Gas and Combustion Air for gas appliances: G2407
5. Venting of gas appliances: G2427, G2428
6. Electrical: E34-43

International Energy Conservation Code (IECC) 2012

1. Insulation Levels: R402
2. Air Leakage: R402.4
3. Ducts: 403.2

International Mechanical Code:

1. Natural Ventilation: Section 402
2. Mechanical Ventilation: Section 403
3. Clothes Dryer Exhaust: Section 504
4. Kitchen Exhaust Equipment: Section 505
5. Energy Recovery Ventilation Systems: Section 514

Additional Resources:

- Learn more about RED Calc
- Short RED Calc Tutorial
- Extended RED Calc Tutorial

Installation advice:

- Step by step with photos

Standard Work Specification (SWS) Details; include Exhaust, Supply, Whole Dwelling Unit Ventilation, and additional resources

5890 Radon Single Family Dwellings

As Per WPN 22-7 - Required Actions (when applicable):

- Cover exposed dirt floors within the pressure/thermal boundary with a sealed soil gas retarder.
- Cover sump well/pits with airtight covers
- Implement ventilation as required by ASHRAE 62.2-2016

Allowable Actions:
Other precautions may include but are not limited to, sealing any observed floor and/or foundation penetrations, isolating the basement from the conditioned space, and ensuring crawl space venting is installed and operable.

Allowable Testing: Testing may be allowed in locations with high radon potential. Testing is limited to the $1,600 minor repair limit.

Required Occupant Education:

- Provide all occupants with EPA's A Citizen's Guide to Radon and inform them of radon-related risks.
- Occupants must sign an informed consent form prior to receiving weatherization services. This form must be kept in the client file.

For additional information please refer to SWS 2.04. GUIDANCE.

Chapter 6 ASBESTOS

6000 Asbestos

No blower door testing will be performed until the auditor has inspected the dwelling for suspected asbestos-containing material (SACM). Whenever friable SACM, or non-friable SACM that will be disturbed during the normal course of weatherization activities is discovered within the exterior sheathing of the structure, no blower door testing or any other weatherization measures are performed. For program purposes, non-friable SACM that would be disturbed during weatherization activities (i.e., made friable) will be treated the same as friable ACM.

Before blower door testing, the Auditor will access and document SACM across all three Asbestos Hazard Emergency Response Act (AHERA) Types in buildings: Surfacing Materials, Thermal System Insulation, and Miscellaneous. The friability of suspect materials will be assessed based on the AHERA definition: Any material containing more than 1% asbestos that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

The Montana Department of Environmental Quality Asbestos Control Program (MT DEQ ACP) is the authority having jurisdiction for asbestos-related activities in Montana. Projects require permitting through the MT DEQ ACP when renovation activities are undertaken in structures with 5 or more dwelling units. Because the Montana WAP operates almost exclusively in residential single-family and multi-family units with 4 or less dwellings, it would be unusual for our activities to trigger a "permit-required" situation. The Montana WAP has utilized the rules adopted by the MT DEQ ACP to inform our policies relating to asbestos. Auditors are trained to identify when an asbestos remediation permit would be required through the MT DEQ ACP.

Asbestos is a fibrous mineral and a known carcinogen that can cause lung cancer and other lung-related diseases.
It has been mined for use in over 3,000 different products, including vermiculite. Dust containing asbestos can become airborne within a dwelling if friable material is disturbed during blower door testing or other weatherization-related activities.

Auditors in the Montana weatherization program are trained to identify and assess the condition of suspected ACM in weatherized homes. The following list is representative of the types of materials that could contain asbestos and is not an exhaustive list:

- Attic insulation (vermiculite/karstolite)
- Wall insulation (vermiculite, insulation blocks)
- Thermal system insulation (wrap or paper on stem pipes, boilers, furnace ducts)
- Vinyl flooring (including 9”x9” or 12”x12” floor tiles, vinyl sheet flooring, and the mastics and other adhesives used to secure flooring)
- Cement sheet, millboard, and paper used as insulation around furnaces and wood or coal-burning appliances.
- Door gaskets in furnaces and wood or coal-burning appliances (seals may contain asbestos)
- Soundproofing or decorative surface materials sprayed or troweled onto ceilings, including popcorn ceilings.
- Patching, joint compound, and textured paints on walls and ceilings
- Roofing, shingles, and siding
- Artificial ashes and embers (used in gas fireplaces)
- Transite (cement and asbestos) combustion vent or flue
- Original plasters

Note: Weatherization funding and the LIHEAP Emergency Assistance Contingency Revolving Fund (CRF) cannot be used for asbestos removal costs, which could include baseline testing, cleaning, and post-remediation testing. Referrals may be made to other funding sources such as USDA Rural Development, the NorthWestern Energy Readiness Weatherization grant, LIHEAP Readiness Weatherization Funds, DOE Readiness Weatherization Funds, and others. All WRF costs must be entered in the Computerized Energy Audit (CEA) under the WX Ready link and, per the DOE Weatherization Readiness Policy Bulletin, must be entered on the WRF Tracker Template spreadsheet.
Note: Montana DEQ ACP sampling requirements apply to dwellings with 5 or more units, even if only a single unit is being weatherized. Per the Asbestos Sampling Policy Bulletin, samplings of a SCAM by an AHERA-certified tester is an allowable Health and Safety expense in all funding programs.

6100 Vermiculite Insulation

Initial inspections of dwellings to be weatherized are performed before blower door testing by the sub-grantee’s certified energy auditor trained in the recognition of ACM. Whenever an attic or wall area is inspected, the certified energy auditor must wear protective clothing and equipment in compliance with OSHA standards and take precautions to prevent contamination of the living area.

When it is discovered that vermiculite is present, the material will be presumed to be ACM, and no blower door testing will be performed. The home will be deferred for weatherization and the subgrantee must provide the occupants/owner a copy of a completed Notice of Dangerous Conditions – Walkaway or Deferral form (EAP-020). Testing of Vermiculite with program funds is not allowed.

Testing, remediation, and air-clearance testing associated with vermiculite are not allowable program expenses. If a home is to be weatherized after vermiculite remediation (using other funding), documentation that a professional certified under the MT DEQ ACP performed the remediation and passing results of an air clearance test must be maintained in the client file. Remediation activities and air clearance testing must comply with the Administrative Rules of Montana (ARM), section 17.74 (see 17.74.357 for details on passing air clearance test results). Sub-grantees are encouraged to carefully review the narrative contained in air clearance reports to note any special considerations identified by the certified testers (dropped ceilings, visual inspection results, etc.) and plan their activities accordingly.

Clients must be informed of the presence of vermiculite. In homes where weatherization activities are deferred due to the presence of vermiculite, a Notice of Dangerous Conditions – Walkaway or Deferral form (EAP-020) should be used. The EAP-020 form must state what actions the occupant/owner must undertake before weatherization activities may commence. All air clearance test results and any qualifying narrative contained in the report must be maintained in the client file.

6200 Non-Vermiculite Asbestos Containing Materials in Exterior Siding, Walls, Ceilings

Before blower door testing, when inspecting a home for SACM in flooring, ceiling, wall paneling, etc., the certified energy auditor must wear appropriate protective clothing and equipment in compliance with OSHA standards and take precautions to prevent contamination of the living area. If it is determined there is suspected ACM, it must be documented and maintained in the client file.

If the SACM is found to be non-friable and will not be disturbed during the normal course of weatherization activities, occupants/landlords must be informed of the presence of SACM and what precautions will be taken to ensure occupant and worker safety, in writing via the Notice of Dangerous Conditions form (EAP-023). Blower door testing and weatherization of the home may proceed. If the SACM is siding in a non-friable state, a positive pressurization blower door test must be performed, and insulation measures must be completed from the interior.

When it is discovered that SACM is in poor condition (can be crumbled, pulverized, or reduced to powder by hand pressure), or if there is SACM in an area that would need to be

disturbed during the normal course of weatherization activities (i.e., made friable), no blower door testing or other weatherization activities will be performed. The auditor has the discretion to:

1. Defer the job until the material has been encapsulated/repaired or removed by an asbestos control contractor certified under the MT DEQ ACP. Deferrals must be documented on a Notice of Dangerous Conditions – Walkaway or Deferral Notice (EAP-020) form and certifications of the individuals engaged for encapsulation/repair or removal must be maintained in the client file. Air clearance testing will generally be required after the removal of friable ACM. If the friable material is removed from the exterior of the home, or if in the assessment of the trained auditor and/or certified asbestos abatement contractor, there is no potential for contamination of the home, an air clearance test waiver may be requested from IHSB. Air clearance testing will generally not be required after encapsulation/repair unless concerns with contamination of the home are present. Encapsulation/repair of SACM in siding, walls, ceilings, etc. is an allowable program cost, but removal and air clearance testing are not. All remediation activities and air clearance testing must comply with ARM section 17.74 (see 17.74.357 for details on passing air clearance test results). Sub-grantees are encouraged to carefully review the clearance report narrative and note any special considerations identified by the certified testers (dropped ceilings, visual inspection results, etc.) and plan their activities accordingly. Copies of air clearance tests must be provided to occupants/owners and maintained in client files any time a clearance test is undertaken.

2. If an auditor is uncertain if a friable or potentially friable floor, ceiling, or wall material contains asbestos, an individual certified under the MT DEQ ACP may test the material for the presence of asbestos using AHERA-compliant sampling and testing protocols. Testing of suspect SACM is an allowable Health and Safety cost. If after testing by a certified individual, the material is found not to be ACM, blower door testing and weatherization activities may proceed. A notice of dangerous conditions form (EAP-023) must be issued and maintained in the client file when SACM is found in a home and certifications of the individuals doing testing should be maintained. The results of any test must be communicated to the occupant/landlord and maintained in the client file.

If the full scope of weatherization work cannot be safely completed due to a SACM friable material, or the material would be disturbed during normal weatherization activities (i.e., made friable), the home will be deferred. The Sub-grantee must provide the occupants/owner with a completed Notice of Dangerous Conditions form (EAP-020). Partial weatherization is not allowed.

The existence of asbestos siding that is in good condition does not prevent installing dense-pack insulation from the interior. If the ACM siding is in poor condition (can be

crumbled, pulverized, or reduced to powder by hand pressure), no blower door testing or other weatherization activities will be conducted. The home would be deferred for weatherization (EAP-020 issued and retained in the client file) until the material is repaired or removed by an abatement contractor certified under the MT DEQ ACP. Due to the potential for damage and the likelihood of creating friable ACM in the siding removal process, Montana has elected to dense pack from the interior side of the wall only. General abatement of asbestos siding or replacement with new siding is not an allowable Health and Safety cost.

Clients must be informed of the presence of a SACM and what precautions will be taken to ensure occupant and worker safety, in writing via the Notice of Dangerous Conditions form (EAP-023). In homes where weatherization activities are deferred due to the presence of asbestos, a Notice of Dangerous Conditions – Walkaway or Deferral Notice (EAP-020) must be issued and maintained in the client's file. All test results need to be communicated to owners/occupants and copies maintained in the client file. Certification of auditors under the MT DEQ ACP and continuing education requirements are allowable DOE T&TA expenditures when identified in the subgrantee's approved T&TA Work Plan and Budget. Certification under the MT DEQ ACP allows auditors to sample SACM. However, vermiculite is considered an ACM and testing is not an allowable program expense. In the case of an auditor that has had asbestos awareness training, but does not hold a current MT DEQ ACP certification, contractors that are certified under the MT DEQ ACP must be utilized.

6300 Non-Vermiculite Asbestos Containing Materials in Thermal System Insulation

The initial inspection of dwellings to be weatherized is performed by the sub-grantee's certified energy auditor trained in the recognition of asbestos-containing materials (ACM). Whenever a home is inspected for ACM in Thermal System Insulation (TSI), the certified energy auditor must wear protective clothing and equipment (respiratory protection) and take precautions to prevent contamination of the living area. TSI is commonly understood to include ACM applied to pipes, fittings, boilers, tanks, ducts, or other interior structural components that prevent heat loss/gain or water condensation.

Before performing a blower door test, auditors will assess homes for the presence and condition of any TSI. This assessment should be documented and maintained in the client file. If the suspected asbestos-containing material (SACM) is found to be non-friable and will not be disturbed during the normal course of weatherization activities, occupants/landlords must be informed of the presence of SACM and what precautions will be taken to ensure occupant and worker safety, in writing via the Notice of Dangerous Conditions Form (EAP-023). Blower door testing and weatherization of the home may proceed.

When it is discovered that SACM TSI in poor condition is present, or if SACM TSI is in an area that would need to be disturbed during the normal course of weatherization activities (i.e., made friable), no blower door testing or other weatherization activities will be performed. The auditor has the discretion to:

1. Use program funds to engage a contractor certified under the MT DEQ ACP, to encapsulate the material. Clients must be informed of the presence of a SACM and what precautions will be taken to ensure occupant and worker safety, via the Notice of Dangerous Conditions form (EAP-023). MT DEQ ACP certifications for the asbestos control professional(s) that performed the encapsulation work must be maintained in the client file. No air clearance testing is required after encapsulation unless concerns with contamination of the home are present (see below). Encapsulation of TSI is an allowable program cost.

2. Defer the job until the material has been removed by an asbestos control contractor certified under the MT DEQ ACP. Deferrals must be documented on a Notice of Dangerous Conditions – Walkaway or Deferral Notice (EAP-020) form and certifications of the individuals engaged for removal must be maintained in the client file. Air clearance testing will generally be required after the removal of friable TSI. If, in the assessment of the trained auditor and/or certified asbestos abatement contractor, there is no potential for contamination of the home, an air clearance test waiver may be requested from IHSB on a case-by-case basis. Removal of TSI and air clearance testing are not allowable program costs.

3. If an auditor is uncertain if TSI is in poor condition (can be crumbled, pulverized, or reduced to powder by hand pressure), or TSI that could be disturbed during the normal course of weatherization activities is an ACM, an individual certified under the MT DEQ's ACP may test the material for the presence of Asbestos using AHERA compliant sampling and testing protocols. A Notice of Dangerous Conditions Form (EAP-023) and all test results will be communicated to the occupant/owner and maintained in the client file when SACM is found in a home. Certifications of the individuals doing testing must be maintained. If the material is found not to be ACM, blower door testing and weatherization activities may proceed. Testing TSI by an AHERA certified under the MT DEQ ACP is an allowable expense.

Air clearance testing is not mandated after encapsulation of ACM TSI. However, if in the auditor or certified asbestos professional's assessment, concerns about potential contamination from the friable material exist, an air clearance test may be required before weatherization activities commence. Justification for any auditor concerns that would trigger an air clearance test after encapsulation of TSI must be documented and maintained in the client file. Encapsulation by professionals certified under the MT DEQ ACP is an allowable Health and Safety expense.

Removal of the suspect TSI and air clearance testing are not allowable program expenses. Air clearance testing will generally be required after the removal of ACM TSI. If, in the assessment of the trained auditor and/or certified asbestos abatement contractor, there is no potential for contamination of the home, an air clearance test waiver may be requested from IHSB on a case-by-case basis.

6400 Sample Gathering Requirements

Samples for testing must be taken only by individuals certified under the MT DEQ ACP. A fit-tested air purifying respirator equipped with N, P, or R 100 filters, a disposable protective suit, and Nitrile gloves are required. The respirator must meet the minimum assigned protection factor (APF) for asbestos. Procedures for sampling, testing methodologies, safety protocols, and the final determination of whether a material is an ACM, must comply with rules laid out in the MT DEQ ACP (ARM 17.74) and by OSHA (29 CFR part 1926, subpart Z). Testing Vermiculite is not an allowable program expense.

6500 No-Heat Emergencies and Asbestos Containing Materials

In some instances, a Sub-grantee may defer weatherization activities due to the presence of asbestos in the dwelling. After the deferral, the household may have an unsafe condition or no-heat call relating to a furnace or domestic water heater (DWH). Sub-grantees may address a furnace health and safety, or a no-heat related emergencies with weatherization and/or LIHEAP CRF only if repairs or modifications can be made in a way that does not disturb or otherwise impact the SACM. For a DWH, the repair or replacement must be a Weatherization Health and Safety measure. Clients must be informed of the presence of SACMs and what precautions will be taken to ensure occupant and worker safety, in writing via the Notice of Dangerous Conditions form (EAP-023), with copies maintained in the client file.

If an emergency in a home's primary space or water heating systems cannot be addressed because of the potential to disturb SACM or otherwise expose occupants, Sub-grantee staff, or contractors to asbestos-related risks, the emergency work will need to be deferred and a Notice of Dangerous Conditions – Walkaway or Deferral (EAP-020) form issued, with a copy maintained in the client file. The EAP-020 form should clearly state what actions the occupant/owner must undertake before emergency repairs may commence. Before going back to the home to address the unsafe condition, the suspected ACM must be removed by an individual certified under the MT DEQ ACP and passing air clearance test results provided. All air clearance test results, certifications of individuals involved in the removal and clearance testing, and any qualifying narrative contained in the report, must be maintained in the client file. Depending on the type of asbestos present, budget, and other variables, Sub-grantees may elect to install alternative heating systems that meet the heat load of the home but do not require disturbance of the suspected ACM.

Note: Costs for removal of SACM and clearance testing cannot be charged to any weatherization program grant or the Contingency Revolving Fund (CRF). Referrals may be made to other funding sources. Sampling and encapsulation of a SACM by a certified abatement contractor is an allowable weatherization H&S item. Sampling and testing vermiculite are not an allowable expense.

Note: Friability will be assessed based on the AHERA definition. See Glossary

Montana WAP Asbestos Policy Summary Table

This table is intended as an at-a-glance summary of asbestos policies in the Montana Weatherization Assistance Program. Please see the full Weatherization Policy Manual sections for additional details.

Asbestos Containing Material (ACM) Type and Manual Section	ACM Condition:	Testing of Suspected ACM Allowed: Y/N	Action:	Asbestos Related Costs Allowable Under All Contracts: Y/N
Vermiculite, Manual Section 6100	Friable - All	N	Defer until removed. Passing the air clearance test required before Weatherization. (See Notes 2 & 3 Below)	N
Exterior Siding, Manual Section 6200	Not Friable or disturbed	Y, with monitor approval	Proceed with positive-pressure blower door testing, and blow wall insulation from the interior only.	Testing of suspected ACM as needed=Y (See Note 1 Below)
Exterior Siding, Manual	Friable	Y, with monitor approval	Defer until removed (See Note 2 Below)	Testing of suspected ACM or repair=Y,

Section 6200				Removal=N (See Note 1 Below)
Interior surfacing, walls, ceilings, flooring, etc. Manual Section 6200	Not friable or disturbed	Y, with monitor approval	Proceed with Weatherization.	Testing of suspected ACM as needed=Y (See Note 1 Below)
Interior surfacing, walls, ceilings, flooring, etc. Manual Section 6200	Friable	Y, with monitor approval	Defer until removed. Passing the Air Clearance test is generally required prior to Weatherization. (See Notes 2 & 3 Below)	Testing of suspected ACM or repair=Y, Removal and air clearance testing=N (See Note 1 Below)
Thermal System Insulation, Manual Section 6300 (Pipes, fittings, boilers, tanks, ducts, or other interior structural components of the furnace)	Not friable or disturbed	Y, with monitor approval	Proceed with Weatherization	Testing of suspected ACM=Y (See Note 1 Below)
Thermal; System Insulation, Manual Section 6300 (Pipes, fittings,	Friable	Y, with monitor approval	No Blower door testing until encapsulation, then proceed with Weatherization. **Or** defer until	Testing of suspect ACM and encapsulation=Y, Removal and air clearance

boilers, tanks, ducts, or other interior structural components of the furnace.)			removed, with passing an air clearance test generally required prior to Weatherization (See Notes 2 & 3 Below)	testing=N (See Note 1 Below)

Note 1- Testing of suspected ACM must be done by an individual certified under the Montana Department of Environmental Quality Asbestos Control Program (MT DEQ ACP) using AHERA-compliant sampling and testing protocols. The Montana Weatherization Assistance Program does not allow for the testing of vermiculite. All certifications of individuals involved with asbestos work (in-house staff and contractors alike) must be maintained in client files. Certification of auditors under the MT DEQ ACP and continuing education requirements are allowable DOE Training and Technical Assistance (T&TA) expenditures when identified in the subgrantee's approved T&TA Work Plan and Budget.

Note 2- Clients must be informed of the presence of SACM and what precautions will be taken to ensure occupant and worker safety, in writing via the Notice of Dangerous Conditions form (EAP-023). In homes where weatherization activities are deferred due to the presence of asbestos, a Notice of Dangerous Conditions – Walkaway or Deferral Notice (EAP-020) should be issued. All Notice copies and test results (if any) need to be communicated to owners/occupants and copies maintained in the client file.

Note 3- Removal of ACM and air clearance testing are not allowable program costs. The removal of an ACM and air clearance testing is allowable with NorthWestern Energy Readiness Weatherization grant, LIHEAP Readiness Weatherization Funds, and DOE Readiness Weatherization Funds. Encapsulation and testing of suspected ACM (other than vermiculite) are allowable across all contracts.

Chapter 7 RESTRICTIONS

7000 Fuel Switching

Fuel switching is a weatherization measure to replace a dwelling's primary space and/or water heating source with a lower-cost fuel primary space and/or domestic water heating source. The purpose of the fuel switch is to provide low-income occupants with a safe and economical space and/or domestic water heating source and to decrease the energy burden on the household's income.

For a LIHEAP-funded fuel switch, Sub-grantees are required to use the Computerized Energy Audit (CEA) to determine if a fuel switch can be cost-effectively completed for either the primary space heat source or the domestic water heating source. The Sub-grantee inputs data regarding the existing primary heat source and/or domestic water heating source and the proposed primary heat source and/or domestic water heating source and the CEA determines if the fuel switch meets the Savings-to-Investment Ratio (SIR) (Currently 1.0) to cost-effectively switch from the high-cost fuel for space and/or water heating to the lower costing fuel.

The CEA takes into consideration the existing fuel type for space and/or domestic water heating appliances, the annual energy consumption costs for space and/or water heating, the fuel price of the existing primary space and/or domestic water heating fuel type, material costs, labor costs, the seasonal efficiency of the proposed replacement primary space heater and/or domestic water heating appliance, the Annual Fuel Utilization Efficiency (AFUE) rating if the replacement system is central, the proposed fuel type, the proposed fuel price, the approximate life of the appliance(s) to be replaced, and the number of kilowatts removed if the existing appliance is electric.

For an NWE-funded fuel switch, the Sub-grantee must complete the Fuel Switch Analysis Request form, see Appendix A. The completed form must be sent to IHSB, through the State of Montana File Transfer System.

7100 Restrictions

Fuel switches **are not to be expensed** or counted as completions under the DOE, or BPA Weatherization Assistance Programs.

7200 Contribution

If the total material and labor cost to fuel switch a dwelling's high-cost primary fuel space and/or water heating source with a lower-costing fuel primary space and/or domestic water heating source brings the Savings-to-Investment Ratio (SIR) below 1.0, the owner/landlord can contribute or cost share to bring the SIR up to a 1.0 or greater cost-effectiveness (fuel switch is not allowable with DOE and BPA).

For example, the total material and labor costs to fuel switch a domestic water heater from electricity to natural gas is $1,000. The CEA will only support $800 to arrive at a 1.0 SIR.
The owner of the dwelling is willing to pay $200 as a contribution or cost share. With the owner's contribution, the domestic water heater can be fuel switched.

Chapter 8 HEATING APPLIANCES

8000 Heating Systems

Heating systems are appliances used to heat a dwelling. As part of the weatherization of a dwelling, the heating system is inspected, tested, and if necessary, repaired or replaced. All combustion Appliances and their venting must be visually inspected and tested for proper operation and safety. **Per WPN 22-7, combustion analysis CO testing is required for all combustion appliances, regardless of their venting type.** The Sub-grantee must complete the DPHHS-EAP-008 'Heating Worksheet' regarding the testing and operation of the unit. Worst Case Combustion Appliance Zone (WC CAZ) and smoke/spillage testing are required during the initial audit, at the end of each day that significant air sealing takes place, and at the final inspection where open combustion systems are present per BPI 1200 Chapter 7, referenced in Appendix D of this Manual.

The auditor will test heating systems per BPI 1200 Chapter 7. The test results will inform the auditor whether an HVAC technician will need a 'Clean and Tune' or other service. When a 'Clean and Tune' or other service is recommended for a heating system, the issues must be noted in the Computerized Energy Audit (CEA). The chart below lists the applicable tests for different heating systems required at the audit and final inspection.

Category	Gas leak	CAZ depressurization	Spillage	Ambient CO	Undiluted CO	Combustion air	Visual inspection
Category I	✓	✓	✓	✓	✓	✓	✓
Category III	✓	✗		✓	✓	✓	✓
Category IV	✓	✗		✓	✓	✓	✓
Direct Vent Mobile Home	✓	✗		✓	✓	✓	✓
Un-vented space heater	✓	✗	✗	✓	✗	✓	
Oven	✓	✗	✗	✓	✓	✗	
Range	✓	✗	✗	✓	Optional	✗	

Note: If a direct vent appliance is not equipped with a combustion air inlet to the unit, the appliance must be tested under a Category I appliance.

The efficient operation of heating systems is a critical aspect of general heat waste. Detailed combustion system safety and efficiency standards are found in the SWS tool on the NREL website and BPI 1200.

Testing/Inspection: Required

- Verify the primary heating system is present, operable, and performing correctly.
- Conduct a combustion visual inspection of the furnace and its related venting and conduct a Combustion Diagnostic test.
- All Category 1 appliances require a depressurization and spillage test. This is a requirement for pre-, post-weatherization, and at the End of The Day, when work has been done, that could affect the draft (e.g., infiltration sealing, duct sealing, adding exhaust ventilation).
- Undiluted flue gas testing is required at the audit and the final inspection for all furnace types, regardless of the venting type.
- Verify proper flue clearance from combustible materials.
- For solid fuel appliances, wood stoves, pellet stoves, fireplaces, and coal-burning stoves:
    - Visually inspect the entirety of the appliance, including the venting system, verifying NFPA 211 compliant installations. The appliance must be inspected pre- and post-weatherization.
    - Conduct pre- and post-weatherization WC CAZ. If WC CAZ depressurization is at or more negative than -7 a Notice of Dangerous Condition (EAP-023) form must be issued. Additionally, client education on the danger signs of back drafting equipment and how to reduce or eliminate the likelihood of safety concerns must be provided.
    - Verify that the Hearth Pad meets guidelines in section 8500 and that the appliance to the wall or other combustible materials is code compliant.

After each workday in which envelope or duct sealing measures have been performed, WC CAZ depressurization and smoke/spillage testing will be conducted on all open combustion appliances. This will ensure that the work completed in the home has not adversely affected the draft of the heating system. End-of-day WC CAZ testing results must be recorded and maintained in the client file. Test results will be recorded on “The End of Day WC CAZ Test Documentation Form” (or equivalent).

Note: Auditors, HVAC techs, and contractors conducting end-of-the-day CAZ testing must monitor Carbon Monoxide (CO) levels in ambient air.

Per DOE’s WPN 22-7 Maintenance, repair, and replacement of **primary** indoor heating units are required where occupant health and safety are a concern. If unsafe conditions exist with a combustion appliance requiring repairs and cannot be remedied by repair or tuning, replacement is an allowable H&S measure. For all furnace maintenance, repair, and replacement of the primary furnace, per ASHRAE 62.2-2016 and the Minimum Furnace Filter Policy Bulletin all mechanical systems that supply air to an occupiable space through ductwork exceeding 10 ft (3M) in length and through a thermal conditioning component, except evaporative coolers, shall be provided with a filter having

a designated minimum efficiency of MERV 6 or better. Furnace replacements must first be tested in the Space Heat section of Energy Audit as an ECM. Cost comparison documentation that justifies the replacement repair cost must be in the client's file.

No home shall be left without a safe primary heating system after weatherization. If unable to meet this requirement the dwelling must be deferred.

An appliance replaced during weatherization vented into a masonry chimney, per the International Fuel Gas Code or local Authority Having Jurisdiction (AHJ) if more stringent, the chimney must be lined.

Maintenance and repair of secondary heating units are required when occupant health and safety are a concern. The replacement or installation of secondary units, including solid fuel heating appliances, is not allowed using DOE funds. The replacement or installation of secondary heat units, including a solid fuel heating appliance, is allowed using LIHEAP funds. The replacement unit must be tested as an ECM in the CEA Space Heat measure. If the replacement unit does not pay back with an SIR ≥ 1.0, the replacement unit must go in H&S Space Heat Replacement. Secondary unvented space heaters are considered unsafe if they:

- are not listed and labeled as meeting ANSI Z21.11.2,
- have an input rating of more than 40,000 BTU/hour,
- are in a bedroom and have an input rating of more than 10,000 BTU/hour,
- are in a bathroom and have an input rating of more than 6,000 BTU/hour,
- are operating in an unsafe manner (e.g., high carbon monoxide (CO) readings, too close to combustible materials, lack sufficient combustion air volume), or
- are not permitted by the AHJ.

In households where a secondary heat source is wood and the dwelling contains a non-EPA-approved woodstove, the Sub-grantee may elect to replace the appliance using LIHEAP Weatherization funding; written permission from the Department is required before replacement.

The Sub-grantee can elect to leave a properly operating secondary, non-EPA, and non-mobile home approved wood stove by providing the client a DPHHS-EAP-023 'Notice of Dangerous Conditions' form, with a copy placed in the client file. If a fireplace or wood stove is left operational, the vent must meet NFPA 211 national or local codes or the home cannot be weatherized.

A home can have two primary heat sources when a heat source only heats a portion of the home. If a heat source presents a dangerous situation, it can be replaced if it is the only heat source in the area. Prior monitor approval is required.

The CDS Energy Audit must contain the correct Seasonal Efficiency. If, during the audit, it is determined that the heating system cannot be repaired and must be replaced, the seasonal efficiency of the new heating system must be entered into the energy audit before the dwelling can be submitted as a completion.

8050 Heat Pump

Heat pumps are electric heating appliances that offer significant efficiency gains over electric resistance heat. The cost and winter performance of air-source heat pumps make them a viable option for weatherization projects.

There are several different types of air source heat pumps: split systems, packaged systems, and mini-split systems. Mini-split systems are categorized as ducted, ductless, single-zone, or multi-zone. There are multiple distribution/delivery options for mini-split systems: ceiling cassettes, wall-mounted heads (most common), floor-mounted heads, and ducted delivery.

The efficiency and temperature operation range for air source heat pumps has increased considerably and they are now a good option in northern climates. There are several ways that manufacturers rate the efficiency of heat pump systems. For our climate, the ratings to be concerned with are the Coefficient of Performance (COP) and Heating Seasonal Performance Factor (HSPF). The COP relates directly to efficiency as it is calculated in the CEA system. Montana's CEA needs to be revised to include SEER data. The manufacturer will often publish a 'cold weather' or 'low temperature' COP – this is the value that must be entered in the 'efficiency' field in the CEA. Because of our cold climate and relatively high design heat loads in many weatherized homes, careful heat pump design, including Manual J, S, and D calculations, must be undertaken. It is likely, in most cases a backup heat source will be required to meet peak design loads.

Air source heat pumps are much more efficient than standard electric resistance heat and are less expensive to operate, which will further reduce the energy burden of weatherization clients.

<u>Performance Requirements (adopted from Northeast Energy Efficiency Partnerships):</u>

- Compressor must be variable capacity (two-stage is not sufficient)
- Indoor and outdoor units must be part of an Air-conditioning, Heating, and Refrigeration Institute (AHRI) matched system.
- Energy Star certified.
- COP @ 5 degrees Fahrenheit ≥ 1.75 (at maximum capacity operation)
- Ductless systems: HSPF ≥ 10 for single-zone systems or HSPF ≥ 9 for multi-zone systems
- Ducted systems: HSPF ≥ 10

Installation Criteria:

- When possible, units with a 'demand-defrost control' shall be selected. This will minimize defrost cycles and reduce the amount of heat needed by the supplemental heating elements.
- In general, with ducted systems, Heat Pumps need 400 cfm of airflow for each ton of the heat pump's capacity. The contractor must ensure adequate airflow through the distribution system. Undersized ducts, clogged/dirty filters, kinked ductwork, and dirty A-coils will deteriorate the performance of the heat pump. Care shall be taken in the system design to alleviate these factors.
- System design will employ Air Conditioning Contractors of America (ACCA) Manual S for system selection, ACCA Manual J for system sizing, and ACCA Manual D for duct system design per SWS 5.01.

Note: When replacing an electric resistance heating system with an air source heat pump, monitor approval is required.

Funding Options

Heat Pumps are an allowable measure across all funding sources. See the table below to see the restrictions.

Heat Pump Funding Sources

Funding Source	Percent Covered
DOE	100%
NWE	100%
BPA	50% or $3,800 whichever is greater
LIHEAP	100%
CRF	100% provided emergency criteria are met, and primary heating fuel is electricity

8100 Relocation of Existing Heating Systems

The relocating of heating systems refers to moving a heating system from floor to floor or a dramatic change to an existing heating system placement within the dwelling; not slight changes in location due to sizing and venting requirements/restrictions.

Per WPN 22-7, the whole heating system, not only the appliance, would need to be deemed too dangerous for the client to operate in its present condition and condemned by a Furnace Technician or Independent Furnace Contractor.

To relocate the heating system, relocating would need to be the most cost-effective solution, to bring the system out of "Red tagged" status. Relocation would usually be a rare situation and pre-approval from the Department is required before relocating.

8200 Copper Piping

The replacement of any natural gas-fueled furnace or water heater copper piping is an allowable health and safety measure with written permission from the Department. Continual flaking of copper sulfide caused by the amount of hydrogen sulfide within the natural gas, has the potential to thin the pipe and eventually cause pinholes and leaks. Continual flaking of the copper sulfide could block burners or be deposited into gas valves causing the valve to foul. This rule applies to only natural gas-fueled copper piping. Any replacement costs associated with this measure must be charged to the LIHEAP Weatherization fund.

Note: Replacement is allowed from the natural gas source to the appliance(s) only. No other replacement lines will be considered; whole-house line replacement is not an allowable cost.

8300 Duct Sealing

Duct leakage can lead to many problems in a dwelling, the most common being wasted energy. Other problems can include thermal discomfort, substandard indoor air quality, and combustion venting failure. Ductwork leakage can take place 1) within the confines of the conditioned envelope of the building or 2) to and from the outdoors.

In the SWS section 5.0106.1 for all housing types, the desired outcome is to seal ducts to prevent air leakage without interfering with the volume or fire damper operation. 5.0106.1e, General Sealing state to seal all accessible seams, cracks, joints, holes, and penetrations of the duct system. Its objective is to eliminate duct leakage. Per SWS 5.0106.1 all accessible ducts inside the pressure and thermal boundary must be sealed. Sub-sections 5.0106.1f – 5.010.1k provide the required techniques and materials.

Ductwork is not required to be insulated in conditioned spaces; however, per SWS 5.0106.1 all ducts must be sealed. Little efficiency can be gained by insulating ductwork in a conditioned space (less than 2%).

However, a substantial amount of energy can be saved by insulating ductwork in an unconditioned space (up to 15%). Duct insulation on all ducts located in unconditioned basement, crawl spaces, and attics will be a minimum of R-8. All ducts exposed to the exterior will be a minimum of R-12. Instructions for properly installing duct insulation and sealing ducts can be found in the SWS 5.0107.1.

Duct system testing is required for all dwellings with ductwork outside the Pressure Boundary; this includes virtually all mobile homes. Most commonly this test will be performed with pressure pans during the blower door test at the initial audit, during production duct sealing (if identified as part of the work scope), and at the final inspection.

Note: Boiler system delivery lines may be wrapped regardless of whether they are in a conditioned space; the heat loss through unwrapped lines is significant enough to justify wrapping boiler system delivery lines even in a conditioned space.

8400 Solid Fueled Space Heaters (Wood Stoves, Coal Stoves, Pellet Stoves, and Open-Hearth Fireplaces)

Note: Wood, coal, and pellet-fired **furnace and boiler systems** should be treated as vented heating systems and are not covered in this section.

Solid fuel heating appliances must receive a pre- and post-weatherization inspection to verify compliance with NFPA 211. Repair of flues and proper installation (i.e., clearance to combustibles) is required for primary **and secondary** solid fuel heating appliances. Repair or removal is an allowable expense for primary and secondary solid fuel heating appliances. Replacement is allowed for unsafe primary solid fuel heating appliances across all contracts.

Only LIHEAP Weatherization can be used to replace unsafe **secondary** wood stoves and Monitor pre-approval is required. The Sub-grantee can elect to leave properly operating secondary, non-EPA, and non-mobile home-approved wood stoves in operation with the issuance of a Notice of Dangerous Conditions form (EAP-023).

All atmospheric combustion appliances require pre-, end-of-day, and post-weatherization WC CAZ testing. Solid fuel atmospheric equipment has a de-pressurization guideline of -7 Pascals in the Montana WAP. Additionally, a CO alarm must be installed in the solid fuel CAZ. Per WPN 22-7, a fire extinguisher is allowed only when a solid fuel heating appliance is in use in the home.

If the solid fuel WC CAZ is at or more negative than -7 Pascals, a Dangerous Conditions Form (EAP-023) must be issued, and the occupants must receive education on the danger signs of back drafting equipment and how to reduce or eliminate the likelihood of safety concerns. Tools available to address WC CAZ readings at or below -7 Pascals include but are not limited to:

- Additional client education
- CO alarm placement
- Modifications to ensure code-compliant installations.

- Forced air system balancing to reduce CAZ impacts.
- Combustion air brought into the CAZ.
- Connection of dedicated combustion air
- Replacement of **primary** solid fuel units (unsafe secondary wood stoves with LIHEAP Weatherization and monitor pre-approval only) that in the assessment of the auditor, present CO concerns.
- Sealed combustion/mobile home-approved solid fuel equipment is not subject to WC CAZ testing requirements.

Note: Open-hearth fireplaces present unique de-pressurization and CO concerns and justify additional precautions compared to other atmospheric combustion solid fuel appliances. As open-hearth fires die down and when glowing coals remain, the draft is reduced and CO production increases. CO can more readily enter the living space under these conditions, so CO alarm placement and consideration of the fireplace CAZ are critical safety procedures in homes being Weatherized.

8500 Wood Stove Hearth Pads

Manufacturer-recommended requirements for the appliance are to be followed regarding Non-Combustible flooring. At a minimum, Non-Combustible flooring must extend under the entire stove, continuing for 12" past the sides and 18" in front of any loading doors. This applies to new wood stove appliances and any secondary heat source appliances that the Sub-grantee elects to address via repair or replacement.

Note: A Hazardous/Potentially Hazardous condition form (EAP-023) must be provided to clients whose primary or secondary appliances are not addressed, and the appliance does not meet minimum Non-Combustible flooring requirements.

8600 Domestic Water Heaters

Domestic water heaters (DWH) are appliances used to heat water for the occupants of the dwelling. As part of the weatherization of a dwelling, the DWH is inspected, tested and if necessary, insulated, repaired, or replaced. (For a more detailed description of the materials and requirements for insulating a DWH, see the Standard Work Specifications (SWS) tool on the NREL website.)

The combustion diagnostic test must be conducted on all DWH per BPI 1200, Chapter 7. The Sub-grantee must complete the DWH section of the DPHHS-EAP-8 'Heating Worksheet' and all required tests. The results of the testing will inform the auditor whether a 'Clean and Tune' or other service is needed by an HVAC technician. When a 'Clean and Tune' or other services are recommended for a water heater, the issues must be noted in the CEA. After each workday, where significant envelope or duct sealing measures have been performed, depressurization and WC CAZ spillage testing will be

conducted on natural draft water heaters. This will ensure that work completed in the home has not adversely affected the operation of the water heater.

End-of-day WC CAZ testing results must be recorded and maintained in the client file. Test results must be recorded on "The End of Day WC CAZ Test Documentation Form" (or equivalent).

Notes:

- Auditors, HVAC techs, and technicians conducting end-of-the-day CAZ testing must monitor carbon monoxide (CO) levels in ambient air. See BPI 1200 Chapter 7 (Referenced in Appendix D Table 1 of this Manual) for ambient CO action levels. If ambient CO levels are equal to or greater than 70ppm, terminate the audit/inspection, notify the homeowner/occupant, and evacuate the building. Once outside the building, notify the appropriate emergency services.
- Electric DWH appliances must be inspected for wiring or other electrical hazards.
- The flue on a category I, natural draft water heater must vent up and out. The minimum pitch for a flue is a rise of ¼ inch per lateral foot.
- If the Natural Gas hot water tank cannot be vented in compliance with code due to location or unforeseen circumstance; power venting or a Health and Safety switch to an electric tank may be authorized. Contact your Field Monitor for approval prior to proceeding.

8650 Earthquake Straps on Water Heaters

All Mobile Home water heaters in the state of Montana shall be anchored or strapped to resist displacement due to earthquake motion using metal supports.

In single-family and multi-family housing, Earthquake straps must be installed if the appliance is replaced, serviced, or relocated per IRC M1307.2.

8700 Domestic Water Heater Repairs

Costs for the testing, tuning, and repair of the Domestic Water Heater (DWH) are entered into the Computerized Energy Audit (CEA) in the Heating System - Water Heater section – documentation is required of issues requiring repair or replacement.
All repairs made to a DWH must be completed to the applicable code. Any repairs not made to code are the responsibility of the Sub-grantee.

8800 Domestic Water Heater Replacements

In some instances, adequate repairs cannot be made to a DWH or the DWH has been condemned (red tagged') by the Sub-grantee, utility service person, or a fuel vendor and the unit must be replaced. (See WPN 22-7 Weatherization Health and Safety Guidance)

Costs for the replacement of the DWH are entered into the Computerized Energy Audit (CEA) in the Health and Safety (H&S) Water Heater Replacement section.
Costs for a natural gas DWH replacement cannot be charged to the NWE contract funds unless a service person condemns the unit. The NWE Natural Gas Space/Water Heat Replacement Worksheet must be filled out and uploaded into CEA's Managed Documents, and a copy must be in the client's file. The reason for the condemnation must be entered into the CEA when expensing NWE contract funds in the CEA.

All replacement DWHs must be installed according to applicable code, including applicable plumbing codes that may require the replacement to be performed by a licensed plumber. Any DWH replacement not made to code is the responsibility of the Sub-grantee. When weatherization measures trigger code compliance, the specific code requirement referencing the weatherization measure(s) that triggered the code compliance issue must be documented in the client's file.

Note: The replacement of an electric DWH is an allowable expenditure under the NWE Free Weatherization Program if the appliance has been condemned by an HVAC specialist. This must be documented in the client file.

Note: The use of tankless on-demand water heater appliances as replacement is allowable under LIHEAP weatherization and NWE. Prior written approval is not required. See section 8930 Tankless Water Heaters.

8900 Mobile Home Domestic Water Heaters

All mobile home DWH must be installed to provide for the complete separation of the combustion system from the interior atmosphere of the manufactured home. (i.e., to draw their combustion air from outside), and be vented to outside the dwelling.

All mobile home water heaters installed or left in place after weatherization in manufactured homes must meet these standards. If an occupant will not allow the removal of an unsafe combustion appliance from the home, deferral is required.

Repair or replace combustion gas venting to ensure proper combustion gas venting outside the dwelling for all mobile home water heaters.

Install adequate combustion air for all combustion mobile home water heaters left after weatherization.

Documentation justifying the replacement with a cost comparison between replacement and repair must be maintained in the client file.

DWH appliances located in manufactured (mobile) homes must be certified for use in a mobile home.

Inside and outside access DWH appliances that are not certified for use in a mobile home, must be replaced by the Sub-grantee. When weatherization measures trigger code compliance the specific code requirement referencing the weatherization measure(s) that triggered the code compliance issue must be documented in the client's file.

Subgrantees can replace, repair, or install primary water heater heaters when the existing primary water heater is unsafe, inoperable, or nonexistent.

Temperature and Pressure relief drainpipes attached to the T&P valves on inside and outside access DWH must extend through the flooring of the mobile home and through the belly board area to allow for water discharge. This location requirement minimizes water damage to the floor area the insulation under the floor and the belly board area.

Testing/Inspection: Required

- Verify that a water heater is present, operable, and performing correctly.
- Conduct combustion appliance testing and a visual inspection of all combustion water heaters and related venting.
- Depressurization and spillage testing are required for all water heaters pre- and post-weatherization and before leaving the home on any day when work has been done that could affect the draft (e.g., air or duct sealing, adding exhaust ventilation).
- Ambient CO testing is required for all combustion water heaters, regardless of venting type.
- Verify proper clearances for all combustion venting types.

Occupant Education: Required

- Appropriate use and maintenance of water heater.
- Provide all paperwork and manuals for any installed equipment.
- Where combustion equipment is present, provide combustion safety and hazard information including how to recognize depressurization, dangers of CO poisoning, and fire risks associated with combustion appliance use.

Note: To meet the above requirements outlined in WPN 22-7 a mobile home natural draft water heater located in an exterior access compartment must be replaced with a Mobile Home Approved Sealed Combustion Tank Water Heater.

8920 Outside Access Water Heater Closets in Mobile Homes

All natural draft water heaters must be replaced with a mobile home-approved sealed combustion and water heater.

The exterior access door and associated pressure boundary walls of closets, if possible, shall be insulated and air sealed. If the door and the associated wall can be insulated, the water heater can also be wrapped with a minimum R-10 insulation.

The floor must be repaired, replaced, and air sealed as needed.

The sealed combustion tank water heater combustion air shall be brought in from underneath the belly or through the skirting by installing an appropriately sized metal chute with a rodent barrier. The exhaust flue must be sealed with a metal flue collar and sealant at the ceiling.

Outside Access Water Heater Doors – If the Sub-grantee elects to address an outside access water heater door, the costs may be entered in the CDS Energy Audit under Heating System-Water Heat.

Note: If insulation and/or air sealing work is to be completed on the water heater closet and the tank must be removed to allow access, the Sub-grantee must ensure that the water heater is a mobile home-approved sealed combustion tank. The Sub-grantee must replace the tank if it is not mobile home approved.

If it is not possible to insulate the closet door and associated wall area:
The installation of an insulated water heater wrap on electric, natural gas, and propane water heaters is recommended unless it will void the warranty. A water heater wrap must not obstruct the following:

- The temperature and pressure relief valve.
- Drain valve.
- Electrical line.
- Burner assembly
- Draft diverter and/or flue
- Thermostats
- High-limit switch

Insulation must be kept at least two inches away from where the electrical line attaches to the water heater. The tank should be wrapped with an insulation jacket. Large holes in the closet walls that allow air leakage into the interior must be sealed. All plumbing within the closet that is susceptible to freezing must be insulated. An adequate amount of combustion air must be provided to combustion water heaters.

Note: If the closet cannot be insulated and a water heater jacket cannot be installed due to clearance inside the closet, an insulation blanket can be attached to the closet door. The Sub-grantee must meet clearance standards and all pipes, both hot and cold, must be insulated.

8930 Tankless Water Heaters

Tankless (demand, instantaneous, or flash) water heaters eliminate standby losses as hot water is not stored but heated as needed. These units can be more efficient than standard tank water heaters. Tankless water heaters using natural gas or propane are more appropriate for weatherization than electric units. Electric whole-house tankless water heaters can draw over 100 amps of current and may require expensive electrical system upgrades.
As tankless water heaters are sealed combustion, they can be one option available to address mechanical system draft issues in homes being Weatherized.

Because tankless systems have a short duration and high-intensity burn, they generally require more careful consideration of design factors than tank-based water heaters. In addition to the requirements laid out in the SWS, additional design considerations include but are not limited to:

- Tankless water heaters have no storage and must heat water on demand. The burners for gas-fired units are much larger (up to four times larger) than those of conventional tank water heaters. Larger burners often require an increase in diameter in the gas line(s) that serve(s) the unit. The BTU capacity of the existing gas supply system needs to be considered in the design and cost-estimating process.
- Tankless systems are generally more sensitive to scaling than tank-style systems. If clients are in a hard-water area or do not have mobility and/or access to perform regular maintenance on the system, tankless systems may not offer reliable, long-term operation.
- Inlet water temperature, fixture flow rates, and minimum/maximum flow rates required to meet occupant loads need to be considered. Manufacturers will sometimes only list maximum flow rates, but minimum flow can be an important design consideration as well.
- Some tankless water heaters have a thermostat to control the outlet water temperature. On units without thermostatic control, the outlet water temperature varies inversely with flow. The lower the water flow, the higher the outlet

temperature. To ensure client safety, only tankless heaters with thermostatic control or an anti-scald mixing valve should be installed in homes being weatherized.

Clients must be educated on tankless water heater maintenance. The ability or likelihood of the client to perform the required maintenance should be a consideration in the installation of a tankless water heater.

Note: NorthWestern Energy funds allow for existing tankless on-demand water heater H&S repairs and replacement/installs.

- Existing tankless hot water heater and/or a primary space heat gas insert is eligible ONLY for:
  - Energy related health and safety repairs and tune up costs.
  - Sub-grantee must obtain pre-approval prior to installation or replacement of natural gas tankless hot water heaters or electric tankless hot water heaters.

Chapter 9 SAVINGS TO INVESTMENT PRODUCING MEASURES

9000 Insulation Degradation

Insulation degradation can occur due to many factors; moisture, rodents, poor installation, and wind washing are the main culprits, particularly in mobile homes. The Department of Energy uses the Building Performance Institute (BPI) as a technical and training conduit for energy auditors and energy conservation techniques (WPN 23-6). The computation of R-values when auditing eligible dwellings shall follow BPI degradation standards listed below:

1. Measure the insulation thickness.
2. Determine the condition of the installation using the following criteria:
   a. Good - No gaps or other imperfections.
   b. Fair - Gaps over 2.5% of the insulated area.
   c. Poor—Gaps over 5% of the insulated area.
3. Look up the effective R-value of the installed insulation using the condition and measured inches.

	"Good"	"Fair"	"Poor"
Measured Batt Thickness (inches)	Effective R-value (2.5 per inch)	Effective R-value (1.8 per inch)	Effective R-value (0.7 per inch)
0	0	0	0
1	3	2	1
2	5	4	1.5
3	8	5	2
4	10	7	3
5	13	9	3.5
6	15	11	4
7	18	13	5
8	20	14	5.5
9	23	16	6
10	25	18	7
11	28	20	8
12	30	22	8.5

**Derived from ASHRAE document "Heat Transmission Coefficients for Walls, Roofs, Ceilings, and Floors" 1996*

Other methods to assess and degrade existing insulation are:

- Red Calc Parrell-Path Equivalent R-Value tool at Parallel Path R-Value | Building America Solution Center (pnnl.gov)
- and the Better Buildings Weighted Average Calculator Spreadsheet at Assessor Calculator v.020619.xlsx (live.com).

Available calculators for determining insulation bag count for dense pack insulation are:

- National Association for State Community Service Programs: Required Bags of Insulation for Dense Pack Insulation: installed-wall-density-bag-count.xls (live.com)
- Residential Energy Dynamics Calc Free: Dense-Pack Insulation: Dense-Pack Insulation | Building America Solution Center (pnnl.gov)

9010 Attics

Attic insulation is considered a "Major Measure".

Adequate insulation in a dwelling reduces heat loss and lowers client energy bills. As part of the weatherization of a dwelling, the insulation in the attic must be inspected for existing R-value. When existing R-values allow, additional insulation should be installed to raise the R-level to industry standards. For NorthWestern Energy (NWE), the Attic Measure for all dwelling types is a Priority Measure. NorthWestern Energy will allow the installation of attic insulation in the residence of a weatherization-eligible NWE customer without having to perform an Energy Audit. For single-family and multifamily dwellings, insulate the attic to R-60 or capacity, and for manufactured homes, insulate the attic to capacity as set forth by WPN 22-8. A QCI must be performed when an Energy Audit is not performed,

and the attic/ceiling insulation has been completed. The QCI cost is an approved NWE cost.

A receipt for the installation must be given to the occupant and posted in the attic. The receipt must show the coverage area, initial installed thickness, minimum settled thickness, R-value, and the number of bags used. The receipt must be dated and signed by the installer.

No insulation will be installed on top of non-insulation contact (non-IC) rated fixtures.

Per SWS 3.0103, and International Residential Code (IRC), N1102.2.4 the attic access stairs and hatch must be insulated to match the R-value of the attic, and the attic access hatch must be sealed using gaskets, weatherstripping, or an equivalent method. Detailed installation practices for attic spaces can be found in the SWS and Montana Weatherization Field Guides.

Note: Air sealing of the attic is entered in the 'Miscellaneous' section of the CEA. Attic air sealing, a non-SIR measure, will continue until the Zone Pressure Diagnostic (ZPD) test results show a reading of 45 pascals or greater.

Special precautions will be taken if knob-and-tube wiring is present.

- Knob-and-tube wiring will be inspected and certified to be safe.
- A dam that does not cover the top of the live knob-and-tube wiring will be created to separate the insulation from the wire path when insulation is installed.
- A warning sign will be installed at all entries to the attic about the presence of live knob and tube wiring:

9100 Walls

Wall insulation is considered a "Major Measure".
Adequate insulation in a dwelling reduces heat loss and lowers client energy bills. As part of the weatherization of a dwelling the insulation in the walls must be inspected for

existing R-value and when possible, additional insulation added to raise the R-level to industry standards.

The Sub-grantee must use a blower door to ensure the thermal and pressure boundary is properly insulated per SWS 4.02 and WTC. A best practice, to assure proper insulation, is to use an IR camera.
A receipt for the installation must be given to the occupant and posted. Documentation should include insulation material and R-value. The receipt must be dated and signed by the installer.

Notes:

- Air sealing of wall holes and penetrations may be entered in the 'Infiltration Section' of the Energy Audit.
- If the material installed is visible every attempt should be made to match the aesthetic qualities of the original structure.
- It is a best practice that balloon framed cavities are blocked at the bottom and top of the wall cavity and dense packed.

Detailed installation practices regarding wall spaces can be found in the SWS and Montana Weatherization Field Guides.

9200 Floors and Belly

Floor or Belly insulation is considered a "Major Measure".

Adequate insulation in a dwelling reduces heat loss and lowers client energy bills. As part of the weatherization of a dwelling the insulation in the floor must be inspected for existing R-value and when possible, additional insulation added to raise the R-level to industry standards.

The choice to insulate the floor or permanent foundation walls depends upon whether the space is heated, the ease of access, and the possibility of moisture issues. Other considerations may include protecting the furnace, heat ducts, and water lines from cold temperatures.

A receipt for the installation must be given to the occupant and posted. For loose fill, the receipt must show the coverage area, initial installed thickness, minimum settled thickness, R-value, and the number of bags used. To figure out the R-value of the insulation, use the data that the manufacturer gives you. The receipt must be dated and signed by the installer.

Notes:

- Air sealing of seams and penetrations may be entered in the 'Infiltration Section' of the Energy Audit.
- When insulating the floor of a site-built home, air sealing of the floor before installing the insulation is essential to ensure the crawlspace/basement is not communicating with the conditioned space of the dwelling. A pre-, production, and post-ZPD test will be conducted and recorded. 45 pascals or greater is required.
- Sills must be sealed.

Detailed installation practices regarding floor spaces can be found in the SWS and Montana Weatherization Field Guides.

9300 Rim Joist and Crawlspaces/Basements

Adequate insulation in a dwelling reduces heat loss and lowers client energy bills. As part of the weatherization of a dwelling the insulation in the crawlspace or basement must be inspected for existing R-value and when possible, additional insulation added to raise the R-level to industry standards.

Rim joists are part of the thermal boundary and are essential to insulate and air seal. A rigid foam board, sealed around the edges with foam, is preferred over fiberglass. Fiberglass batts allow air circulation, carrying moisture, creating condensation, and encouraging mold and rot on the cold rim joist, Montana Weatherization Site-Built Field Guide.

- Select rigid insulation per ASTM E84 or UL 723, SWS 4.04
- If the foam is less than 3 ¼" thick and is not permanently habitable no thermal barrier is needed, SWS 4.04
- If the foam is thicker than 3 ¼" or does not meet the flame/smoke index or density requirements, or is in a permanently habitable space, a thermal barrier is required, SWS 4.04.

The choice to insulate the permanent foundation walls or floor depends upon whether the space is heated, the ease of access, and the possibility of moisture issues. Other considerations may include protecting the furnace, heat ducts, and water lines from cold temperatures.

In general, it is not advised to insulate both the permanent foundation walls and floor. However, in some instances where floor insulation exists, it may prove beneficial to also insulate foundation walls. Justification for this must be documented in CEA.

A receipt for the installation must be given to the occupant and posted. To figure out the R-value of the insulation, use the data that the manufacturer gives you. The receipt must be dated and signed by the installer.

Detailed installation practices regarding foundation wall spaces can be found in the SWS and Montana Weatherization Field Guides.

The Sub-grantee must alert the homeowner to never store hazardous materials in the crawl space to maintain indoor air quality. (SWS2.02)

9305 Confined Spaces

All work associated with confined spaces must comply with the regulations.

In most situations due to the use of fans and respirators, the standard is complied with to satisfaction. The weatherization workers can "engineer out" most of the hazards by having a "competent person" perform the hazard evaluation and engineer a method to mitigate the risk such as a work/rest routine in the hot summer where you could work in the confined space in the morning when it is cool or use a fan or the blower door for ventilation.

In determining whether a hazard exists:
1. Identify the hazard.
2. Air sampling can be done on the job to determine if a permit is required. This is a free OSHA service.
3. The "competent person" is the experienced person making the hazard evaluation.
4. Ventilation is key in weatherization work to NOT be permit required.
5. Use work/rest routines. (Humidity, temperature, and the length of time working in the space affect people differently).

Subgrantees must document the site analysis and any recognized hazards. The subgrantee will mitigate hazards with ventilation, other controls, lock-out tag-out, etc. The evaluation process and steps taken to "engineer out" the hazard should be documented for each weatherization job. If you can show that you have alleviated the hazard that would be considered "permit required" you can reclassify it to a confined space situation.

It is rare to need a permit for weatherization. Subgrantees must be sure that there was a "good faith effort" to comply with the standards such as:

- Training employees
- Knowing the hazards
- Recognizing confined spaces
- Addressing how to deal with the hazard.
- Having rescue equipment available
- Adding "confined space" and "permit required" decision points to the work order.

The Permit can be created by the subgrantee. There are 14 elements (listed on the OSHA website) that need to be addressed.

9310 Vapor Barriers

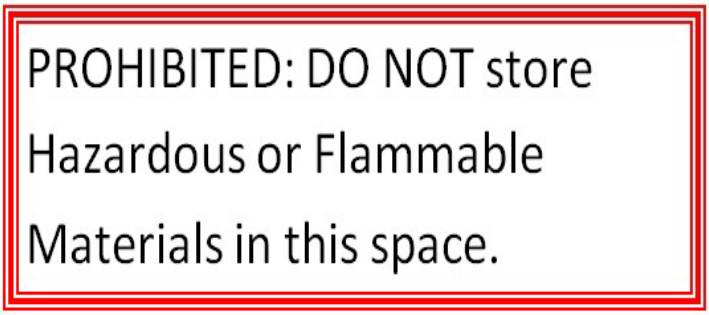
A durable, effective ground moisture barrier provides long-lasting access and minimizes ground vapor.
A ground moisture barrier will not be installed if it interferes with the established drainage pattern (e.g., seasonal drainage).

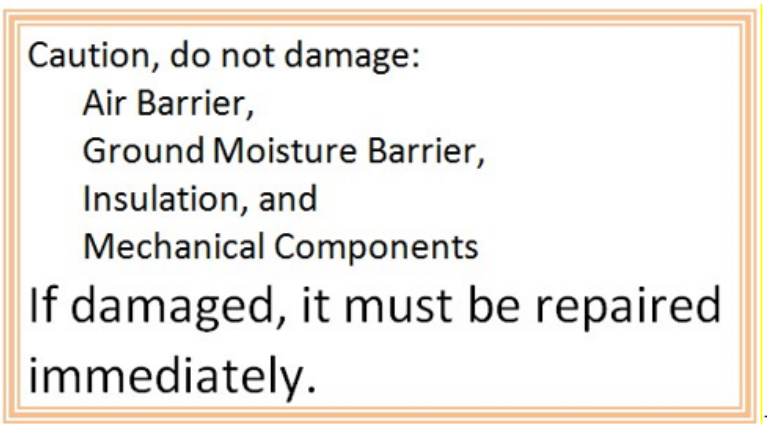
The installation of a ground moisture barrier is at the discretion of the auditor for mobile homes and site-built homes. If a ground moisture barrier is installed reference SWS 2.02.

Ground cover moisture barriers must be a 6-mil or greater and have a 0.1 prem or less, extend a minimum of 6 inches up the foundation wall, and be fastened and air sealed. All seams must overlap a minimum of 12" with a reverse upsloping technique. At the wall-to-floor connection, install the wall vapor barrier under the ground vapor barrier. All ground fasteners must be sealed with a compatible sealant.

The homeowner must be advised that all plastic has a life span much shorter than the home (5 years) and will need replacement to remain effective.

A durable, easily seen sign, a minimum of 8.5” x 11” with a minimum 10-year life will be installed at all accesses inside of the crawl space. Examples:





9350 Mobile Home Skirting

Belly insulation is considered a “Major Measure”.

If the mobile home skirting is already insulated, enter the appropriate information in the Buffer Correction Factor column of the Floor section and R-value information in the Existing column in the Crawlspace/Rim Joist section of CEA. If the energy audit and site conditions will allow for additional belly insulation based on the proposed SIR, the belly insulation should be added.

To maintain compliance with SWS 4.0388.1 Foundation Skirting, and the Desired Outcome: to reduce pest, wind, and water intrusion while reducing conductive heat loss in the floor assembly, insulated mobile home skirting can be installed as an Energy Conservation Measure (ECM) or an Incidental Repair Measure (IRM) to the mobile home floor measure.

Per the Mobile Home Skirting Policy Bulletins and SWS 4.0301.2 and 4.0301.4, to create a continuous, contiguous, and safe thermal boundary, the mobile home floor measure should be completed whenever possible. Additionally, insulated skirting is allowable as an ECM under the following condition(s).

- The Computerized Energy Audit (CEA) shows a SIR ≥ 1.0.
- If the existing floor measure does not meet a SIR ≥ 1.0
- When the belly is damaged beyond repair, or inaccessible.

Install skirting insulation to the highest R-value, set by Skirting Measure SIR and the overall SIR.

Insulated skirting is allowable as an IRM under the following condition(s).

- IRM to the floor measure when supported by the overall SIR of the audit.

Per SWS 4.0388.1, the skirting measure is a best practice for all mobile home weatherization jobs.

4.0388.1 requires skirting to be installed to allow for movement. However, Montana received a variance from the Department of Energy to allow skirting to be securely fastened. With winds and snow loads, it is not practical to allow for movement of skirting. Ensuring that the skirting (other than the access/entry panel(s)) remains stable, allows the belly to be protected from freezing temperatures, snow, and animals, achieving the desired outcome of preventing wind, weather, debris, and pests from the underside of the home.

RV's and campers will normally not be considered for skirting based on the mobility of the dwelling.

9400 Windows and Doors

Window and door replacement/installation procedures can be found at SWS 3.02 and Montana Weatherization Field Guides.

Windows:

1. Existing U Value - The Sub-grantee can input existing U values of up to 1.2 into the CEA without department approval. To use an existing U value of greater than 1.2; the Sub-grantee must request and receive written permission from the Department before proceeding. The Department can approve an existing U value of up to 1.5.

   Full window replacements must be run in the Window section of CEA and show an SIR of 1 or greater. Window replacements cannot be entered under the Infiltration section of the CEA.

Doors:

1. Residence Primary Door - Door replacement must show an SIR of 1.0 or greater. Solid core replacement doors **without windows** are to be used. Auditors should use care in completing the door section of the CEA such that doors with windows **should not** be treated as solid-core doors.

2. Outside Access Water Heater Doors – If the Sub-grantee elects to address an outside access water heater door, the costs are entered in the CEA under Heating System-Water Heat.

3. Existing U Value - Existing U values can be referenced from manufacturer information or found in the Help section of CEA. The Sub-grantee can input existing U values of up to 1.2 into the CEA in situations where the condition of the existing

door warrants such a value. Photos of the existing door are required in the client file. Department approval is not required for 1.2 or less existing U values. For use of an existing U value greater than 1.2; the Sub-grantee must request and receive CEA approval or written permission from the Department before proceeding. The Department can approve an existing U value of up to 1.5.

4. Doors with a Window – A door with a window can be installed if the client or landlord is willing to pay the cost differential between a standard core door and a standard core door with a window.

Example:
Standard door with a 1.0 or better SIR payback – Cost $300.00
Standard door with an energy-efficient window – Cost $375.00

The client or landlord pays a difference of $75.00 to the Sub-grantee for installation of the door. The $75.00 is then put back into the Weatherization Program and applied to the actual cost of the door.

Note: It is the intent of the Montana Weatherization program to focus weatherization work on insulating the major measure of a dwelling. The major measures are Infiltration, Attics, Walls (including rim joists and above and below-grade foundation walls), Floors, and Furnace systems (duct and boot sealing, insulation of ductwork in unconditioned spaces).

Egress Compliance - Window and Door

LIHEAP weatherization funds can be used to replace, repair, or install egress windows or doors under Health and Safety Minor Repair when weatherization activities directly cause egress compliance to apply, and the door or window doesn't pay back as an energy conservation measure in the CEA. This is restricted to situations where a code-compliant egress window or door is not currently installed, is inoperable, or is removed. The wall framing must support the replacement or the installation of a door or window, i.e., an existing header is present in the wall.

The cost associated with installing a code-required egress window or door, when the repair or replacement does not meet an SIR of 1.0 or greater, can be entered under the "Building Structure and Roofing Repair" line item in the Health and Safety table in the Energy Audit. Pre-approval is required if the combined minor repair costs exceed $1,600.

Note: DOE funds cannot be used to correct window or door egress issues.

9500 Infiltration

Air sealing is considered a “Major Measure”.

Adequate air sealing in a dwelling reduces heat loss and lowers client energy bills. As part of the weatherization of a dwelling, air sealing is to continue if it meets overall cost-effectiveness. Air sealing will be prioritized and completed based on the amount of pressure contributing to air exfiltration/infiltration driven by the Stack Effect. Air sealing measures are to be prioritized starting with the attic, followed by the basement/crawl space, and only proceeding to the rest of the home after these high-priority areas have been sealed.

DOE WPN 19-4 states that blower door guided air sealing may have an SIR less than 1.0, if the cumulative SIR of the package of measures is equal to or greater than 1.0, not including H&S measures. It is required that the crews and contractors use a blower door to guide air-sealing work. SWS 3.01 and the Montana Weatherization Field Guides detail air sealing practices. Additional air sealing verifications are Zone Pressure Diagnostic, a smoke pencil, and IR thermal imaging.

9600 Incidental Repair Measures

Incidental Repair Measures (IRMs) must be limited to those repairs necessary for effective performance or preservation of measures being installed as part of the work scope. WAP funds cannot be used to install IRMs deemed necessary to protect materials that existed in the building before the audit is performed.
Incidental repair costs must be linked to an ECM, or group of ECMs and the justification for the IRM must be provided via notes in the relevant ECM section(s) in Computerized Energy Audit (CEA). Additionally, an IRM must be justified by written and photo documentation in the client’s file. (WPN 19-5) The IRM costs are not to be included in ECM totals. The total cost of all IRMs is added to the cost of the package of weatherization measures and is included in the Overall SIR calculations of the audit. The Overall SIR for the audit must remain at 1.0 or greater for the IRM costs to be allowable.

Ethylene Propylene Diene Terpolymer (EPDM) Rubber Roofing:
EPDM rubber roofing can be installed on mobile homes as an IRM to protect weatherization measures that are installed as part of the work scope and enhance the durability of the building. The cost of the IRM will be included in the overall SIR calculation for the audit and the overall SIR must remain at 1.0 or higher to be allowable.

Framing or Repairing Windows and Doors:
Framing or repairing windows and doors to meet code compliance when a WAP measure directly causes a code compliance requirement is allowable as an IRM. When weatherization measures trigger code compliance the specific code requirement with reference to the weatherization measure(s) that triggered the code compliance issue must be documented in the client's file.

Framing or repairing windows and doors that cannot otherwise be caulked or weather-stripped when necessary to weatherize. Per WPN 19-5, any repair necessary for the effective performance or preservation of newly installed weatherization materials, that are not part of a standard installation.

Window and Door Replacements:
IRM window and door replacements must first be treated as an ECM. Window replacements cannot be entered under the Infiltration section of the CDS Energy Audit.

In addition, window and door replacements must be justified in the client file with an explanation of the need and relationship to a specific energy conservation measure (ECM) or group of ECMs.

Egress Compliance - Window and Door
Egress compliance costs will be run as a Health and Safety expenditure and only LIHEAP weatherization funding can be used. Please see section 5100 Health and Safety Related Repairs.

Note: DOE funds cannot be used to correct window or door egress issues.

Chapter 10 MISCELLANEOUS MEASURES

10000 Smoke Alarms

Smoke alarms shall be installed in all dwellings where alarms are not present or are inoperable. Operation verification of existing smoke alarms is required. Any existing smoke alarm that is inoperable must be replaced. All subgrantee-installed battery-operated smoke alarms shall have a sealed, non-replaceable, 10-year battery. Replace the functional smoke alarm battery if the battery is designed to be replaced.
Standard Work Specifications (SWS) 2.0101 requires that battery-operated smoke alarms are listed and labeled in accordance with UL 217 and are installed in locations required by the Authority Having Jurisdiction (AHJ). The International Residential Code (IRC), section R314.3 requires smoke alarms to be installed in the following locations:

- In each sleeping room.
- Outside each separate sleeping area in the immediate vicinity of the bedrooms.

- On each additional story of the dwelling, including basements and habitable attics and not including crawl places and uninhabitable attics.
- In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided the lower level is less than one full story below the upper level.

Note: The costs for installation of smoke alarms must be entered in the CEA as a Health & Safety measure.

Note: WPN 17-7 Fire Extinguishers: Where solid fuel burning equipment is present, fire extinguishers may be provided as an allowable Health & Safety measure. Client education is required including verbal and written instructions on the use of fire extinguishers.

10100 Carbon Monoxide Alarms

Per ASHRAE 62.2-2016 a Carbon Monoxide (CO) alarm shall be installed in all dwellings (including all-electric dwellings) where alarms are not present or are inoperable. Operation verification of existing CO alarms is required. Any existing CO alarm that is inoperable must be replaced. All subgrantee-installed battery-operated CO alarms shall have a sealed, non-replaceable, 10-year battery. Replace functional CO alarm batteries if the battery is designed to be replaced.

SWS 2.0102 requires CO alarms are listed and labeled in accordance with UL 2034 and are installed in locations required by the AHJ. The IRC section R315.3 requires that a CO alarm be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms. Additionally, NFPA 72 requires a CO alarm

- On the ceiling in the same room as a permanently installed fuel-burning appliance
- Centrally located on every habitable level and in each HVAC zone of the building
- Outside each separate dwelling unit and sleeping area within 21 feet of the door to the sleeping room.

<u>If a CO alarm is not installed in a client's dwelling under the NWE Free Weatherization Program, the sub-grantee must note in CEA the reason why the alarm was not installed.</u>

CO alarms will be installed within the combustion zone of an open-hearth fireplace and the occupants will be educated on the danger signs.

CO alarms must be installed to the manufacturer's specifications by the Sub-grantee and not left at the dwelling for the client to install.

The costs for the installation of CO alarms must be entered in CEA under the Heating System section.

Chapter 11 SUSTAINABLE ENERGY RESOURCES FOR CONSUMERS (SERC)

11000 SERC Inspection Checklists

Per DOE Memorandum-122,
SERC funds, authorized through WAP, must follow all annual WAP rules aside from the noted exceptions (e.g., Savings to Investment Ratio (SIR), Average Cost Per Dwelling Unit (ACPU)).
SERC Grantees must adhere to WPN 22-4: Quality Work Plan Update and conduct inspections on SERC-funded work. Although most technologies are included in the Standard Work Specifications (SWS), some do not appear in the SERC Grantee's WAP Grantee Plan or approved Field Guide. SERC Grantees have certified through WAP Grantee Plans that SERC projects will be included in regular oversight practices (e.g., reporting, monitoring, administration, etc.).

DOE has developed technology-specific checklists to support Grantees in meeting oversight requirements. These checklists may be used across programs and will be used by DOE while monitoring SERC projects.

The checklists are available on the Training and Technical Assistance (T&TA) Resources | Department of Energy webpage and in APPENDIX H of this manual.
https://www.energy.gov/scep/wap/weatherization-assistance-program-resource-hub

Chapter 12 WX PROGRAM TRAINING

12000 Training and Certification Requirements

The Department contracts with Montana State University's Weatherization Training Center (MTWTC) to provide tiered weatherization-related training throughout the program year.
Contact Information: Phone: 406-586-0070
Weatherization Training Center Courses:
https://www.montana.edu/extension/weatherization/courses.html

- Tier 1 training is comprehensive, occupation-specific training that follows a curriculum aligned with the DOE Job Task Analysis (JTA) for that occupation.
- Tier 2 training are single-issue, short-term training events aimed to strengthen the field such as ASHRAE, dense packing, and others. Conference trainings are considered Tier 2 trainings.

The MTWTC policy defines the prerequisites and standard requirements for students to be admitted to a Montana Weatherization Training Center course. IHSB and MTWTC work together to provide the following definable training pathway for weatherization students and clearly outline the prerequisites and requirements for each course offered at the MTWTC.

Procedures

On the student application form, students must:

- Detail their previous training experience or equivalent experience to ensure that the student is prepared and qualified for each course offered.
- The MTWTC training coordinator then reviews each registration form and provides approval for the student to attend the course based on experience, training, and expertise.
- Sub-grantee Weatherization Directors approve each student's participation in any course to make sure that the course is appropriate for their career path and ability. The Sub-grantee Director and the student must sign the registration form, ensuring that the MTWTC, the student, and the Sub-grantee director are all aware of a student's participation in any given training.
- The definition of requirements and prerequisites are available on the MTWTC website for download and are provided below. This ensures consistent and equitable treatment of students and a formalized set of prerequisites for each course taught at the MTWTC.

MTWTC Course Prerequisites and Course Completion Summary

Retrofit Installer Technician

- Select appropriate Personal Protective Equipment (PPE) for a weatherization job.
- Understand basic building performance principles.
- Apply building science lecture topics to hands-on practice in the lab.
- Use common weatherization safety protocols.
- Select appropriate materials for a weatherization job.
- Apply basic air sealing measures.
- Understand whole house weatherization.
- Demonstrate proper dense-pack insulation techniques.
- Understand basic machine and tool maintenance.
- The final is a written test, and each student must pass with a 70% score or higher. Students that do not pass will be allowed to retake the exam in accordance with the Montana Weatherization Training Center retesting policy.

EPA Renovation, Repair, and Painting Rule (RRP)

- Identify appropriate lead-safe practices for a job.
- Perform and direct lead-safe work practices.

- Provide hands-on training to non-certified workers.
- Use EPA-recognized test kits to identify lead-based paint.
- Maintain containment areas to minimize the spread of dust.
- Implement the cleaning verification procedure.
- Prepare and maintain required records.
- The final exam is a written 25-question test. Each student must pass with a 70% score or higher. Students who do not pass will be allowed to retake the exam in accordance with the Montana Weatherization Training Center retesting policy.
- RRP recertification 5-years

Weatherization Crew Lead

- Understand the responsibilities of a Weatherization Crew Leader
- Identify successful leadership styles.
- Identify materials and staffing needs for a job.
- Demonstrate project management and staff training.
- Manage installation work on a job site.
- Interpret energy audits.
- Identify work site hazards.
- The final exam is a written test. Each student must pass with a 70% score or higher. Students who do not pass will be allowed to retake the exam in accordance with the Montana Weatherization Training Center retesting policy.

Mobile Home Weatherization

- Understand pressure diagnostics regarding mobile homes.
- Comprehend the importance of duct and boot connections.
- Detail the anatomy of mobile homes.
- Understand methods for insulating walls, bellies, and roofs of a mobile home.
- Calculate insulation quantities needed for a job.
- Identify common Weatherization measures for mobile homes.
- Demonstrate mobile home evaluation techniques.
- The final exam is a written test. Each student must pass with a 70% score or higher. Students who do not pass will be allowed to retake the exam in accordance with the Montana Weatherization Training Center retesting policy.

Basic Furnace

- Understand how heating systems work.
- Know the effects of Carbon Monoxide on home inhabitants and the ability to measure it.
- Identify the combustion appliance zone (CAZ)
- Identify different types of furnaces and hot water heaters.
- Inspect ventilation systems and analyze drafts.

- Perform duct diagnostic test (pressure pan and duct blaster)
- Perform the worst-case CAZ depressurization test.
- Utilize the furnace lab to give students practical understanding.
- Develop confidence in troubleshooting a working furnace.
- Be familiar with vent sizing.
- Evaluate combustion through basic analysis and inspection.
- Identify spillage, and gas leaks, and complete a thorough visual inspection of the appliance.
- The final exam is a written test. Each student must pass with a 70% score or higher. Students who do not pass will be allowed to retake the exam following the Montana Weatherization Training Center retesting policy.

OSHA 10

- Recognize the history and intent of OSHA and how that program is administered and enforced.
- Discuss workers' rights, employer responsibilities, and how to file a complaint.
- Summarize OSHA's prevention programs.
- Recognize the OSHA Focus Four Hazards
- Choose the correct Personal Protective and Lifesaving Equipment for the hazard.
- Identify Health Hazards in Construction
- Identify certain OSHA standards and regulations per subsection of 29 CFR 1926
- The final exam is a written test. Each student must pass with a 70% score or higher. Students who do not pass will be allowed to retake the exam following the Montana Weatherization Training Center retesting policy. Students must attend all 10 hours of lecture for certification.

Energy Auditor

- Identify common environmental health risks such as mold, asbestos, and lead paint.
- Conduct an accurate blower door assessment and interpret the results.
- Perform pressure pan and duct blaster assessment test.
- Understand building science basics.
- Demonstrate appropriate communication with a client.
- Understand the importance of complete and accurate paperwork.
- Recognize potential health and safety risks for installers and crew members.
- Conduct a worst-case CAZ depressurization test.
- Perform accurate volume calculations for a home.
- Demonstrate appropriate estimation of materials, labor, and other costs for a job.
- Evaluate the safety and efficiency of a forced air furnace.
- Use infrared thermography to evaluate the energy efficiency of a building.

- **Field exam**: The field exam is a hands-on exam that must be completed successfully to pass, regardless of any other exam score. The Energy Auditor Scheme Handbook and Field Guide are found on the BPI website.
- The final exam is a written test. Each student must pass with a 70% score or higher. Students who do not pass will be allowed to retake the exam following the Montana Weatherization Training Center retesting policy.
- Energy Auditor recertification 5 years and requires 30 CEUs.

Quality Control Inspector

- Conduct quality checks for a weatherization job.
- Perform post-project inspections.
- Evaluate worker professionalism.
- Inspect and assess the building envelope.
- Interpret energy audit information such as blower door readings, pressure pan testing, and zonal diagnostics reports.
- Understand basic combustion appliance diagnostics.
- The final exam is a written test. Each student must pass with a 70% score or higher. Students who do not pass will be allowed to retake the exam following the Montana Weatherization Training Center retesting policy.
- Quality Control Inspector recertification 5 years and requires 6 CEUs.
- WAP Admin training – Administrators must attend as scheduled.

12010 Training and Certification Courses

Training opportunities are offered each program year. When the schedule is developed for each upcoming year, the MTWTC and DPHHS consider Sub-grantee training needs and requests. Sub-grantees may request specific training, such as insulation training for mobile homes, addressing multifamily units, managerial training, procurement training, water heaters, or specified heating system training, such as electric furnaces or wood stoves.

The following flow chart outlines the training courses in relation to cumulative accomplishment and advancement through the Job Task Analyses (JTA). There are three JTAs: Crew Lead, Energy Auditor, and Quality Control Inspector. Per the Montana Weatherization Program (WAP) Department of Energy (DOE) State Plan, BPI EA certification is required to conduct energy audits. Per WPN 22-4 and the WAP DOE State Plan, the Quality Control Inspector (QCI) is a required certification for those conducting final inspections on DOE weatherization jobs.

Montana Weatherization Training Center courses and curricula track teaching material aligned with the four (4) Job Task Analysis requirements. Course names are shown next

to the corresponding curriculum. Sub-grantees may access enrollment and course details through MTWTC as outlined above.

Re-Certification: All JTA's, TIER 1 training, must be re-certified every 5 years.

Retrofit Installer Technician: A residential energy efficiency professional who installs energy efficiency upgrades in dwelling units.

- Retrofit Installer: Building Shell (Available Online)
- Retrofit Installer: Mechanical Systems
- Mobile Home Weatherization
- Renovation, Repair and Painting
- OSHA 10 or 30
- Electrical Principles, Equipment Grounding, and Jobsite Safety

Crew Leader: A Crew Leader is responsible for supervising and assisting in the retrofitting activities specified in the scope of work. The Crew Leader is responsible for quality control, interacting with the client, managing personnel and materials, and ensuring a safe and efficient job site.

- Retrofit Installer: Building Shell (Available Online)
- Retrofit Installer: Mechanical Systems
- Mobile Home Weatherization
- Renovation, Repair and Painting
- Basic Furnace and Heat Pumps (Available Online)
- OSHA 10 or 30
- Weatherization Crew Leader- Advanced Skills (Available Online)
- Healthy Housing Principles
- Advanced Pressure Diagnostics
- Advanced Combustion Testing
- Advanced Furnace
- Troubleshoot Equipment with Modern Multimeters

Energy Auditor: An experienced professional who evaluates the health and safety issues, durability, comfort, and energy use of a residential building. The Energy Auditor (EA) conducts advanced diagnostic tests, gathers, and analyzes data, and creates energy models to draw conclusions and make recommendations to the client for improvements.

All above listed Crew Leader classes, plus:

- Intro to Energy Auditing (Available Online)
- Energy Auditor and Written Exam
- Certified Residential Thermographer

Quality Control Inspector: A certified residential energy-efficiency expert who ensures the completion, appropriateness, and quality of energy upgrade work by conducting a methodical inspection of the building and performing safety and diagnostic tests.

All above listed Energy Auditors classes, plus:

- Quality Control Inspector (Available Online)

Individuals must obtain an Energy Auditor (EA) certification from the Building Performance Institute by meeting BPI qualifications, passing a written test, and passing the Energy Auditor field test. After obtaining an EA Certification from BPI individuals wanting a QCI certification must be approved by the Building Performance Institute to sit for the required written test and receive a passing grade to achieve QCI certification. The EA and QCI certifications are renewed every five years. To be eligible for EA recertification, candidates must have accumulated a minimum of **30 qualifying continuing education units (CEUs)** over the five years of certification. The number of CEUs for QCI is 6. When the minimum CEU requirement is met the candidate must complete the field examination that is current at the time of renewal. Candidates who do not meet the CEU requirements must retake the written and field exam that is current at the time of renewal. Candidates must also re-attest and sign the Code of Ethics to be eligible for recertification.

Note: The Department requires the OSHA 10 class for all weatherization workers.

12020 Department-Specific Training

TRAINING: Human and Community Services Division (HCSD) shall:

- Provide training as applicable covering program policy, operations, and system(s) functionality.
    - Make training materials available to Sub-grantees for internal use.
- Provide additional training as applicable throughout the LIHEAP season.
- Provide engagement opportunities between HCSD and Sub-grantees as applicable throughout the LIHEAP season.
- Communicate policy updates through Policy Bulletins, as applicable throughout the LIHEAP season.

Sub-grantee shall:

- Ensure lead Weatherization staff attend applicable Department-led training and meeting opportunities.
- Ensure lead Weatherization staff understand Weatherization policy, operations, and system(s) functionality.

    - Lead Weatherization staff must train additional/seasonal Weatherization workers using Sub-grantees' internal training or onboarding procedures.
    - Ensure that Weatherization workers have the basic tools and technology training to successfully perform the job.
- Communicate any problems or additional training needs to HCSD as applicable.

Chapter 13 WX PROGRAM MANAGEMENT

13000 Equipment Inventory and Disposal

Local Sub-grantees are required to maintain an inventory of equipment with a purchase price of $5,000 or more. The Sub-grantee is required to send to the Department on an annual basis a copy of the inventory of equipment purchased for $5,000 or more.

All equipment purchased for use in the weatherization program, regardless of acquisition costs, must be maintained on the Sub-grantee's perpetual inventory until disposed of or no longer used in the program. A physical inventory of the property must be taken, and the results reconciled with the property records at least once every two years (see section 13300 for a list of information required in local Sub-grantee property records).

1. If a local Sub-grantee does not need equipment that has a current fair market value (FMV) of $5,000 or less, the equipment can be sold or otherwise disposed of with no further obligation to the Federal awarding Sub-grantee, unless otherwise provided for in the terms and conditions of the Federal award. Pre-approval via email is required for equipment disposal. Please reference 2 CFR 200.313 Equipment which states, "States must use, manage and dispose of equipment acquired under a federal award by the state in accordance with state laws and procedures."

    a. Local Governments, Tribal Organizations, Nonprofit Organizations, and Sub-grantees shall follow their appropriate property regulations found in 2 CFR 200.310-316 - Property Standards. Any potential discrepancies between the guidance contained in this document and 2 CFR 200 shall be resolved in favor of 2 CFR 200.

2. If a local Sub-grantee has no need for equipment purchased with federal funds, where the current per unit FMV exceeds $5,000, The local Sub-grantee must do the following:

    a. Request disposition instructions from the Federal awarding Sub-grantee if required by the terms and conditions of the Federal award. The Federal awarding Sub-grantee is entitled to an amount calculated by multiplying the current FMV or proceeds from the sale by the Federal awarding Sub-grantee's

percentage of participation in the cost of the original purchase (note: the local Sub-grantee may, with permission, be eligible to retain $1,600, or 10% of the proceeds, whichever is less, for its selling and handling expenses).

b. If purchased with Department of Energy (DOE) funds, offer the equipment to local Sub-grantees with weatherization programs.
c. This process is coordinated through a local Sub-grantee representative wishing to dispose of the equipment.
    i. Equipment will be given to local Sub-grantees on a first come first serve basis.
    ii. If not purchased with DOE funds, equipment may be used as trade-in for newly purchased equipment.

3. If no local Sub-grantees want the equipment purchased with DOE funds, the Sub-grantee may, with written Department approval, sell or dispose of the equipment.
    a. The local Sub-grantee must sell or dispose of the equipment in compliance with the Sub-grantee's fiscal policies.
    b. If the equipment is sold the Sub-grantee must use the income in the program or programs which originally purchased the equipment.
    c. Proceeds from equipment sales must be tracked and reported as program income.
    d. All equipment purchased for use in the weatherization program, regardless of acquisition costs, must be maintained on the Sub-grantee's perpetual inventory until disposed of or no longer used in the program.

13010 Equipment Disposal Recordkeeping

Sub-grantee files must include the following documentation regarding the disposal of equipment purchased for $5,000 or more with weatherization funds:

a. Copy of written notification to the Department regarding intent to dispose of or sell weatherization equipment.
b. Copy of written Departmental approval to sell the equipment, if applicable.
c. Any data relevant to the ultimate disposition of the property, including at a minimum, the date of disposal and/or the sale price.

13100 WX Client File Documentation and Checklist

The Client Weatherization file must be retained for a period of eight (8) years past the end of the DPHHS Master Contract. A signed copy of this checklist must be included in each Client File.

DIGITAL FILE REQUIREMENTS: Sub-grantees generating, maintaining, and using client/applicant's Personal Identifying Information (PII), in relation to recipients of State administered and funded services, must use a secure digital storage system if client files will be stored outside of the Perceptive, CHIMES, and CEA systems, using

Sub-grantee owned local computers.

- Digital files for each case will exist in Perceptive, CHIMES, and Weatherization details in CEA. Adding required and supplemental documents to these platforms may eliminate the need for digital file storage using Sub-grantee-owned local computers.
- Digital client/applicant files may not be transferred to, stored, or maintained using any personal computer, laptop, or tablet.

DIGITAL COMMUNICATIONS CONTAINING PII: Protect client/applicant's PII in external and internal digital communications:

- Whenever possible, use only case numbers and descriptions to convey information on a case.
- When using/sharing screenshots or snips via email, TEAMS, or other messaging platform, use an edit tool to cover all PII in the image.
- When in doubt, use File Transfer Service to share documents containing PII.

Case documentation may be kept in hard copy files, as secure digital records, or both. Whichever method is used case files should contain the following:

- Central Database System (CDS) Energy Audit Number.
- Completed Standardized Audit Form EAP-035 must be in the client file and uploaded into CDS Energy Audit when data has been entered into CEA, before requesting any pre-approval and/or before weatherization work begins.
- Job Order Worksheet (or an acceptable substitute) required to include R-values, U-values, installed equipment efficiencies, infiltration, and duct sealing targets, along with references to the NREL SWS and/or the DOE-approved Montana Single-Family and Mobile Home Field Guides. List of all measures performed, the funding category (e.g., ECM, IRM, H&S, GHW, etc.) for each, and the funding source for each (i.e., DOE, LIHEAP, etc.).
- An itemized financial record worksheet showing work completed and cost of each weatherization measure, including a total for all measures completed.
- Documented use of the Blower Door including pre-weatherization, production, and final inspection test results including Zone Pressure Diagnostics and Duct system test (when applicable); dates performed; and worker sign off.
- Documentation of WC CAZ and spillage results obtained after each workday in which significant air or duct sealing has occurred (where open combustion equipment is present). The "End of Day WC CAZ Test Documentation" form (or equivalent) can be used.
- In homes with primary or secondary solid fuel burning appliances (wood stoves, coal stoves, pellet stoves and open-hearth fireplaces), documentation of pre-, production, and post-weatherization worst case combustion appliance zone

(WC CAZ) depressurization testing must be retained. All solid fuel appliances require placement of a CO alarm in the solid fuel CAZ and visual inspections verifying NFPA 211 compliant installations. Unsafe secondary units must be repaired, or removed and disposed of, or deferral is required.

- A copy of any issued Dangerous Conditions forms (EAP-023) needs to be in the client file and uploaded in CDS Energy Audit.
- Documentation of reasons for the installation of Health and Safety measures performed on the dwelling as part of the weatherization process.
- Documentation of procurement for any non-contracted services.
- A copy of the "Weatherization Assistance Program(s) Access Agreement" (DPHHS-EAP-013) must be in the client file and uploaded in CDS Energy Audit.
- Any applicable notices relative to hazardous conditions, health and safety-related deferrals, or owner/occupant refusal of SIR-qualified measures (EAP-020/EAP-023/Mold form). Client Signatures must be on all notices.
    - Documentation of compliance with Lead Safety for Renovation Repair and Painting (LSRRP) protocols as outlined in the Lead Safety for Renovation, Repair and Painting training course and Student Manual. Please include copies of the following:
        - Test kit results report provided to the client and landlord.
        - A complete and signed occupant/landlord confirmation of receipt of the "Renovate Right-Important Lead Hazard Information for Families, Child Care Providers and Schools" pamphlet.
        - Pre-renovation education records
        - On the job records
        - Post renovation report
- Please note that in addition to containment photos in the client file, the CDS Energy Audit must contain a sampling of photographic documentation (as described in Section 4500 of the Wx Policy and Procedure Manual) of lead safe weatherization procedures for all dwellings where the Sub-grantee performs any LSRRP work, including window and/or door replacement or repair (If applicable).
- Completed Heating Worksheet (DPHHS-EAP-008) with Contractor/Sub-grantee HVAC Technician signature must be in the client's file and uploaded in CDS Energy Audit before requesting pre-approvals and/or before weatherization work begins.
- DOE completions require a completed Onsite Final Inspection Form with the client and QCI certified final inspector's signatures. If the home is reviewed as part of a monitoring visit, two QCI-signed final inspection forms should be included in the client file; one from the original final inspection and one from the Monitor's inspection.
- Non-DOE funded completions require a completed Onsite Final Inspection form with the client and final inspector's signatures.

- A completed Onsite Final Inspection Form must be in the client file and uploaded in CDS Energy Audit.
- Documentation of asbestos sampling results (if any) and relevant worker certifications (if applicable).
- If LIHEAP CRF emergency assistance is provided during weatherization, documentation of the conditions of the emergency and compliance with the 18/48-hour rules (as applicable must be recorded on a LIHEAP Emergency Assistance Request Form (DPHHS-EAP-250).
- In accordance with the MCA Title 70, Chapter 24 Montana Landlord Tenant laws, the LIHEAP recipient (tenant/renter) should give the landlord written notice informing the landlord of the furnace problem and give the landlord “reasonable” time to fix the problem. This must be documented in the client file.
- Red Tags or the NorthWestern Energy Natural Gas Space/Water Heat Replacement Worksheet (as appropriate) must be added to the client file and uploaded in CDS Energy Audit.
- Documentation of clients being asked about pre-existing or potential health concerns, at the time of the initial audit, must be recorded in Appendix B (or equivalent).
- Documentation of Historic Preservation processes, when relevant and as described in Chapter 19 of the Montana Weatherization Policy and Procedure Manual.
- Energy Education must be performed using EES Lite. A signed and dated copy of the EES Lite report shall be uploaded to CDS Energy Audit and placed in the client file. If energy education is not conducted, an explanation must be included in the client file.
- If replacing doors during weatherization, a photo(s) of the original door(s) must show why the door needs to be replaced. The photo(s) must be in the client file and uploaded into CDS Energy Audit before requesting any pre-approvals and/or before weatherization work begins.
- If skirting is needed, a photo of the underside of the mobile home must be added to the client file and uploaded into CDS Energy Audit to show why the skirting is needed.
- Photos of all four sides of the exterior of the home must be added to the client file and uploaded into CDS Energy Audit before requesting any pre-approvals and/or before weatherization work begins.
- RedCalc worksheet, from the audit and the final inspection, must be added to the client file and uploaded into CDS Energy Audit.
- Copies of all client correspondence including complaints, documented resolution, callbacks, client requests, etc.
- Weatherization Readiness Funds “Data Tracking Sheet” must be uploaded in CDS Energy Audit and maintained in the client file. Additionally, all related Weatherization Readiness cost must be entered in CEA under the WX Ready link.

Employee Responsible for File Content Review: _____
Signature: _____Date: _____

13200 Counting funding source completions

Department of Energy (DOE) dwelling units must have a final Quality Control Inspection (QCI) to be counted as a completion.

Computerized Energy Audits (CEA) for homes weatherized under this Task Order need to be completed by the tenth day of the month (January, April, July, and October) past the end of the quarter (March, June, September, and December).
After the tenth of the month (January, April, July, and October) audits can no longer be completed in CEA for the previous quarter.

The State reports completions to DOE quarterly. To receive credit for the completion, the audit must be submitted as complete by the tenth of the month following the end of the quarter. The quarterly program status report will automatically be generated by utilizing the CDS Demographics Report. Example: Reports due April 10th for homes completed in Q1 (Jan-Mar)

- Units must be counted in the contract period in which they are completed.
- All goods, services, and equipment must be purchased by the last day of the contract to be charged to that contract.
- Local Sub-grantee fiscal files must include copies of final close-out reports for each funding source.

13300 Inventory control

Property and equipment:

1. Local Sub-grantees will maintain their inventory and capital asset records according to the funding source:
    a. DOE– 2 CFR 200.439(2) “Capital expenditures for special purpose equipment are allowable as direct costs if items with a unit cost of $5,000 or more have the prior written approval of DOE and the State of Montana.
    b. LIHEAP – Uniform Guidance
2. When acquiring tangible personal property (equipment, tools, etc.), procedures concerning purchasing, prior approval, bids, grant contracts, etc. will be followed.
3. Equipment and tools with a value established by the Federal regulations will be placed on the local Sub-grantee’s inventory.
4. As equipment is added to the local Sub-grantee’s inventory, the following information will be recorded in the inventory records as required by 2 CFR 200.313(d)(1):

a. description of the property,
b. a serial number or other identification number,
c. the source of funding for the property (including the FAIN),
d. who holds title,
e. the acquisition date,
f. cost of the property,
g. percentage of Federal participation in the project costs for the Federal award under which the property was acquired,
h. the location,
i. use and condition of the property, and
j. any ultimate disposition data including the date of disposal and sale price of the property.

5. A physical inventory of all assets on inventory will be taken on an annual basis, at a minimum, by the local Sub-grantee or at any other time required by grantors. The physical inventory shall be reconciled to the property log and adjustments made as necessary.
6. A control system must be developed to ensure adequate safeguards to prevent loss, damage, or theft of the property. Any loss, damage, or theft must be investigated.
7. Adequate maintenance procedures must be developed to keep the property in good condition.
8. If authorized or required to sell the property, proper procedures must be established to ensure the highest possible return.

13310 Inventory of materials

Description of Inventory:

The local Sub-grantee will maintain an inventory of materials used for home weatherization.

Examples of such items include but are not limited to:

- Doorknobs.
- Roof vents.
- Bags of insulation.
- CFL's
- LED's
- Water Heater Blankets
- Aerators
- Showerheads
- Smoke alarms

- CO alarms

13320 Accounting for Inventory

1. The local Sub-grantee will establish a written inventory policy. The written policy must include the coordination of all functions – including scheduling, completions, purchasing, storage, and cash flow.
2. The local Sub-grantee will maintain records, perform inventories, and maintain control systems to prevent loss, damage, or theft of equipment, materials, and supplies.
3. All materials received must be accounted for by invoices from vendors which describe the material(s), number of units, total costs, shipping charges if any, and sales tax.

13330 Usage of Inventory

A daily usage system must be a central feature of the inventory system. The Sub-grantee must maintain records showing materials put into and removed from inventory to be installed as part of the weatherization services.

A physical count of inventory will be performed every fiscal year at a minimum.

Chapter 14 CLIENT EDUCATION

14000 Client Education

There are two parts to client education. Households receive energy education, and health and safety education.

For health and safety education, this policy section follows the Department of Energy (DOE) WPN 22-7, the latest guidance.

WPN 22-7: Over the years, several issues have been addressed to ensure that weatherization activities do not cause or exacerbate health and safety problems for workers and occupants. While not every possible health and safety issue is addressed herein, the guidance should provide enough relevant examples and direction to provide clarity to the many issues encountered.

Client Education and Participation Required Due to ASHRAE 62.2.2016 Standard

Client education and benefits:

- Like all Weatherization measures, client refusal is NOT an option. Provide Client Ed and obtain client permission for the ASHRAE 62.2.2016 standard before commencing other Weatherization measures.

- Be positive, this is a significant improvement to the program! A feature not available in the past.
- Use the State-provided ASHRAE client education brochure to guide the conversation with the client.
    - The program combines additional air sealing with smart, healthy ventilation.
    - Ask about the client's concerns with a focus on Indoor Air Quality (IAQ), H&S, and moisture. Provide information and solutions to address concerns.
    - If air sealing is performed, the savings from reduced infiltration will be greater than the cost of running the fan as prescribed.
    - With potential improvement in IAQ, there may be a reduction in respiratory-related health issues.
    - Client homes should see a decrease in condensation or moisture collection. (Windows, ceilings, etc.)
- Alert occupants to potential hazards contributing to poor IAQ after tightening up a home without installing mechanical ventilation such as moisture, odors, chemicals, smoking, pets, etc. If these are observed, document and consider increasing the use/flow rate of the continuous fan.
- Instruct clients on the correct operation of the fans and the importance of periodic maintenance.
- If using a simple wall switch, place a Label on the switch; "Ventilation Fan - Leave On at All Times."

14100 Energy Education

Energy education must be provided to every household unless it is refused by the applicant. Sub-grantees conduct energy education using the Energy Education System Lite (EES Lite). If there is not enough data history available for EES Lite, households should still receive basic energy education. Energy education, or why energy education could not be completed, must be documented in client files. All charges for energy education are entered under "Customer Education Costs" in the energy audit. For all contracts, the EES Lite Customer Education Cost is limited to $150.00.

14200 Health and Safety Education

Client health and safety education must be provided to every household for issues identified during the audit or during weatherization. It is required that occupants be asked about preexisting or potential health concerns at the time of the initial audit. This information should be compared to the household's response on the LIHEAP/Weatherization application.

The Department's "Client Education" checklist of issues, when identified, are required to be discussed with occupants, along with written materials by the EPA and DOE. The occupant must sign and date the checklist and other required forms. Sub-grantees may use the Department checklist (see Appendix B) and EPA/DOE materials or their own if all the same issues are discussed and documented with dated signatures in the client file.

The Department's "Client Education" checklist and EPA/DOE materials fully follow WPN 22-7 guidelines and requirements possible. While every possible health and safety issue is not addressed by WPN 22-7 and therefore the Department checklist, where hazards are identified, clients must be informed in writing, and the document must be signed and dated by the client. A copy must be maintained in the client file.

All EPA materials are obtained and may be printed from the EPA website. Some materials may also be ordered from the EPA.

Chapter 15 FISCAL REQUIREMENTS

15000 General Standards for Allowable Costs

Allowable weatherization costs must be:

1. Reasonable for the performance of the contract and of benefit to the program for which the funds are provided.
2. Allocated to the contract under these policies.
3. Conform to any limitations or exclusions set forth in these policies or in the contract as to the type or amount of cost of items.
4. Consistent with policies and procedures that apply uniformly to other activities of the organization and are accorded consistent treatment.
5. Determined in accordance with generally accepted accounting principles.
6. Adequately documented.

Local Sub-grantee files must include all required expenditure documentation. See funding source contract for specific terms and conditions, policies and procedures, or policies and guidelines for allowable costs specific to each funding source (e.g., WPN 11-03 issued by DOE, effective December 15, 2010, provides the following:

GUIDANCE:
Grantees and sub-grantees may not charge the WAP for additional work on homes that have already been reported to DOE as completed, weatherized units. Once a home is reported to DOE as complete, the required final inspection indicates that all applicable work performed was done so in a workmanlike manner, including all work that may have been contracted out such as furnace work, etc. Performing activities such as routine maintenance, repairs, or warranty-type work is not permitted using DOE funds for work beyond those costs already invoiced. Grantees and sub-grantees may use other funds

that are not included as a part of their DOE WAP budget plans to pay for the costs associated with these activities.

See the funding source contract for allowable weatherization measures and fund source limitations and allowances.

15100 Method of Compensation

The Department will reimburse local Sub-grantees for all allowable costs upon receipt of authorized requests for reimbursement.

Local Sub-grantees are responsible for complying with all applicable guidelines and procedures. Sub-grantees must demonstrate responsible management of cash flow, inventory control, equipment purchase, and administrative costs.

1. If a local Sub-grantee wants to subcontract work under this program, the Sub-grantee's subcontract template must be reviewed and approved by the Department. Once the template has been approved, the Sub-grantee can use the contract for all subcontracts.
    a. Subcontractors must be selected using competitive procedures among potential bidders for weatherization services.
2. Local Sub-grantees must keep records that fully disclose the following:
3. Amount and disposition of funds received.
4. Total cost of a weatherization project.
    a. Source and amount of funds used from all funding sources.
5. Records must be retained for eight (8) years past the end of the DPHHS Master Contract.
6. NWE Records must be retained for eight (8) past the end of the DPHHS Master Contract.

15200 Reports

Local Sub-grantees will provide reports or answers in writing to specific questions, reports, or surveys requested by the Department or its funding sources by the specified deadline.

a. Per 10 CFR 440.18(d)(6) requests for vehicles purchased with DOE funding require prior written DOE approval. Allow ten (10) business days for DOE review. Steps to obtaining prior approval:

1. Grantees shall identify any need for vehicles and equipment (including Subgrantee needs) and provide the minimum information required below if known at the time of application. Upon approval of the award by the DOE

Contracting Officer, the prior approval requirement is satisfied without the need for subsequent approvals.

2. Grantees that identified a need for vehicles and/or equipment in their annual application (including Subgrantee needs) but were unable to provide the minimum information required below at that time, shall ensure the minimum information required, as identified below, is provided to the DOE Project Officer and DOE Administrator identified in the Assistance Agreement in a timely manner and as agreed upon with DOE.
3. Grantees that determine a need for vehicles and/or equipment after the award is approved by the DOE Contracting Officer (including Subgrantee needs), shall submit an individual request to the DOE Project Officer with a copy to the DOE Administrator identified in the Assistance Agreement and provide the minimum information required, as identified below, in a timely manner and as agreed upon with DOE.

Grantees shall review all Subgrantee requests to ensure all requirements are met before making a recommendation to DOE for approval. Upon receipt of the minimum required information for steps 2 or 3 above, DOE anticipates approval or review and follow-up if additional information is deemed necessary within ten business days.

Minimum information required:
The following must be submitted to DOE:

- A copy of the purchase request identifying the Grantee/Subgrantee.
- Where the vehicle(s) and/or equipment will be used and how it will be used – specify full or part-time use in the Weatherization Assistance Program.
- Identification of funding source(s) that will be used for purchase (e.g., DOE Weatherization - Program Operations funds) and a statement of whether the vehicle(s) is a replacement or intended for program expansion. If this is a replacement, address the trade-in, if applicable. In your explanation, please indicate the amount of any non-DOE WAP cost sharing, especially if part-time usage is proposed.
    - Note that Grantee purchases of vehicles or equipment directly related to specific training and technical assistance activities, such as monitoring, etc. may be charged to technical and training assistance (T&TA). However, T&TA funds shall not be used to purchase vehicles or equipment for Subgrantees to perform Weatherization services. The cost of these vehicles or equipment to support the Program must be charged to the vehicle/equipment or program operations categories. Provide a brief description of how the procurement was done, and confirmation that Sub-grantee, Grantee, and Federal procurement guidelines in 2 CFR Part 200 – Financial Assistance Rules were met.

- Copies of the bid specification (vehicle/equipment description with required features) and a bid analysis indicating at a minimum, each bidder, their bid price, and a determination whether each proposal met the bid specification.
- Statement showing that the lowest responsive bid was selected or provide a sufficient justification of the “best value selection” if the lowest bid is not recommended for DOE approval.

As indicated in 2 CFR 200.317-326 - Procurement Standards, Grantee and Subgrantee procedures must provide for a review of proposed procurements to avoid the purchase of unnecessary or duplicate items. Consideration should be given to consolidating or breaking out procurements to obtain a more economical purchase. Where appropriate, an analysis must be made of lease versus purchase alternatives, and any other appropriate analysis to determine the most economical approach.

DOE approval is not required for a vehicle lease that does not include a "purchase option." However, if a lease-purchase option is proposed and even if the purchase price is as small as one dollar, DOE would need to approve the purchase of the vehicle. Grantees and Subgrantees may not pre-pay leases that exceed the end of the award project period.

15300 Authorized Expenditures

OMB (Office of Management and Budget) Uniform Guidance is used as general guidelines for determining which weatherization costs are allowed.

Exceptions exist where costs conform to specific categories in the applicable contract, policies and procedures, weatherization budget, state law, or local ordinance.

The Department determines the proper interpretation of the federal or state procedures as they relate to costs allowed or prohibited under this program.

1. Local Sub-grantee files must include the following documentation:
    a. Description of the Sub-grantee subcontracting process and copies of pertinent contracts and procurement procedures.
    b. All necessary records that disclose fiscal accountability.
2. Inventory Control.
3. See the funding source contract for allowable weatherization measures and fund source limitations and allowances.
4. DOE follows10 CFR 440.18(d)(6); 2 CFR 200.317-326; and 2 CFR 200.439(2). LIHEAP follows OMB Uniform Guidance.

Chapter 16 ADMINISTRATIVE/PROGRAM COSTS

16000 Administrative Costs/Production Overhead

Administrative or Production Overhead (referred only to NWE funding) are costs associated with those functions of a general nature not clearly identifiable with a program. These functions may include if identified, planning, budgeting, and accounting, and establishment and direction of local Sub-grantee policies, goals, and objectives.

Note: For NWE production overhead, expenditures shall not exceed 35% of the contractor's actual expenditure of total contract funds at any point in the duration of the contract

1. Allowable administrative costs are:

- Non-Specific Board/committee meetings.
- Executive Director.
- Non-Specific staff meetings.
- Office management.
- Accounting, auditing, and budgeting.
- Corporate legal services.
- Personnel management.
- Purchasing and distribution of supplies.
- Insurance and bonding.
- Central clerical services.
- Word processing, computer services, and equipment.
- Organizational Policy and Procedure Development
- Record keeping.
- Office space/facilities lease or rental.
- Utilities in the office space/facilities.
- Telephone equipment and services.
- Administrative staff training.

2. Allowable Admin/Production Overhead

- Labor for intake and outreach staff (labor, fringe, payroll taxes, accrued leave
- (liability), vacation, sick leave, employer's share of life/health/dental/disability insurance and retirement, flexible spending accounts).
- Off-site supervision for procurement and program management.
- Postage
- Clerical support

- General personal liability and property insurance to be charged to the liability line item of the contract. (DOE Only)
- Depreciation/Amortization expenses for:
    - Building Use (Excluding the cost of or any portion of building, equipment, or land purchased using federal funds or donated by the Federal government, contributed by or for a non-profit organization to satisfy a statutory match requirement.)
- Capital improvements.
- Equipment (Excluding vehicles purchased outright with weatherization funds requiring DOE pre-approval)
- Fixed asset
- Professional organization dues or subscriptions
- Equipment, maintenance and repair
- Photocopies of applications or materials
- Printing related to materials used in energy conservation education or outreach.
- Taxes and license
- Consumable supplies (office and cleaning supplies).
- Supplies/Uniform Cleaning
- Non-consumable supplies defined as:
- Non-capital computer equipment.
- Computer software.
- Expenditures for supplies for the operation of the weatherization program such as desks, tables, chairs, electronic equipment, cabinets, and any supplies that are not consumed and do not meet capitalization policy.
- Warehouse costs (not included in material costs).
- Non-capital equipment (personal computers, insulation blowers, trailers, blower door machines, etc.)
- Purchase, lease, or rental of tools/equipment/vehicles.
- Lodging, per diem, salary, and travel costs associated with attending Department sponsored training. (DOE Training and Technical Assistance Plan)
- Delivery of materials.
- Payment of staff involved in purchasing, inventory, and distribution of weatherization materials.
- Transportation costs of materials for NWE charge to Production Overhead. All other funding sources this should be charged to Program Operations.
- Transportation of crews, tools, and equipment to and from weatherization sites (includes gas, maintenance, and insurance of vehicles) for NWE charge to Production Overhead. All other funding sources this should be charged to Program Operations.
- Travel for Weatherization Crew/Contractor for NWE charge to Production Overhead. All other funding sources this should be charged to Program Operations.

3. Indirect Rates
    a. Local Sub-grantees may apply an approved indirect cost rate to charge administrative costs only if both of the following conditions are met:
    a. The Sub-grantee has an approved indirect cost agreement with a cognizant federal Sub-grantee.
    b. The application of indirect cost charges may not result in exceeding applicable contract budget limits.

Notes:

1. Local Sub-grantees may gain approval of cost allocation plan.
2. Local Sub-grantee files must include the following documentation:
    a. All applicable costs.
    b. Indirect cost agreement approval letter.

16100 Program Operations/Direct Costs

Definitions:

1. Program Operations Costs – activities identified with a specific program or weatherization of a dwelling. Program Operations costs include material and labor costs associated with installing weatherization measures, making energy-related health and safety or weatherization-related repairs, and other costs directly related to the installation of weatherization measures.
2. Material Costs - costs associated with energy conservation materials installed on an eligible dwelling. Only weatherization materials that meet or exceed the standards listed in Appendix A, 10 Code of Federal Regulations (CFR) 440 may be installed on an eligible dwelling. However, while a material may be listed on Appendix A it is at the discretion of the Department if the materials are allowed in the MT WAP, e.g., 2-part spray foam, installation of storm doors, and heat pumps. Materials used for insulation, windows, doors, and infiltration must be included in and meet the cost-effectiveness calculations of the computerized energy audits. Materials used for ancillary, incidental repairs, and health and safety measures are not weatherization materials and are not required to be listed in Appendix A. Material costs for incidental repairs, heat systems, health and safety, miscellaneous measures and client education must be included in the respective sections of the computerized energy audits.

3. Installation Specific Costs - are all the non-material costs associated with energy conservation measures installed or services performed on an eligible dwelling. Installation costs must be used in the insulation, windows, doors, and infiltration sections of the computerized energy audit and must meet and be included in the cost-effectiveness calculations. DOE WPN 19-4 states that blower door guided air sealing may have an SIR less than 1.0, if the cumulative SIR of the

package of measures is equal to or greater than 1.0, not including H&S measures. Installation costs for incidental repairs, heat systems, health and safety, miscellaneous measures, and client education must be included in the respective sections of the computerized energy audits.

4. Audit costs - averaged costs directly associated with the pre-inspection of a dwelling (including the time involved for the inspection of the dwelling and the pre-blower door testing), hourly rate for data input into the computerized energy audit, case documentation, printing work orders, etc., the time involved in the final inspection of the dwelling after the weatherization work is completed (including the post-blower door testing) and the finalization of the computerized energy audit. Audit costs are separate charges that must be charged to each computerized audit. The following spreadsheet can be completed to assist with tracking audit costs.

Note: Changes to the Sub-grantees' total audit cost require Departmental approval before implementation.

Note: Quality Control Inspection costs may be included in the audit costs. Quality Control Inspection Costs that exceed the audit costs are tracked separately under QCI Inspection.

Example:

Sub-grantee Name:	**Date:**	
Audit Activity	**Number of Hours**	**Total Costs Wages/Fringes/Materials**
Costs Directly Associated with Pre-Inspection		
Dwelling Assessment		
Pre and Post Blower Door Tests (Labor for testing)		
Computerized Energy Audit Data Entry and Analysis		
File Documentation and Job specific paperwork		
Final Inspection and Paperwork		
Finalization of the Computerized Energy Audit		
Other Audit Activities (Describe)		
Total Audit Costs		

Direct Cost Charged to Program Operations

A. Allowable material costs include:
- Material costs charged by a subcontractor.
- Purchase and delivery of materials. (See WAP Manual Section 16000, for procurement guidance for recycled insulation materials.)
- Payment of staff involved in purchasing, inventory, and distribution of weatherization materials.
- Travel for Crews/Contractor to and from job site.
- On-site
- Payment for labor involved in fabricating materials.
- Purchase of supplies and equipment associated with installing energy measures on homes.
- Purchase of materials provided to a household during the inspection of a dwelling or for client education purposes.

B. Allowable labor costs include:
- Labor costs charged by a subcontractor.
- Local Sub-grantee weatherization crew costs (salary and all fringe benefits).
- Installation costs.
- Direct supervision of program services and other direct program management/oversight responsibilities.

C. Other Related Installation Costs
- Tools (drills, saws, hammer, IR camera, etc.).
- Building Permits to install materials.
- General supplies (glass cleaner, towels, etc.) for weatherization installations.
- Installation of in-kind (donated) materials
- Any other costs directly associated with the installation of weatherization materials for a dwelling.

Dwelling Unit Cost Control Records:

1. Local Sub-grantees must keep records that track costs for each weatherized dwelling unit and provide information for all weatherization work performed on a unit according to the specific allowances of the different funding sources used separately and in combination with other funding sources.

a. The Department of Energy (DOE) allows in certain circumstances, but does not encourage, the cost of a single measure to be split across multiple funding sources.
b. A measure receiving a homeowner/landlord contribution cannot be funded with DOE dollars. However, Sub-grantees may use other un-restricted funds including LIHEAP, NWE, and BPA, as braided funding sources.
c. The fiscal records for all dwelling unit expenditures must be traceable and costs charged to each funding source require supporting documentation.

Note: When weatherization services are provided with Department of Energy (DOE) and Bonneville Power Administration (BPA) funding, the Sub-grantee must adhere to the average cost per weatherized dwelling unit established by DOE. DOE adjusts that average limit annually. Average cost limits for other federal and/or utility weatherization projects are contained in the contract with the Department.

If a DOE or BPA job is Braided with LIHEAP or NWE, the Sub-grantee is allowed to adhere to the average cost per weatherized dwelling for each contract.

Weatherization-related Health and Safety Repairs
Energy-related health and safety expenditures may not exceed the average expenditure limits established for each contract fund source.

Health and Safety Repairs –

- DOE allows only 20% of all labor, material, and on-site supervisory costs.
- MDU, LIHEAP, and NWE will pay 100% for all health and safety repairs or measures.
- BPA will pay thirty percent (30%) of total dwelling weatherization costs.

Note: Testing for Prescence of lead and Lead renovation, repair and painting costs are Health and Safety costs**.**

Miscellaneous Measures
NWE will pay 100% for presumed cost-effective measures of attic air sealing, low-flow shower heads, faucet aerators, pipe wrap, compact fluorescent lamps and/or light emitting diode (LED) light bulbs, carbon monoxide detectors, energy audit costs, client education costs, DWH jackets, heating system safety and tune-up checks and health and safety related measures for primary account holders and 50% for secondary account holders.

Miscellaneous Measures excluding Attic Air Sealing, for all funding sources, may not exceed $250.

Liability Insurance

- Liability insurance is a program cost.
- Costs for liability insurance covering personal injury and property damage for on-site work may be charged to the liability insurance line item of the contract.

For NWE, Sub-grantee and their subcontractors shall provide the following insurance requirements for the duration of the services provided:

1. Coverage: Contractor shall secure and maintain at its own cost and expense the following minimum insurance coverage:

1.1 Commercial General Liability: $1,000,000
1.2 Automobile Liability: $1,000,000
1.3 Worker's Compensation: Statutory
1.4 Employer's Liability: $1,000,000 each accident; $1,000,000, Disease - policy limit; and $1,000,000 disease – each employee

2. Policy Requirements: All policies must:
2.1 be placed with such insurers having an A.M. Best rating of A-VII or better (not applicable to professional liability);
2.2 be endorsed to name NorthWestern as an additional insured with respect to any liabilities assumed under the Agreement (not applicable to workers' compensation, employers' liability and professional liability);
2.3 apply severally and not collectively to each insured against whom claim is made or suit is brought;
2.4 be primary with respect to the interest of NorthWestern as additional insured and any insurance maintained by NorthWestern is excess and not contributory insurance with the insurance required hereunder;
2.5 include a waiver of the right of subrogation against NorthWestern Energy;
2.6 include within automobile coverage(s), owned, non-owned, hired and borrowed vehicles; and
2.7 not be canceled or have limits or coverage reduced or restricted without Contractor providing at least 30 days prior written notice to the Contract Administration Department, NorthWestern Energy, 11 E Park St. Butte, Montana 59701.

3. Evidence of Insurance. The completed insurance certificate form and a copy of the policy endorsement must be delivered to the NorthWestern Energy Contract Administration Department, 11 E Park St. Butte, Montana 59701.

Notes:

- Local Sub-grantees must organize all bookkeeping and production records systems to account for the different cost allowances and budget categories of the various funding sources involved.

- Local Sub-grantees must report program expenditures to the Department as required.

Chapter 17 WEATHERIZATION RELATED FISCAL RESPONSIBILITIES

17000 Compliance with Federal Rules for Use of Recycled Insulation Materials

1. The Department and local Sub-grantees must comply with Environmental Protection Sub-grantee (EPA) regulations regarding the use of recycled materials: 10 CFR 247.12, Comprehensive Procurement Guideline for Products Containing Recovered Materials.
    a. Local Sub-grantees are required to make good faith efforts to procure insulation products that contain recycled materials.
    b. Exceptions to this policy may be made only if the following conditions can be documented:
        i Inability of the product to perform its intended purpose.
        ii Unavailability of the product at a reasonable price.
        iii Inability to obtain the product within a reasonable period.
        iv Inadequate number of vendors for obtaining and verifying estimates of recovered materials content to ensure a satisfactory level of competition at the time of procurement.
2. In addition to meeting procurement specifications, local Sub-grantees must establish an affirmative procurement program consisting of four items.
    a. EPA regulations provide three general approaches:
        i Minimum content standards that identify the minimum content of recovered materials that an insulation product must contain.
        ii Case-by-case procurement, allowing competition between insulation products made of new materials and those with recovered materials.
        iii An alternative approach that accomplishes the same objectives as (a) and (b).
    b. EPA regulations recommend that the procuring Sub-grantee use minimum content amount for commercially available insulation products that may contain recovered materials. These include:
        i Cellulose, loose fill, and spray-on (75 percent post-consumer recovered paper by weight).
        ii Perlite composite board (23 percent post-consumer recovered paper by weight).
        iii Rock wool (50 percent recovered materials).
        iv Promotion Program
        v Procedures for obtaining estimates and certifications of recovered materials content and for verifying the estimates and certifications.
    c. Annual review and monitoring of the effectiveness of the program.

Note: Local Sub-grantees must allow the Department access to all affirmative procurement program documentation upon request.

d. Local Sub-grantee files must contain the following documentation:
   i Procurement conditions that prohibit compliance with 10 CFR 247.12.
   ii Verification of the Sub-grantee follows EPA's affirmative procurement program.

17100 Training and Technical Assistance

1. Expenditure of contract funds awarded specifically for training and technical assistance (T&TA) purposes is subject to the following conditions:
   a. The Sub-grantee must submit a T&TA Workplan and Budget to the Department for written approval before any expenditure is made to the Department of Energy (DOE) contract T&TA line item.
   b. The Sub-grantee must submit to the Department a Training and Technical Assistance worker (crew and contractor) training inventory.
   Example:

Sub-grantee	Employee	Title	Hire Date	Completed Training	Not Trained	In training	RRP Certification Date	QCI Certification Date

Training Inventory

1. Training must have direct application and benefit to local Sub-grantee weatherization programs and assigned staff.
   a. If the training is not strictly for the benefit of the weatherization program staff, local Sub-grantees must document how other programs will share the training costs.
   b. Priority is to be given to direct training opportunities for staff, crews, and subcontractors.
   c. Salaries may not be paid with T&TA funds unless to cover time spent attending or providing training that is directly related to weatherization program job duties, requirements, and support
   d. Equipment and materials related to training may also be purchased with these funds.
   e. T&TA funds may not be used to purchase vehicles or equipment for local Sub-grantees to perform weatherization services. The cost to purchase vehicles or equipment to support the program must be charged to the specified program costs budget category.

f. Local Sub-grantees must keep T&TA expense documentation on file for review.

2. The Department may occasionally reimburse local Sub-grantee costs for providing training travel to receive training and technical assistance through the Peer Exchange Program or special projects.
    a. Prior Department approval is required for this reimbursement.
    b. Local Sub-grantees must submit a form designated by the Department.

Note: Local Sub-grantee files must include the following documentation:
Cost-sharing plan if training is not strictly for the benefit of weatherization program staff.

17200 Vehicles and Equipment

Per 2 CFR 200.33, Equipment means tangible personal property (including information technology systems) having a useful life of more than one year and a per-unit acquisition cost that equals or exceeds the lesser of the capitalization level established by the non-Federal entity for financial statement purposes, or $5,000.

1. Vehicle Purchases:
    a. All purchases of vehicles with values exceeding $5,000 require Department written approval.
        i. Local Sub-grantees must submit a request for the purchase of vehicles over $5,000 to the Department.
        ii. The Department will review each request for approval and provide the Sub-grantee with a written decision.
    b. As per 10 CFR 440.18 (d)(6) requests for vehicles purchased with Department of Energy (DOE) funding require prior written DOE approval. DOE anticipates approval or review and follow-up if additional information is deemed necessary within ten (10) business days.
        i Vehicles should be acquired with grant funds from DOE only after all other options or funding sources have been explored.
        ii Lease vs. purchase should be evaluated carefully.
        iii New vs. used vehicle purchases should be evaluated carefully.
    c. In some instances, purchases made with more than one fund source may be the only way to acquire needed equipment. If the equipment to be purchased for use in the local Sub-grantee's weatherization program will also be used by other local Sub-grantee programs, there should be a proportionate share in the purchase cost.
    d. Equipment Allowance
        iv For the purposes of determining the average cost per dwelling limitation, costs for the purchase of vehicles or other certain types of equipment as

defined in 10 CFR 440.18(c)(3) may be amortized over the useful life of the vehicle or equipment.

Amortizing these costs over the useful life of the vehicle or equipment provides the Grantee with a reasonable approach in determining the average cost per home, even though the full purchase price is reported in the year in which it occurs.

For example, if a Subgrantee purchases a new vehicle for $24,000 with an expected useful life for the vehicle of 8 years (96 months), the cost of that vehicle could be amortized at the rate of $3,000 per year or $250 per month.

v If, at the time of purchase, there are no plans to share equipment with a non-weatherization program, but it is deemed desirable in the future, then a rental fee based on proportionate use of the equipment must be applied.

Note: Local Sub-grantee files must include the following documentation:

- Competitive bid documentation for the purchase of equipment.
- According to 10 CFR 440.18(d)(6), all vehicles purchased with DOE funds must receive prior approval by DOE.
- Certificates of Title for motor vehicles.

17300 Financial Audits

1. All program funds made available to local Sub-grantees will be audited annually in accordance with the following:
    a. Generally accepted accounting principles.
    b. Governmental Auditing Standards ("The Yellow Book") issued by the General Accounting Office (GAO).
    c. The Office of Management and Budget (OMB) Compliance Supplement for Single Audits of State and Local Governments.
    d. OMB Uniform Guidance.
2. Department of Energy (DOE) 2 CFR 200, Financial Assistance Rules.
3. All state and federal laws and regulations governing the programs in which local Sub-grantees participate.
4. Costs of audits will be incorporated into Department contracts and charged to the local Sub-grantee’s Financial Audit category of expenditure.
5. Local Sub-grantee auditing will be conducted by a single independent Certified Public Accountant (CPA) firm selected by the local Sub-grantee.

6. All auditors employed must provide positive assurance to local Sub-grantees that they meet independent CPA provisions defined in the Yellow Book, including annual training.

Note: Local Sub-grantees must provide the Department with a copy of all audit reports and audit-finding action plans.

Chapter 18 PROCUREMENT

18000 Procurement

Procurement is the methodology used by a Sub-grantee on property acquisitions, including purchasing vehicles and equipment, for use in the Weatherization Program.

All grant awards made under this program shall comply with applicable law and regulations including the Weatherization Assistance Program regulations contained in 10 CFR 440 and Uniform Guidance regulations for Procurement. All Subgrantees must follow procurement standards outlined in 2 CFR 200.318 through 200.327. These standards are furnished to ensure materials and services are obtained in an effective manner and in compliance with applicable federal statutes and executive orders.

As indicated in 2 CFR 200.317-326 - Procurement Standards, Grantee and Subgrantee procedures must be documented and provide for a review of proposed procurements to avoid the purchase of unnecessary or duplicative items. Consideration should be given to consolidating or breaking out procurements to obtain a more economical purchase. Where appropriate, an analysis must be made of lease versus purchase alternatives, and any other appropriate analysis to determine the most economical approach.

Subgrantees must establish written procurement procedures to provide:

- Standards of conduct covering conflicts of interest and governing the actions of its employees engaged in the selection, award, and administration of contracts as described in 2 CFR 200.318. The written standards of conduct covering organizational conflicts of interest must also apply to parent, affiliate, or subsidiary organizations.
- The Subgrantee must award contracts only to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed procurement. Consideration will be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources. See also § 200.214 Suspension and Debarment.
- The Subgrantee must maintain records sufficient to detail the history of procurement. These records will include, but are not necessarily limited to, the following:

        - rationale for the method of procurement,
        - selection of contract type,
        - contractor selection or rejection, and
        - the basis for the contract price.
- The subgrantee must be responsible, in accordance with good administrative practice and sound business judgment, for the settlement of all contractual and administrative issues arising out of procurements. These issues include but are not limited to, source evaluation, protests, disputes, and claims. These standards do not relieve the Subgrantee of any contractual responsibilities under its contracts.
- Sub-grantees avoid purchasing unnecessary items.
- Where appropriate, a lease versus purchase analysis is made to determine the most economical and practical procurement.

Competitive Procurement
All procurement transactions for the acquisition of property or services required under a Federal award must be conducted in a manner providing full and open competition consistent with the standards of this section and § 200.320.

To ensure objective contractor performance and eliminate unfair competitive advantage, contractors that develop or draft specifications, requirements, statements of work, or invitations for bids or requests for proposals must be excluded from competing for such procurements.

Some situations considered to be restrictive of competition include but are not limited to:

- Placing unreasonable requirements on firms qualifying them to do business,
- Requiring unnecessary experience and excessive bonding,
- Noncompetitive pricing practices between firms or between affiliated companies,
- Noncompetitive contracts to consultants that are on retainer contracts,
- Organizational conflicts of interest,
- Specifying only a “brand name” product instead of allowing “an equal” product to be offered and describing the performance or other relevant requirements of the procurement, and
- Any arbitrary action in the procurement process.

The Subgrantee must conduct procurements in a manner that prohibits the use of statutorily or administratively imposed state, local, or tribal geographical preferences in the evaluation of bids or proposals, except in those cases where applicable Federal statutes expressly mandate or encourage geographic preference. Nothing in this section preempts state licensing laws.

When contracting for architectural and engineering (A/E) services, geographic location may be a selection criterion provided its application leaves an appropriate number of qualified firms, given the nature and size of the project, to compete for the contract.

The non-Federal entity must have written procedures for procurement transactions. These procedures must ensure that all solicitations provide:

- A clear and accurate description of the technical requirements for the material, product, or service to be procured. This description must include the functions to be performed, or the performance required, including a range of acceptable characteristics or minimum acceptable standards. Such description must not, in competitive procurements, contain features that unduly restrict competition.
- Requirements that the bidder must fulfill and all other factors to be used in evaluating proposals.
- The specific feature of brand name or equal descriptions that bidders are required to meet when such items are included in the solicitation.
- The acceptance, to the extent practicable and economically feasible, of products, of products and services dimensioned in the metric system of measurement.
- Preference, to the extent practicable and economically feasible, for products and services that conserve natural resources, protect the environment, and are energy efficient.
- Positive efforts, whenever possible, to utilize small businesses, minority-owned firms, and women's business enterprises.

Methods of procurement to be followed:

The Subgrantee must have and use documented procurement procedures, consistent with the standards of 2 CFR 200.317-326 for any of the following methods of procurement used for the acquisition of property or services required under a federal award or sub-award.

A. ***Informal procurement methods.*** When the value of the procurement for property or services under a Federal award does not exceed the *simplified acquisition threshold (SAT),* as defined in § 200.1, or a lower threshold established by the Sub-grantee, formal procurement methods are not required. The Sub-grantee may use informal procurement methods to expedite the completion of its transactions and minimize the associated administrative burden and cost. The informal methods used for procurement of property or services at or below the SAT include:

    1. ***Micro-purchases*** -

a. ***Distribution.*** The acquisition of supplies or services, the aggregate dollar amount of which does not exceed the micro-purchase threshold (See the definition of *micro-purchase* in § 200.1). To the maximum extent practicable, the sub-grantee should distribute micro-purchases equitably among qualified suppliers.
b. ***Micro-purchase awards.*** Micro-purchases may be awarded without soliciting competitive price or rate quotations if the Subgrantee considers the price to be reasonable based on research, experience, purchase history, or other information and documents it in files accordingly. Purchase cards can be used for micro-purchases if procedures are documented and approved by the Subgrantee.
c. ***Micro-purchase thresholds.*** The Subgrantee is responsible for determining and documenting an appropriate micro-purchase threshold based on internal controls, an evaluation of risk, and its documented procurement procedures. The micro-purchase threshold used by the Subgrantee must be authorized or not prohibited under State, local, or tribal laws or regulations.

2. ***Small purchases*** -
   a. ***Small purchase procedures.*** The acquisition of property or services, the aggregate dollar amount of which is higher than the micro-purchase threshold but does not exceed the simplified acquisition threshold. If small purchase procedures are used, price or rate quotations must be obtained from an adequate number of qualified sources as determined appropriate by the non-Federal entity.
   b. ***Simplified acquisition thresholds.*** The Subgrantee is responsible for determining an appropriate simplified acquisition threshold based on internal controls, an evaluation of risk, and its documented procurement procedures which must not exceed the threshold established in the Federal Acquisition Regulation (FAR). When applicable, a lower simplified acquisition threshold used by the Subgrantee must be authorized or not prohibited under State, local, or tribal laws or regulations.

B. ***Formal procurement methods.*** When the value of the procurement for property or services under a Federal financial assistance award exceeds the Simplified Acquisition Threshold (SAT), or a lower threshold established by the sub-grantee, formal procurement methods are required. Formal procurement methods require following documented procedures. Formal procurement methods also require public advertising unless a non-competitive procurement can be used in accordance with § 200.319 or paragraph (c) of this section. The following formal methods of procurement are used for procurement of property or services above the SAT or a value below the SAT the sub-grantee determines to be appropriate:

1. ***Sealed bids.*** A procurement method in which bids are publicly solicited and a firm-fixed-price contract (lump sum or unit price) is awarded to the responsible bidder whose bid, conforming with all the material terms and conditions of the invitation for bids, is the lowest in price.
    a. The sealed bids method is preferred for procuring construction, under the following conditions:
        i. A complete, adequate, and realistic specification or purchase description is available,
        ii. Two or more responsible bidders are willing and able to compete effectively for the business, and
        iii. The procurement lends itself to a firm fixed price contract and the selection of the successful bidder can be made principally based on price.
    a. If sealed bids are used, the following requirements apply:
        i. Bids must be solicited from an adequate number of qualified sources, providing them sufficient response time before the date set for opening the bids, for local, and tribal governments, the invitation for bids must be publicly advertised,
        ii. The invitation for bids, which will include any specifications and pertinent attachments, must define the items or services for the bidder to properly respond,
        iii. All bids will be opened at the time and place prescribed in the invitation for bids, and for local and tribal governments, the bids must be opened publicly,
        iv. A firm fixed price contract award will be made in writing to the lowest responsive and responsible bidder. Where specified in bidding documents, factors such as discounts, transportation costs, and life cycle costs must be considered in determining which bid is lowest. Payment discounts will only be used to determine the low bid when prior experience indicates that such discounts are usually taken advantage of; and
        v. Any or all bids may be rejected if there is a sound documented reason.

2. ***Requests for Proposals.*** A procurement method in which either a fixed price or cost-reimbursement type contract is awarded. Proposals are generally used when conditions are not appropriate for the use of sealed bids. They are awarded in accordance with the following requirements:
    a. Requests for proposals must be publicized and identify all evaluation factors and their relative importance. Proposals must be solicited from an adequate number of qualified offerors. Any response to publicized

requests for proposals must be considered to the maximum extent practical,

b. The non-Federal entity must have a written method for conducting technical evaluations of the proposals received and making selections,
c. Contracts must be awarded to the proposer responsible whose proposal is most advantageous to the non-Federal entity, with price and other factors considered; and
d. The non-Federal entity may use competitive proposal procedures for qualifications-based procurement of architectural/engineering (A/E) professional services whereby the offeror's qualifications are evaluated, and the most qualified offeror is selected, subject to negotiation of fair and reasonable compensation.

3. ***Noncompetitive procurement.*** There are specific circumstances in which noncompetitive procurement can be used. Noncompetitive procurement can only be awarded if one or more of the following circumstances apply:
   i. The acquisition of property or services, the aggregate dollar amount of which does not exceed the micro-purchase threshold (see paragraph (a)(1) of this section);
   ii. The item is available only from a single source,
   iii. The public exigency or emergency for the requirement will not permit a delay resulting from publicizing a competitive solicitation,
   iv. The Federal awarding sub-grantee or pass-through entity expressly authorizes a noncompetitive procurement in response to a written request from the sub-grantee; or
   v. After solicitation of several sources, competition is determined inadequate.

- The type of procuring instrument used (e.g., fixed price contract, cost reimbursable contract, purchase orders, and incentive contract) shall be determined by the sub-grantee but shall be appropriate for the procurement and for promoting the best interest of the program and project involved. "***Cost plus a percentage of cost" methods of contracting shall not be used.***
- Contracts shall be made only with those subcontractors who possess the potential ability to perform successfully under the terms and conditions of the procurement. Consideration shall be given to such matters as contractor integrity, record of past performance, and financial and technical resources. Contracts may not be made with those persons listed as "debarred or suspended".
- Sub-grantees shall make available for review any Request for Proposal (RFP) or procurement document when any of the following apply:
    - Procedures fail to comply with the standards found in OMB Uniform Guidance or 10 CFR 200 or 10 CFR 440.

- The procurement is expected to exceed the small purchase threshold and is to be awarded without competition or only one bid or offer is received in response to a solicitation.
- The procurement which is expected to exceed the small purchase threshold specifies a brand name product.
- The proposed award which is greater than the small purchase threshold is to be awarded to other than the lowest bidder under a ‘sealed bid” procurement.
- A proposed contract modification changes the scope of a contract or increases the contract amount by more than the amount of the small purchase threshold.

Bid package:
The Sub-grantee’s contract or purchasing officer shall prepare a bid package which includes:

- Cover sheet.
- Statement of work specifications or materials to be purchased.
- Minimum requirements.
- Evaluation criteria.
- Work quality standards.
- Proposal format.
- Sample contract.
- Date of bidder’s conference, if applicable.
- Right of the Sub-grantee to accept or reject all bids.
- Period of contract.
- Affirmative action statement.

The Sub-grantee shall make awards only to responsible contractors possessing the ability to perform successfully under the terms and conditions of proper procurement. Consideration must be given to contractor integrity, compliance with public policy, record of past performance and financial and technical resources.

Minimum requirements cannot be unreasonable or excessive.

Solicitation of sealed bids and Requests for Proposals (RFP):

The establishment of a standard method of advertising procurement activities assures maximum open and free competition.

The Sub-grantee must:

- Prepare the advertisement newspapers.
- Prepare a notice to be posted.

- Submit the advertisement to the newspapers and post the announcement.
- Secure documentation of the advertisement from the newspapers.
- Notify all individuals on the Sub-grantee's bidder's list of the solicitation, if applicable.
- Record the names of the individuals, firms, or businesses requesting bid packages, the date the request was received, and the date the bid package was sent.
- Prepare technical information for the bidder's conference.
- Facilitate bidder's conference.
- Document attendance at the bidder's conference and record minutes.

No information about the solicitation will be provided to anyone until the bidder's conference. If the Sub-grantee does not conduct a bidder's conference, any information provided to prospective bidders must be forwarded and maintained by the Sub-grantee's Contracts Officer.

Receipt of bids or proposals:

The Sub-grantee must establish procedures that will be followed to ensure equal treatment to all prospective bidders.

- All sealed bids or requests for proposals will be logged into a bid/proposal control sheet.
- When the bid or proposal is received by the Sub-grantee, the bid or proposal will be date stamped. The time of receipt will be documented by the person receiving the bid or proposal.
- The received bids or proposals will be maintained in a secured location until the time of opening.
- Return all bids or proposals received or submitted after the closing date. The late bids must be returned unopened with a letter of explanation for the reason for the return

Evaluation of bids or proposals and contract award:

The Sub-grantee must evaluate the bids or proposals submitted, select a contractor, and award the contract. The Sub-grantee must ensure that the Sub-grantee's Personnel Policies and Procedures Manual provides standards of conduct for employees, officers, or agents to avoid conflicts of interest or the appearance of conflicts of interest. The Sub-grantee will:

- Conduct the bid opening (public or private).

- For public bid openings, the bid amounts will be announced at the opening. The contract is not awarded at a public bid opening.
- Schedule a meeting of the evaluation panel.
- Evaluate bids or proposals for compliance with all requirements.
- Evaluate responsive bids or proposals based on cost criteria established in the bid package. A responsive bid meets all requirements identified in the bid package.
- Prepare a written summary of points and costs for all responsive bidders or proposers.
- Submit the name, bid amount, and the justification for the selection of the successful bid or proposal for the contract award to the Sub-grantee's Contracts Officer.
- Notify the selected contractor and secure:
    - Certificate of insurance, if applicable.
    - Copy of required licenses or permits as applicable.
    - Certification regarding suspension or disbarment.

- Verify insurance coverage for the successful bidder or proposer meets requirements.
- Secure a fully executed contract with a successful bidder or proposer.
- Provide written notification to unsuccessful bidders.
- After the contract award, unsuccessful bidders or proposers may be informed of the points received and the dollar amounts of the successful bidder.

Protest procedures:

The Sub-grantee must provide specific actions to be taken should a protest be filed by an unsuccessful bidder or proposer.

The protester must file a written complaint using the Sub-grantee's specific format within ten (10) working days after the notice of rejection is mailed. The protest must contain the following:

1. Notice of protest and the specific reasons for filing.
2. Statement asserting the letter is a protest.
3. Detailed statement of the grounds for the protest.
4. A specific request for a ruling by the Sub-grantee's protest committee and a statement of the relief requested.

When a written complaint is received, the Sub-grantee must:

- Notify the successful contractor that a complaint has been filed.

- Schedule a meeting of the protest committee to review the complaint. The meeting must be held within ten (10) working days of the filing of the protest and the minutes of the meeting must be recorded. The individuals who sit on the protest committee must be identified in writing before the commencement of all procurement activities. The Sub-grantee's Contracts Officer should not be involved in the protest procedures other than to provide technical support.
- The protest committee must issue a decision within five (5) working days from the date of the meeting.
- The Sub-grantee must notify the protester of the decision of the protest committee.

Chapter 19 HISTORIC PRESERVATION

19000 Historic Preservation and Weatherization

Historic Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of a historic property.

Properties greater than 50 years old are to be considered for Historic Preservation. For Tribal land, per Memorandum 110, all homes located on tribal land that are 45 years or older must complete the Home Preservation Worksheet (HPW), click the link below, and submit it to your monitor. DOE approval can take up to 30 days.
https://www.energy.gov/scep/wap/articles/historic-preservation-worksheet

Before the expenditure of federal funds to alter any structure or site, the Sub-grantee is required to comply with Section 106 of the National Historic Preservation Act (NPA). Section 106 applies to historic properties or sites listed on or eligible for listing on the National Register of Historic Places.

To fulfill the requirements of Section 106, the Sub-grantee must contact the State Historic Preservation Officer (SHPO) to coordinate the Section 106 review as outlined in 36 C.F.R. Part 800.

Learn more about SHPO contact information.

19100 Exemptions from Section 106 Review

The Programmatic Agreement between the Department of Energy (DOE); the Montana Department of Public Health and Human Services (DPHHS) and the Montana State Historical Preservation Office (SHPO) is effective from July 29, 2010, through December 31, 2030. This agreement provides the following:

- Recipient will maintain file records with verification that undertakings were determined to be exemptions for a period of three (3) years from project

completion and make them available for review if requested by DOE or the Advisory Council on Historic Preservation (ACHP).

- If a property has been determined to be ineligible for inclusion in the National Register within the last five (5) years from the date the Recipient made its application for DOE financial assistance, then no further review is required.

- If the Sub-grantee needs to submit a review of the proposed undertaking to the SHPO for review, it should submit the requisite form to the SHPO.

- The Sub-grantee ***shall not submit*** to the SHPO undertakings in accordance with Appendices A or B of this agreement as they do not have the potential to cause effects on historic properties even when historic properties may be present.

19200 Historic Preservation Appendix A

All undertakings will be done following applicable local building codes or the International Residential Code (IRC), where applicable. Per 36 CFR 800.3(a)(l), the following undertakings have been determined to have no potential to cause effects on historic properties:

Exterior Work

1. Air sealing of the building shell, including caulking, weather-stripping, and other air infiltration control measures on windows and doors, and installing thresholds in a manner that does not harm or obscure historic windows or trim.
2. Thermal insulation, such as non-toxic fiberglass and foil wrapped, in walls, floors, ceilings, attics, and foundations in a manner that does not harm or damage historic fabric.
3. Blown in wall insulation where no holes are drilled through exterior siding, or where holes have no permanent visible alteration to the structure.
4. Removable film on windows (if the film is transparent), solar screens, or window louvers, in a manner that does not harm or obscure historic windows or trim.
5. Reflective roof coating in a manner that closely resembles the historic materials and form, or with materials that restore the original feature based on historical evidence, and in a manner that does not alter the roofline, or where not on a primary roof elevation or visible from the public right-of-way.
6. Storm windows or doors, and wood screen doors in a manner that does not harm or obscure historic windows or trim.

7. In-kind replacement or repair of primary windows, doors, and door frames that closely resemble existing substrate and framing.
8. Repairing roof and wall leaks before insulating attics or walls, provided repairs closely resemble existing surface composite.
    a. EPDM rubber roofing can be installed as an Incidental Repair Measure to protect weatherization measures (attics, walls, floors, etc.) as well as enhance the durability of the building.

Interior Work

Note: Undertakings to interior spaces where the work will not be visible from the public right of way; no structural alterations are made; no demolition of walls, ceilings, or floors occurs; no drop ceilings are added; or no walls are leveled with furring or moved, should be automatically excluded from SHPO review. This work includes:

1. Energy efficiency work within the building shell:
    a. Thermal insulation in walls, floors, ceilings, attics, crawl spaces, ducts, and foundations.
    b. Blown-in wall insulation where no decorative plaster is damaged.
    c. Plumbing work, including installation of water heaters.
    d. Electrical work, including improving lamp efficiency.
    e. Sealing air leaks using weather stripping, door sweeps, and caulk and sealing major air leaks associated with bypasses, ducts, air conditioning units, etc.
    f. Repair or replacement of water heaters.
    g. Adding adjustable speed drives such as fans on air handling units~ cooling tower fans, and pumps.
    h. Install insulation on water heater tanks and water heating pipes per SWS 5.02 and 7.03
    i. Repair or replace electric motors and motor controls like variable speed drives.
    j. Incorporate other lighting technologies such as dimmable ballasts, daylighting controls, and occupant-controlled dimming.

Work on heating and cooling systems:

    a. Clean, tune, repair or replace heating systems, including furnaces, boilers, heat pumps, vented space heaters, and wood stoves.
    b. Clean, tune repair, or replace cooling systems, including central air conditioners, window air conditioners, heat pumps, and evaporative coolers.
    c. Install insulation on ducts and heating pipes.

        i Conduct other efficiency improvements on heating and cooling systems, including replacing standing pilot lights with electronic ignition devices and installing vent dampers.

ii Modify duct and pipe systems so heating and cooling systems operate efficiently and effectively, including adding return ducts, replacing diffusers and registers, replacing air filters, installing thermostatic radiator controls on steam and hot water heating systems.
iii Install programmable thermostats, outdoor reset controls, UL-listed energy management or building automation systems, and other HVAC control systems.
iv When replacing existing thermostats, identify and dispose of any mercury-containing thermostats following Environmental Protection Sub-grantee (EPA) guidance.

i. Paraphrased from 40 CFR 273.14: A universal waste mercury-containing thermostat or container containing only universal waste mercury-containing thermostats should be labeled or marked clearly with any of the following phrases: "Universal Waste-Mercury Thermostat(s)," "Waste Mercury Thermostat(s)," or "Used Mercury Thermostat(s).

Energy efficiency work affecting the electric base load of the property:

a. Convert incandescent lighting to compact fluorescent lamps (CFL) or light-emitting diodes (LED).
b. Add reflectors, LED exit signs, efficient HID fixtures, and occupancy (motion) sensors.
c. Replace appliances using BPA funding only.

Health and safety measures:

a. Installing fire, smoke, or Carbon Monoxide alarms
b. Repair or replace vent systems on fossil-fuel-fired heating systems and water heaters to ensure that combustion gases draft safely outside.
c. Install mechanical ventilation, in a manner not visible from the public right of way, to ensure adequate indoor air quality if the house is air-sealed to the dwelling unit tightness limit.

19300 Historic Preservation Appendix B

In addition to the undertakings provided in Exhibit A; (WAP Undertakings exempt from Section 106 Review), DOE and the SHPO have concluded that the following undertakings do not have the potential to cause effects on historic properties per 36 CFR § 800.3(a)(1):

Category 1 - No Consultation Required

1. General efficiency measures not affecting the exterior of the building:
   a. Energy audits and feasibility studies.
   b. Weatherization of mobile homes and trailers.

c. Caulking and weather-stripping around doors and windows in a manner that does not harm or obscure historic windows or trim.
d. Water conservation measures — like low flow faucets, toilets, shower heads, urinals — and distribution device controls.
e. Repairing or replacing in kind existing driveways, parking areas, and walkways with materials of similar appearance.
f. Excavating to gain access to existing underground utilities to repair or replace them, provided the work is performed consistently with previous conditions.
g. Ventilating crawl spaces.
h. Replacement of existing HVAC equipment including pumps, motors, boilers, chillers, cooling towers, air handling units, package units, condensers, compressors, heat exchangers that do not require a change to existing ducting, plumbing, electrical, controls, or a new location, or if ducting, plumbing, electrical and controls are on the rear of the structure or not visible from any public right of way.
i. Adding or replacing existing building control systems including HVAC control systems and the replacement of building-wide pneumatic controls with digital controls, thermostats, dampers, and other individual sensors like smoke detectors and Carbon Monoxide alarms (wired or battery operated).
j. When replacing existing thermostats, identify and dispose of any mercury-containing thermostats following Environmental Protection Sub-grantee (EPA) guidance.
k. New installation of non-hard-wired devices including photo-controls, occupancy sensors, Carbon Monoxide alarms, thermostats, humidity, light meters, and other building control sensors, provided the work conforms to applicable state and local permitting requirements.
l. Adding variable speed drive motors.
m. Insulation of water heater tanks and pipes.
n. Furnace or hot water tank replacement that does not require a visible new supply or venting.

Insulation measures not affecting the exterior of the building:

a. Thermal insulation installation in walls, floors, and ceilings (excluding spray foam insulation).
b. Duct sealing, insulation, repair, or replacement in unoccupied areas.
c. Attic insulation with proper ventilation.
d. Band joist insulation.
e. Water heater tank and pipe insulation.

Electric base load measures not affecting the exterior of the building:

a. Appliance replacement (upgrade to Energy Star appliances) using BPA funding.
b. CFL bulbs or LED bulbs.
c. Energy-efficient light fixtures, including ballasts (Replacement).
d. LED light fixtures and exit signs (Replacement).
e. Upgrade exterior lighting (replacement with metal halide bulbs, LEDs, or others) along with ballasts, sensors, and energy storage devices not visible from any public right of way.

Chapter 20 PROGRAM VIOLATION REFERRALS

20000 Program Violations/Sanctions

Program Violations – For the Low-Income Weatherization Assistance Program, a program violation is the act of obtaining assistance to which one is not entitled, using willfully submitting false statements or withholding information pertinent to:

- The determination of a recipient's eligibility for assistance; or
- Receiving a benefit

WILLFUL WITHHOLDING OF INFORMATION – Includes but is not limited to:

- Willful misstatements (either oral or written) made in response to oral or written questions from the sub-grantee.
- Willful failure by the recipient to report status changes each year, at the time of application or subsequent transfer to other sub-grantee jurisdictions.
- Willful failure by the recipient to report changes in status affecting the benefit award, such as family number, housing size and type, fuel type, etc.
- Willful failure by the recipient to report receipt of a benefit or payment on his/her behalf which he/she knows or should know represents an erroneous benefit award or overpayment.
- Willful transfer of property for qualifying for assistance.

20100 Program Violation

SUB-GRANTEE – If an individual appears to have committed a program violation under the Low-Income Weatherization Assistance Program, the sub-grantee must report in writing all facts on the alleged program violation to the Department. The Department may refer the matter to the Department of Public Health and Human Services Quality Assurance Division Program Compliance Bureau.

INTERESTED PARTY – Any interested party may report any individual appearing to have committed a program violation under the Low-Income Weatherization Assistance

Program to the sub-grantee, or the Department. This referral should be done in writing. The information shall include the name of the recipient, the county in which he/she resides, and the type of assistance he/she is receiving.

AMOUNT OF A PROGRAM VIOLATION UNDER $10.00 – When the net amount of the alleged program violation is under $10.00 no recoupment will be attempted.

REPORTING SUSPECTED PROGRAM VIOLATION –

1. The 'LIHEAP/Weatherization Investigative Referral' form is completed by the sub-grantee with a brief explanation of events causing the referral to be made.
    a. The sub-grantee must report, in writing, all facts on the alleged program violation to the Department.

Note: When the net amount of alleged program violation is under $10.00 no recoupment will be attempted.

1. The IHSB Field Monitor will evaluate and determine if a referral is appropriate.
    a. If not, report back to the Sub-grantee
    b. If so, the case will be referred to the DPHHS Office of Inspector General Program Compliance Bureau.
2. The DPHHS Office of Inspector General Program Compliance Bureau will review the case.
    a. If additional Information is needed the Program Compliance Bureau will contact the Sub-grantee directly.
3. Once investigation is complete, findings will be reported to IHSB with one of the following recommendations:
    a. Drop
    b. Pursue
4. The Field Monitor will review the investigative results and proceed as necessary.
    a. Dropped cases will be reported to the Sub-grantee.
    b. Document on the Investigation Spreadsheet
    c. Overpayments will be calculated.
5. The Overpayment Letter will be sent with the Fair Hearing language as provided in ARM 37.70.106
    a. A Repayment Agreement will be sent.
    b. The overpayment box needs to be checked in the CDS LIHEAP Case
6. The completed LIHEAP/Weatherization Investigative Referral form should be kept in the case file for future reference.
7. Overpayments will be recouped in one of the following ways:
    a. Lump Sum Payment in Full
    b. Installment Payments
    c. Reduction of future LIHEAP benefits to repay entire unpaid balance.

Note: If there is no response to the repayment request, the household's tax refund may be offset to pay back the Weatherization measures received.

20200 Program Violation Investigations

UNIT'S OBJECTIVES – The department's major objectives are:

- To investigate all referrals of program violations for the Weatherization Assistance Program.
- To refer the matter to the Department's Program Compliance Bureau (PCB) for further action.

INVESTIGATOR'S CHECKLIST – The following items are presented here to show the kind of contact an investigator from the Office of Inspector General Program Compliance Bureau will have with the staff of the sub-grantee. These are some, but not all, of the Investigator's work steps.

- Discuss the case record with the sub-grantee staff who handled the case.
- Obtain all relevant hard copy and/or digital documentation that will help in the prosecution of the case, including those items that are not part of the case record. (e.g., payment checks issued by the Department, checks on behalf of the recipient issued by the Department, business office ledger cards or printouts, payroll and personnel information, court records, insurance policies, rent receipts, etc.)
- Review the case record and other evidence with the prosecuting attorney.
- Interview all witnesses as to the facts alleged in the program violation complaint.

Chapter 21 GLOSSARY

21100 Definitions

ACT OF GOD – an event caused solely by forces of nature without human involvement.

ANCILLARY ITEMS – Items necessary for the proper installation of weatherization materials. Ancillary item refers to small items such as hardware, nails/screws, other fasteners, adhesive, sealants, etc. Does not include large-ticket items such as drywall, roof/floor decking, rough framing, etc., as these are considered incidental repairs. Ancillary items are required by materials manufacturers, general construction, and/or WAP field standards to achieve a finished product in a typical installation where no unusual or extensive repairs are needed. The costs of ancillary items and

installation are to be included within the costs of an individual ECM when calculating the SIR for the individual ECM. Although the WAP requires the use of appropriate, durable ancillary materials, standards for ancillary items are typically not listed in 10 CFR Part 440, Appendix A.

APPLICANT – A person 18 years or older or an emancipated minor applying for benefits for all eligible household members in the household at the time of application. The applicant does not need to be an eligible member of the household.

BRAIDING – when multiple separate funding sources are used on one weatherization project to address different needs within the home while ensuring each funding source is tracked independently within the fiscal system. Braided leveraged funds are not included in the WAP budget that Grantees submit to DOE in the application for annual formula funds.

CONTRIBUTION– aligns with a private interest and the funding source retains the decision-making authority in identifying the building being selected for installation of the measure(s).

CHILD –a person who is under age eighteen (18).

CO-FUNDING - when leveraged funds (not owner contributions) are used to install measures that do not have a SIR of 1.0 or greater.

CRISIS BENEFITS - Benefits are limited to the minimum amount necessary to relieve the crisis not to exceed the maximum amount allowed by state regulations. Benefits may take the form of fuel deliveries, service reconnection, blankets or sleeping bags, loan of space heaters and emergency shelter (with Department approval). Benefits also include referral and facilitation of application for Energy Share assistance. Crisis relief will be provided within 48 hours or 18 hours if the situation is life-threatening.

DISABILITY– This is as defined in 20 CFR 416.905, which is the basic definition of disability for Social Security law purposes.

DOE COMPLETION – To count as a DOE completion, there must be at least one Energy Conservation Measure (ECM). Health and Safety and Miscellaneous Measure only completions are not allowed under DOE.0 SIR

EGRESS COMPLIANCE, WINDOW, AND DOOR – allows you to get from inside of a property to an exterior point of safety. A form of egress can be either a window or a door. Windows must meet certain size requirements to be compliant with code as a point of egress. Egress compliance costs will be run as a Health and Safety expenditure and only

LIHEAP weatherization funding can be used. Please see section 5100 Health and Safety Related Repairs.

ELDERLY - a person who is sixty (60) years of age or older.

ENERGY BURDEN - the percentage of a household's income allocated to energy costs for the household's dwelling. The energy burden is calculated by dividing the household's actual or estimated annual heating costs by the household's annual income.

ENERGY CONSERVATION MEASURE (ECM) - A procedure, including materials and installation, which is considered or performed for its anticipated energy savings. An ECM often includes the installation of ancillary items but will not include Incidental Repair Measures (IRM). The installed cost of all ancillary items associated with the proper installation of an individual ECM must be added to the cost of its ECM when calculating the Savings-to-Investment Ratio (SIR) for the individual ECM.

ENERGY CRISIS - Weather-related and supply shortage emergencies and other household energy-related emergencies.

ENERGY USAGE - the amount of energy used over a given period. The annual energy usage is determined by using actual or estimated heating costs over twelve months.

ETHYLENE PROPYLENE DIENE MONOMER (EPDM) “Rubber Roofing” - EPDM rubber roofing can be installed in mobile homes as an IRM to protect weatherization measures that are installed as part of the work scope and enhance the durability of the building. The cost of the IRM will be included in the overall SIR calculation for the audit and the overall SIR must remain at 1.0 or higher to be allowable.

FRIABLE MATERIAL – Friability will be assessed based on the AHERA definition: Any material containing more than 1% asbestos that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. For program purposes, non-friable material that will be disturbed during weatherization activities will be treated as friable material.

FUEL TYPES: LIHEAP heating assistance may be provided for only these allowable fuel types: Propane, Wood, Coal, Fuel Oil, Natural Gas, and Electricity. Does not include portable generators, batteries, solar, gasoline, or diesel fuel.

HEALTH AND SAFETY MEASURE - Health and safety measures are those actions necessary to maintain the physical well-being of both the occupants and/or weatherization workers where the actions MUST be taken to effectively perform weatherization work, or the actions are necessary because of weatherization work. The client file must include documentation of the rationale for performing each H&S measure and its relationship to the ECM that necessitated it.

HEATING NEED or HEATING OBLIGATION – Households/Applicants that are obligated to pay for fuel to heat their homes. Proof of the household's heating needs and the type of primary fuel for the residence must be verified.

INCIDENTAL REPAIR MEASURE (IRM) - those repairs necessary for the effective performance or preservation of weatherization materials. Such repairs include but are not limited to, framing, repairing windows and doors that could not otherwise be caulked or weather-stripped, and providing protective materials, such as paint, to seal materials installed under this program. Incidental Repairs must be justified in the client file and the Energy Audit with an explanation of their need and relationship to a specific energy conservation measure (ECM) or group of ECMs.

INELIGIBLE – Denial of benefits to a household not having met income and/or resource restrictions or failing to meet non-financial eligibility requirements.

LEVERAGE FUNDS – aligns with the intention of supplementing the weatherization resources and the funding source does not identify specific buildings for the investment. Weatherization Assistance Program (WAP) related funds that are considered "leveraged", indicate the funding source has transferred decision-making authority to the WAP Sub-grantee to determine which buildings will receive the measure(s).

LIFE THREATENING – A life-threatening crisis exists when condition(s) are present that may cause death or severe permanent damage to the health of one or more household members if energy assistance or repair or replacement of the primary heating system is not provided. Such conditions include:

- Household is without a primary heat source of electric or natural gas service or has less than 10% of a deliverable fuel (propane, wood, coal, fuel oil)
    - and has no secondary or alternate heat source,
    - and the outside temperature is below 32°F.
- The health and/or well-being of a household member who:
    - Is age 60 or older;
    - Is under the age of six;
    - Receives a disability payment;
    - Has a medical condition aggravated by extreme heat or cold that is verified by a licensed medical provider; or
    - Must use a medical device that requires electricity; and

  would likely be endangered without the availability of their primary heat source or emergency cooling assistance which may include those who suffer more severe adverse effects from extreme temperature changes or exposure to extreme temperatures due to a medical condition.
    - Additional special circumstances are considered on case-by-case basis and determined by LIHEAP specialists at sub-contracting local Sub-

grantees. LIHEAP specialists are to utilize the prudent person principal when determining the type of emergency and necessary assistance to alleviate it.

LOCAL CONTRACTOR (SUB-GRANTEE) – The LIHEAP eligibility unit, local office.

LOCAL ELIGIBILITY OFFICE (SUB-GRANTEE) – Community-based organizations in the state that provide client education and receive and process applications for the LIHEAP and/or Weatherization Assistance Programs.

MAJOR MEASURES - high-priority weatherization measure, which if skipped, would result in partial weatherization of a unit. Measure skipping of a cost-justified major measure is not permitted at any time. The major measures are Infiltration, Attics, Walls (including rim joists and above and below-grade foundation walls), Floors, and Furnace systems (duct and boot sealing, insulation of ductwork in unconditioned spaces).

MOBILE HOME – A single-wide mobile home, double-wide mobile home, or manufactured home, when connected to the required utilities (including plumbing, heating, and electrical systems contained therein) and designed to be used as a permanent residence.
MONITORING – A series of checking functions focused on specific tasks and activities of the contracting Sub-grantee. It is a day-to-day process designed to ensure that all elements of the sub-grantee's programs are being accomplished.

NON-LIFE THREATENING – Nonlife-threatening situations exist when household circumstances are not likely to result in loss or quality of life without immediate heating-related intervention. Non-life threatening situations may affect the household member's comfort but do not directly cause adverse harm to the health and/or well-being of individuals.

NON-TRADITIONAL DWELLING UNIT – Structures not typically designed for year-round human habitation. This includes, but is not limited to, recreational vehicles (RV's), campers, and other structures such as storage sheds, garages, yurts, utility trailers, storage containers, and railroad cars.

OFF GRID – Dwelling that does not use or depend on public utilities, especially the supply of electricity.

PRIMARY HEAT SOURCE – The primary system is generally understood as the unit (or system of units) most relied upon to provide heating/cooling throughout the season. These systems may or may not be centralized but provide most of the heating for the home.

PRIORITY LIST – A list of homes generated by the Department determining the order of priority for Weatherization work. Priority is given to households meeting two or more of

the below priority criteria list If the household has a primary space heat or primary water heater emergency, they may be moved to the top of the priority list. The emergency must be documented in the client file.

- An elderly household member (60 years of age or older)
- A disabled household member; or
- A household with a member who is a child (under the age of 18)
- If there exists a weatherization-related imminent threat to the health or safety of an eligible household, the home may be moved up the priority list. It is the obligation of the household to provide proof of an imminent threat to the health and safety of the household to the contractor. Th local contractor must have documentation of the weatherization-related imminent threat to the health or safety of the household in the client file.

PRESSURE BOUNDARY – The primary air enclosure boundary separating indoor and outdoor air.

SECONDARY HEAT SOURCE - Secondary systems or units are employed only in extreme weather or as a backup to the primary system and do not provide heat to the entire dwelling.

SAVINGS INVESTMENT RATIO (SIR) – Total material and labor costs to perform a weatherization measure in ratio to the cost savings the household may experience because of installed weatherization measures.
TRADITIONAL DWELLING UNIT -- A residential housing structure, including single-family homes, mobile homes, multi-family units, and a modular home when connected to the required utilities (including plumbing, heating, and electrical systems contained therein) and designed to be used as a permanent residence.

SINGLE FAMILY UNIT – A building that contains a single shelter, modular, or single rental for living purposes. A double-wide trailer, mobile home, and manufactured home are not considered single-family units. See: Mobile Homes

SUB-GRANTEE – Community-based organizations in the state that provide client education and receive and process applications for the LIHEAP and/or Weatherization Assistance Programs.

SUMMER WEATHERIZATION – Households who applied after the heating season ended April 30, and the application cannot be processed for heating bill assistance. However, the application must be processed to determine eligibility for emergency assistance and weatherization assistance. The heating season is from October 1 through April 30 of the following year unless it is extended.

TRIBAL INDIAN HOUSEHOLDS – households in which any of the following apply:

- Member(s) of Confederated Salish & Kootenai Tribes (CSKT) living on the CSKT Reservation, or
- CSKT direct decedents (1st generation) living on the CSKT Reservation
- Household contains a CSKT direct decedent 18 years of age or older living on the CSKT Reservation
- Native American (Member of any recognized tribe) living on any reservation, excluding CSKT and Crow Reservation

UNITERRUPTABLE ELECTRICAL SUPPLY – In non-traditional dwellings, when a primary heat source is electric or requires electricity for the operation of the heating appliance; it must be plugged into an uninterruptable electrical supply that is not accessing electricity from another living unit or building.
Generators, solar equipment, and batteries are not considered "uninterruptable" supplies of electricity; therefore, they may be outside the scope of LIHEAP.

UNSAFE CONDITIONS – Hazards, including but not limited to dangerous physical conditions, acts, or heating appliances not installed or operating according to the manufacturer's specification that have the potential to harm or cause serious injury. The use or operation of a heating unit in such a way that may cause dangerous or unsafe conditions. Determination may be made by sub-grantee staff, or their agent, *or as client self-attestation of safety*.
WEATHERIZATION RELATED IMMINENT THREAT TO THE HEALTH AND SAFETY OF A HOUSEHOLD - any adverse condition in a dwelling that:

a. relates to a structure, appliance, system, or equipment that directly and significantly impacts the dwelling's energy usage or energy conservation, including but not limited to the dwelling's primary water heating and/or space heating systems; and
b. creates a serious and immediate risk to the physical health or safety of residents of the dwelling.

WEATHERIZATION SERVICES – improvements, repairs, or other modifications made to a dwelling to reduce a household's energy usage.

WEATHERIZATION ONLY – Households over income for LIHEAP, but eligible for weatherization. These households are not eligible for emergency assistance.

21200 Common Acronyms in Weatherization

ABD – Aged, Blind and Disabled
ACA – Affordable Care Act
ARM – Administrative Rules of Montana
ASHRAE – American Society of Heating, Refrigerating and Air-Conditioning Engineers
AYC – About Your Case
CFR – Code of Federal Regulations
CHIMES – Combined Healthcare Information and Montana Eligibility System
CRF – Contingency Revolving Fund
CSCD – Circumstances Start/Change Date
DC – Data Collection
DCBA – Date Client Became Aware
DPHHS – Department of Health and Human Services
DWH – Domestic Water Heater
EA – Emergency Assistance Program
ECM – Energy Conservation Measure
EFT – Electronic Funds Transfer
FPL - Federal Poverty Level
HCSD – Human and Community Services Division
IAQ – Indoor Air Quality
IHSB – Intergovernmental Human Services Bureau
IRM – Incidental Repair Measure
LIHEAP – Low Income Home Energy Assistance Program
MOU – Memorandum of Understanding
OMB – Office of Management and Budget
OPA – Office of Public Assistance
PII – Personal Identifying Information
PCR- Parent, Caretaker, Relative
PI – Primary Individual
QAD – Quality Assurance Division
QIP – Quality Improvement Plan
RED Calc – Residential Energy Dynamics calculator
SIR – Savings Investment Ratio
SNAP – Supplemental Nutrition Assistance Program
SS, SSA – Social Security, Social Security Administration
SSDI – Social Security Disability Insurance
SSI – Supplemental Security Income
SSP – Self-Service Portal
SUA –Standard Utility Allowance
T&TA – Training & Technical Assistance
TANF – Temporary Assistance for Needy Families
TPL – Third Party Liability

VA – Veterans Assistance
WAP – Weatherization Assistance Program

Chapter 22 MONITORING SUBGRANTEES

The Human and Community Services Division (HCSD) shall conduct ongoing monitoring and evaluation of Subgrantees and ensure that funds are expended in keeping with the purposes for which they were contracted.

MONITORING: The HCSD shall conduct ongoing, in-house, desk monitoring of each Subgrantee. The monitoring will be performed using:

- All documents submitted by the sub-grantee for:
  - data collection,
  - reporting, and
  - requests for funds.
- Monthly reports generated from the Central Database System (CDS).

EVALUATION: The Human and Community Services Division shall:

- Conduct an evaluation of each Subgrantee on an individual basis.
- Evaluate each Subgrantee at least once annually.
- Provide written notification to each Subgrantee of the time individuals need to be present and the subject areas to be covered at the evaluation.
- Conduct the evaluation. The file review will take place before the monitoring visit, and the summary of the findings will occur on-site. Completed copies of the original files, will be sent through the State of Montana File Transfer System, to the Monitor before the monitoring visit. Additionally, an email alerting the monitor of the pending file transfer will be sent.
- Review 10% of all weatherization completed files per contract and select 5% of the dwellings to visit.
  - DOE requires an inspection be completed by Subgrantee QCI for any audit where DOE funds were used.
  - Grantee Monitors will inspect five (5) or ten (10) percent of homes reported as DOE completions.
  - The percentage is determined based on whether the Subgrantee's DOE completions were inspected by an independent QCI. Subgrantees must have QCI inspections on all DOE completions.
- Verify QCI(s) credentials before or during the annual monitoring visit.
- Verify the final inspection form contains the QCI's printed name, signature, certification number, and date.
- Verify the final inspection includes a review and assessment of the energy audit that

confirms the accuracy of the field site data collection, and energy audit software inputs and that measures called for on the work order were appropriate and in accordance with the Grantee energy audit procedures and protocols approved by DOE.

- Verify compliance with DOE regulations, MT Weatherization policies, procedures, SWS, and Field Guides.
- Review WC CAZ testing and ensure documentation of WC CAZ testing is present in the client file.
- Review client files to determine if subgrantees are consistently using the Standardized Audit form.
- Review client files to determine if subgrantees are providing accurate calculations for input to the Red Calc tool and consistently documenting the data on the Standardized Audit form. Data includes:
    - The number of people in the household, or the number of bedrooms plus one, whichever is greater.
    - The above-grade building height, -
    - The conditioned area's total square footage,
    - The existing kitchen and bath exhaust fan flow, and
    - The blower door measured leakage in CFM.
- Review energy audits and client files to determine if Subgrantees are consistently collecting and entering correct AFUE values and actual seasonal efficiency values in energy audits.
- Verify Subgrantee work orders, per WPN 23-6, 22-4, and 10 CFR 440.21(f)6, provide policy and procedures for work order requirements which demonstrate energy audits results are accurately integrated into a complete scope of work including:
    - Detailed performance and installation requirements/objectives to be included in crew/contractor work orders from the completed energy audit, including R-values, U-values, installed equipment efficiencies, infiltration, and duct sealing targets, Grantee’s approved Field Guides and/or SWS, etc.
    - List of all measures performed, the funding category (e.g., ECM, IRM, H&S, GHW, etc.) for each, and the funding source for each (i.e., DOE WAP, LIIHEAP, etc.).
- Review Fiscal Manuals for applicable Federal and Weatherization Assistance Program (WAP) requirements and references.
- Verify Subgrantees have procedures for keeping Fiscal Manuals current with Federal and WAP requirements.
- Follow-up as needed to ensure Subgrantee Fiscal Manuals are current and comply with Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards.
- Review weatherization vehicle and equipment inventory property records applicable to Federal and WAP requirements.
- Verify Subgrantee weatherization vehicle and equipment inventory property records are

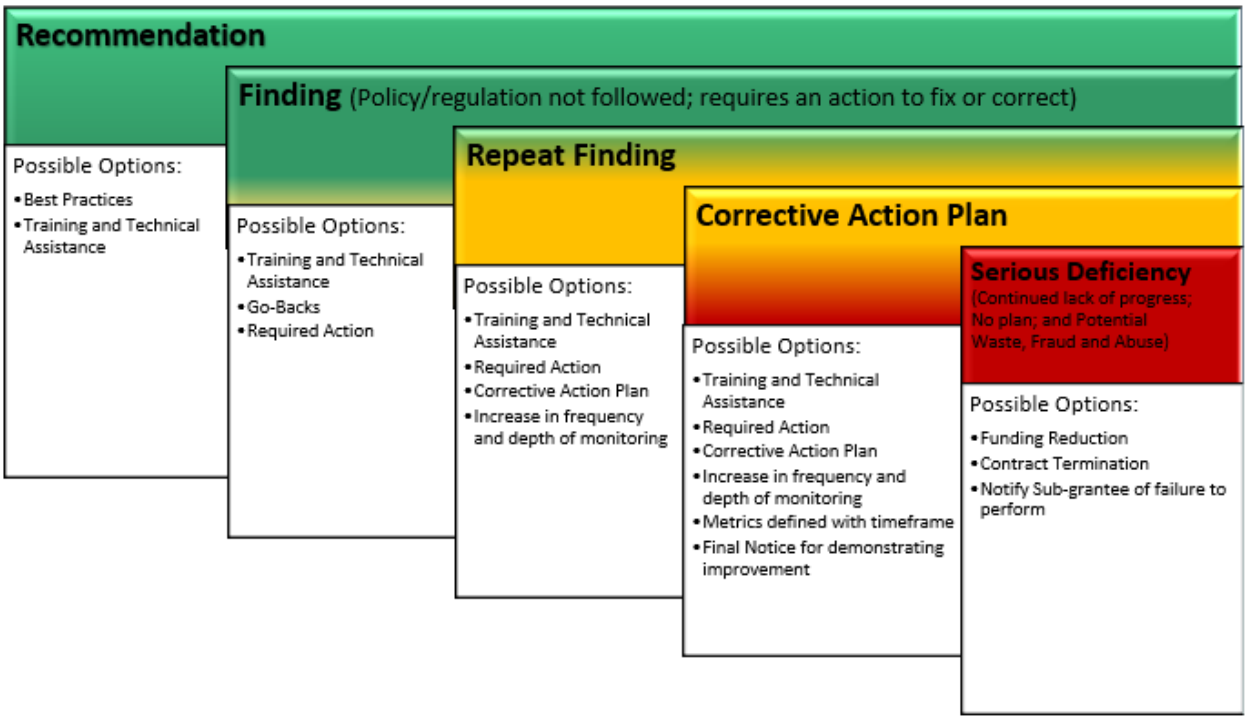
current and updated as needed.

- Verify Subgrantees have procedures to ensure weatherization vehicle and equipment inventory property records are current with Federal and WAP requirements.
- Ensure weatherization vehicles and equipment property records include:

    1. a description of the property,
    2. a serial number or other identification number,
    3. source of funding for the property (including the FAIN),
    4. who holds title,
    5. acquisition date,
    6. cost of the property,
    7. percentage of Federal participation in the project costs for the Federal award under which the property was acquired,
    8. location,
    9. use and condition of the property, and
    10. any ultimate disposition data including the date of disposal and sale price of the property.

- Review two procurement files to determine if:
    - The cost of noncompetitive procurements was reasonable.
    - documentation sufficiently shows a cost price analysis was completed for each procurement.
- Review fiscal policy and procedure manual for applicable procurement procedures to include:
    - Reasonable negotiation of noncompetitive contractor procurements
    - Ensure compliance with 2 CFR 200.324 (b)
    - Subgrantee must obtain pre-approval from IHSB by submitting the Non-competitive Procurement Justification Request form.
- Hold an exit interview with those staff designated by the Subgrantee Director to discuss the results of the evaluation.
- Send a written report within 30 days to the Subgrantee detailing evaluation results, which shall include a timetable for any corrective action.
- Ensure the Subgrantee replies to the written monitoring report within 45 days.
- Maintain evaluation reports on file at the Intergovernmental Human Services Bureau (IHSB) Helena office.
- Follow-up as appropriate, including specific recommendations with technical assistance within specified timetables.

22000 Quality Improvement Sequence



If the monitoring process results in the identification of repeat findings, corrective actions, or deficiencies, a Quality Improvement Plan (QIP) including appropriate metrics and a timeline for required action may be requested from the Sub-grantee. The IHSB staff will consider the seriousness of the identified issue(s) and may exercise discretion on whether a QIP is appropriate or necessary. Examples include, but are not limited to the following:

- A repeated finding, corrective action, or deficiency that has not been resolved within a reasonable timeframe.
- Failure of a QCI to adequately inspect weatherization jobs following BPI standards and protocols and WTC Weatherization Field Guide.
- Failure of the Sub-grantee to sufficiently monitor sub-recipients.
- A deficiency involving waste or abuse.

The Sub-grantee will have 60 days after the request to develop and submit their QIP. The QIP should list actions that will be taken to correct the identified issue(s), the staff responsible, and the amount of time required to implement the actions or resolve the issue(s).

The submitted QIP will be reviewed by IHSB monitoring staff to ensure that it addresses appropriate actions to remedy or resolve the identified issue(s). A decision on whether the plan is approved or not will be issued within 14 days. This notification will specify the specific reason why the plan was not approved as well as the information and actions necessary for acceptance. Discretion will be exercised based on specific circumstances.

Sub-grantees engaged in a QIP will be identified as medium or high risk for the duration of the plan.
Should the Sub-grantee not comply with or work through the QIP, additional actions may be taken which could include:

- Additional desk or on-site monitoring and increased depth of monitoring.
- Final notice for demonstrating improvement and metrics defined within a reasonable timeframe.
- De-certification from performing Final Inspections, Remedial training, written reprimand, and on-the-job training/oversite by a qualified QCI until the disqualified QCI can demonstrate proficiency and be recertified (retake QCI Certification).
- Notification to BPI, employer, and/or other impacted parties (Sub-grantee, State, and/or Contractor) that despite remedial training efforts and repeated warnings, QCI has failed to perform and will be prohibited from performing any Final Inspections within the state's current Weatherization program for the remainder of the grant period or 1 year whichever is less or permanently depending upon circumstances.

The status of a subgrantee can improve, or decline based on how the Sub-grantee complies with repeat findings, deficiencies, and a corrective action plan. Once repeat findings, deficiencies, or a corrective action plan has been resolved the Sub-grantee's status can be restored.

APPENDICES

APPENDIX A – Lead Renovation, Repair and Painting Standards

Quick Guide - EPA RRP Rule Requirements**

Rules/Guidance	EPA Renovation, Repair, and Paint Rule - RRP 40 CFR part 745
1. Training**	RRP Certified Renovator Training – 8 hours + skill sets, 5-year certification non-certified workers must be trained job by CR. Renewal certification – 4 hours, 5-year certification.
2. Certified Renovators on Job**	This applies to all Renovations (including Weatherization)
3. Certified Firm	This applies to companies with Certified Renovators
4. Pre-1978 Target Housing	Pre-1978 Target-Housing/Child Occupied Facilities
5. Lead-Testing	Assume the presence of lead or CR may test with EPA Recognized Test Kits (Lead Check swabs or D-Lead). Paint chip testing is allowable using the NLLAP lab. XRF by Certified Risk Assessor or Inspector.
6. Client Education – Using EPA Renovate Right publication**	RRP Pre-Renovation Education notification no greater than 60 days before work/at least 7 days w/certified mail. Form in file – 3 years.
7. De Minimis areas**	The rule does not apply if the job does not disturb more than 6 sq. ft interior or 10 sq. ft exterior unless demolition and replacing windows
8. Client Opt-Out	Does not apply
9. Access Restrictions	Signs and barriers to restrict access from interior workspace and 20 ft. exterior workspace.
10. Containment**	Containment – if more than 6 sq. ft interior or 20 sq. ft exterior

Rules/Guidance	EPA Renovation, Repair, and Paint Rule - RRP 40 CFR part 745
11. Prohibited Tools/Practices **	Open flame burning/torching, heat gun above 1100°F. Power sanding, power grinding, power planning, needle gun, abrasive blasting with HEPA vacuum attached shrouds.
12. Shrouded Tools	Required on prohibited tools/practices.
13. Personal Protection Clothing	Compliance with OSHA. Minimum - Respirator Protection (disposable HEPA/purple/100 respirator), disposable painter's hat and disposable coveralls. Additional requirements depending on job hazards.
14. Post-work, pre-tear down clean-up	1. Pick and bag all debris. From top to bottom HEPA vac and wash/wet wipe/mist all containment, permanent work surfaces, tools, and PPE before removing tools, debris, and tearing down containment. 2. wash/wet wipe permanent surfaces. 3. mist containment plastic, fold dirty side in & bag
15. Visual Inspection	Certified Renovator to conduct visual inspection following clean-up using "flashlight visual". Re-clean if debris/dust particles are found.
16. Cleaning Verification (CV)	Certified Renovator to conduct cleaning verification using EPA CV card. Re-clean if needed.
17. Dust Clearance Examination**	Permitted using Lead Inspector, Risk Assessor, or "Dust Sampling Technician".
18. Solid Waste Disposal	Secure off-site. Dispose as household waste.
19. Water Waste Disposal	Collect all wastewater, filter, and dispose in toilet.
20. Recordkeeping**	All forms/documentation related to job keep 3 yrs.
21. On-site Forms	Pre-renovation forms and training verification forms must be kept on site.
REFERENCE	www.epa.gov/lead

Note: States, Tribes, Municipalities, and organizations may require more stringent requirements.

Note: HUD work does have more stringent lead control requirements. This information is for reference only and is NOT a substitute for training. For full disclosure of RRP Rule requirements, training is required. Revised July 1, 2019.

APPENDIX B -Client Education

Client Education

Do any household members have pre-existing or potential health conditions to take into consideration for weatherization of the residence*? Yes or No

_____

Please contact the Sub-grantee with any potential health condition issues.

Name: _____ Phone: _____ Phone: _____

If applicable, provide the occupant with information of any known risks:

☐ _____ ☐_____

Air Conditioning and Heating Systems*:

☐ Discuss and provide information on appropriate use and maintenance of units.

Appliances and Water Heaters*:

☐ Discuss and provide information on appropriate use, maintenance, and disposal of appliances/water heaters.

Asbestos:

☐ Assumption of presence of asbestos containing materials – Notice of Dangerous Conditions form required (DPHHS-EAP023)

☐ Test results are positive for asbestos containing materials – Notice of Dangerous Conditions form required (DPHHS-EAP023)

☐ Provide "EPA Fact Sheet, Protect Your Family from Asbestos-Contaminated Vermiculite Insulation" (EPA #550R09004)

Biological and Unsanitary Conditions:

☐ Discuss observed conditions and provide information on how to maintain a sanitary home.

Building Structure and Roofing:

☐ Discuss observed conditions.

Code Compliance:
Discuss observed issues*: When weatherization measures trigger code-compliance the specific code requirement with reference to the weatherization measure(s) that triggered the code compliance issue must be documented in the client's file.* Combustion Gases:

☐ Discuss combustion safety and hazards, including exhaust ventilation when cooking and keeping burners clean.

☐ Provide "Preventing Carbon Monoxide Poisoning" (EPA #100R09009)

Drainage*:

- ☐ Discuss cleaning and maintaining drainage systems – gutters, downspouts, extensions, flashing, sump pumps, etc.

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

- ☐ Discuss overloading circuits, electrical hazards (Aluminum wiring)

Electrical, Knob-and-Tube Wiring:

- ☐ Discuss over-current protection, overloading circuits, and electrical hazards.

Fire Hazards:

- ☐ Discuss observed fire hazards.

Formaldehyde, VOCs, and other Air Pollutants*:

- ☐ Discuss observed conditions and associated risks.
- ☐ Provide "Care for Your Air: A Guide to Indoor Air Quality" (EPA #402F08008)
- ☐ Pollutants pose a risk to workers and removal cannot be performed or is not allowed. Weatherization deferred - Sub-grantee Health and Safety and Work Agreement form required (DPHHS-EAP-020)

Injury Prevention of Occupants and Weatherization Workers:

- ☐ Discuss observed conditions Lead Based Paint:
- ☐ Discuss conditions and follow EPA's Lead; Renovation, Repair, and Painting Program (RRP) requirements.

Mold and Moisture*:

- ☐ Provide "Montana Mold Assessment and Release Form" (DPHHS-EAP-032)

Pests:

- ☐ Discuss observed conditions and associated risks.

Radon*:

- ☐ Provide "A Citizen's Guide to Radon" (EPA#402K09001)

Refrigerant:

- ☐ Inform the occupant not to disturb the refrigerant.

Smoke/Carbon Monoxide Detectors and Fire Extinguishers:

- ☐ Discuss the use of detectors and extinguisher
- ☐ Leave the manufacturer's written information on the use of smoke/CO detectors and fire extinguishers.

Solid Fuel Heating:

- ☐ Discuss safety and how to recognize depressurization.
- ☐ Provide "Combustion Appliance Back drafting" (EPA)

Space Heaters - Stand Alone Electric:

☐ Discuss safety hazards.
☐ Removal is not allowed – deferral is required.

I am aware stand-alone electric space heaters present safety risks and will not allow the heater(s) to be removed from the dwelling. (Weatherization Deferral is Required)

_____	_____	_____
Occupant Name	***Signature***	***Date***

Space Heaters – Unvented Single Family
□ Discuss safety hazards, including CO, moisture, and NO2.
□ Provide "Preventing Problems with Combustion Equipment" (EPA)
Space Heaters – Unvented Mobile Homes
□ Deferral of Weatherization is required.

Spray Polyurethane:
□ Discuss plans to use two-part foam and the precautions that may be necessary.
□ Provide "Vacate and Safe Re-Entry Time" (EPA) □ Provide other materials that may be necessary

Ventilation (ASHRAE 62.2.2016) *:
□ Provide written information on the function, use, and maintenance of the ventilation system and components.
□ Explained to client that ASHRAE standards are a mandatory program requirement that cannot be refused.

Disclaimer: AHSRAE 62.2 does not account for high polluting sources or guarantee indoor air quality.

Other Identified Hazards:
☐_____ ☐_____ ☐_____

Relevant issues above have been discussed, and I have received materials as documented. I agree to hold the Sub-grantee performing weatherization work harmless from future problems associated with pre-existing conditions in the home.

_____	_____	_____
Occupant Name	***Signature***	***Date***

EAP 038
Rev 03/2022

Radon Informed Consent Language

(Can be added to existing Release of Liability and Waiver of Claims forms)

Weatherization achieves energy and cost savings and improved comfort, health, and safety of homes through a variety of home retrofit measures, including some which improve the airtightness of the building. According to the Department of Energy (DOE) sponsored study, Building Assessment of Radon Reduction Interventions with Energy Retrofits Expansion (BEX) Final Report (ORNL/TM-2020/1769): "There is a small risk of increased radon levels in homes when the building air tightness levels are improved. The study results show that current practices have produced substantial benefit compared to previous practices, and that there are no statistically significant changes in indoor radon levels on the lowest living levels with these practices". These increases are smaller in manufactured housing everywhere, and all homes in low-radon potential counties, and higher in site-built homes in high-radon-potential counties. There is some evidence that the installation of continuous mechanical ventilation reduces radon levels in homes, and counteracts any radon increases that are due to improved building air tightness levels.

Precautionary Measures: Precautionary measures indicated below may be installed as part of weatherization:

- ☐ Cover exposed dirt floors within the pressure/thermal boundary with a sealed soil gas retarder
- ☐ Cover sump well/pits with airtight covers
- ☐ Implement ventilation as required by ASHRAE 62.2-2016
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

I am aware that weatherization may result in increased levels of radon, and that mechanical ventilation may counteract those increases.

I have received the Environmental Protection Agency's (EPA's) "A Citizen's Guide to Radon," and radon-related risks were discussed.

I have chosen to go forward with weatherization and accept all risks of injury or damages.

I have carefully read this informed consent form and have signed it of my own free will.

Site Address:_____

Client Printed Name:_____

Client Signature:_____ Date:_____

Subgrantee Representative Printed Name:_____

Subgrantee Representative Signature:_____

APPENDIX C – Combustion Appliance Classification

	Negative Pressure in Flue	Positive Pressure in Flue
Noncondensing	**Category I** 83% efficient or less Very common appliances Standard venting: single wall, B-vent, masonry	**Category III** 83% efficient or less Uncommon appliances Specialized venting: Z-vent or manufacturer specific
Condensing	**Category II** Over 83% efficiency Very uncommon, no longer commercially available	**Category IV** Over 83% efficient (usually 90% or above) Low temperature venting: PVC – must be airtight

APPENDIX D – Combustion Appliance and Fuel Distribution System Inspection

Equipment required for combustible gas and CO detection, CO measurements, depressurization, and spillage test.

- Combustible gas detector (CGD) capable of digitally displaying Lower Explosive Limit (LEL) and/or providing an alarm when combustible gas concentration exceeds 10% LEL.
- CO measurement equipment, Combustion Analyzer, used for flue gas CO measurement.
- Personal Ambient CO monitor, auditors/inspectors performing CO inspections shall always have on their premises, a fully functional personal CO monitor.
- Equipment required for depressurization and spillage assessment are a mirror, a smoke pencil, and one or more manometer(s).

The Auditor/Inspector shall measure ambient combustible gas level and CO in the indoor air environment.

Combustible Gasses

- Indoor ambient air shall be sampled with a CGD in at least one location per floor of occupied space upon entering the home.
    - If measured concentrations of combustible gas exceed 10% of the LEL the home will be evacuated immediately, and the appropriate emergency services and fuel provider will be notified from outside the home.

CO Monitoring

- The auditor/inspector shall always have a designated ambient CO monitor. The auditor/inspector shall comply with the CO exposure levels specified in Table 1. Work shall not proceed when ambient CO concentrations exceed 70 ppm.

Order of procedures

After the auditor/inspector has verified that ambient CO reading is below 70ppm and combustible gas concentration is below 10% LEL, the following inspections, as applicable to the specific circumstances of the home, shall be performed, per BPI-1200 Chapter 7.

- Natural gas (NG) and liquid petroleum (LP) gas piping system inspection
- Oil supply system inspection
- Visual inspection of the combustion appliance zone (CAZ)
- Visual Inspection of the heating system, water heater and venting system

Where open combustion appliances are in use, CAZ testing shall be performed at the audit, at the end of each day when envelope or duct sealing takes place, and at the final inspection. End-of-day WC CAZ and spillage testing do not require in-flue CO measurement. Per WPN 22-7, in flue CO measurement test is required at the audit and final inspection whenever an open combustion natural draft appliance is present.

- Set up CAZ per BPI-1200 7.9

Conduct Spillage Test per BPI-1200 7.9.1 For a cold vent, spillage/smoke test will be conducted at 5 minutes of main burner operation. Warm vents and domestic water heaters will be conducted at 2 minutes of the main burner operation. Action levels for spillage shall be per Annex D, Table D.1.A. If CO spillage cannot be resolved per Annex D, Table D.1.A, the Sub-grantee shall take action to address and resolve the CO spillage. No dwelling will be left with combustion appliances that fail the spillage test.

In flue CO Measurement per BPI-1200 7.9: For a cold or warm vent, CO measurements of undiluted flue gas shall be taken at 5 minutes of the main burner operation. The CO measurement shall be compared with the appropriate CO threshold in Table 2. Action levels exceeding the appropriate threshold in Table 2 shall follow Annex D, Table D.1.B. The flue CO test is not required for the end-of-day WC CAZ/spillage test.

For a Shared Chimney per BPI-1200 7.9.4: When combustion appliances share a chimney, they are tested from the lowest to the highest BTU input rating. The appliance with the lowest BTU input rating shall be tested for spillage and CO measurement as described above. Once the spillage and CO measurements are completed, put the next largest appliance in operation while the first appliance is still firing. Retest the first appliance for spillage at 2 minutes. If applicable test for spillage on the second appliance immediately after. Measure the CO level in the undiluted flue gas in the second appliance at 5 minutes. If there are additional appliances sharing the same flue, continue this process until all appliances are running simultaneously.

For Direct Vent and Power Vented appliances per BPI-1200 7.9.6: Measure the CO level in the undiluted flue gas at 5 minutes of the main burner operation. The CO measurements shall be compared to the appropriate CO thresholds in Table 2. For CO exceeding the appropriate level action shall be taken according to Annex D, Table D.1.B.

For Gas Oven and Range Tops per BPI-1200 7.9.7: Gas ovens shall be tested for vented CO and range burners shall be visually inspected. Turn oven on to bake, 500° F. Do not turn

the oven to broil or self-cleaning setting. At 5 minutes, measure the undiluted CO in the oven's exhaust vent. Once the CO level is stable record the reading and compare to the appropriate CO threshold in Table 2. For CO exceeding the threshold limit, refer to Annex D, Table D.1.B.

For Unvented Heaters and Gas Log sets per BPI-1200 7.9.8: Turn on the appliance, at 5 minutes measure the CO, and compare the reading to the appropriate threshold in Table 2. If CO exceeds the appropriate threshold reference Annex D, Table D.1.B. For Gas log sets verify the damper is open.
Placing appliances back in operation:

- If no safety concerns or hazards were identified during the combustion appliance inspection return all appliances to their pre-existing state. If appliance-related safety concerns or hazards were identified, follow the appropriate action levels.

TABLE 1 - Ambient CO Action Levels (per BPI 1200 sections 7.3)

Equal to or Greater than 70ppm	Terminate the audit/inspection and notify the homeowner/occupant and evacuate the building. Outside the building notify the appropriate emergency services
36ppm – 69ppm	The auditor/inspector shall advise the homeowner/occupant that elevated CO levels have been detected. All doors and windows shall be opened and must be recommended that all possible sources of CO be turned off immediately. If it appears that the source of CO is a permanently installed appliance, the auditor/inspector must recommend that the appliance be turned off. The homeowner/occupant must be advised to contact a qualified professional.
9ppm – 35ppm	The auditor/inspector must advise the homeowner/occupant that CO has been detected and recommend that all possible sources of CO be checked and open all windows and doors. If it appears that the source of CO is a permanently installed appliance, the homeowner/occupant shall be advised to contact a qualified professional.

TABLE 2 - CO Thresholds for Fossil Fuel-Fired Combustion Appliances (per BPI 1200 Section 7.9.5)

Appliance	Threshold Limit
Central Furnace (all categories)	400 ppm air-free
Boiler	400 ppm air-free
Floor Furnace	400 ppm air-free
Gravity Furnace	400 ppm air-free
Wall Furnace (Direct Vent)	400 ppm air-free
Vented Room Heater	200 ppm air-free
Unvented Room Heater	200 ppm air-free
Water Heater	200 ppm air-free
Oven/Broiler	225 ppm as measured
Clothes Dryer	400 ppm air-free
Gas Log (Gas Fireplace)	25 ppm as measured in the vent
Gas Log (Installed in the wood-burning fireplace)	400 ppm air-free in firebox

Annex D/ Action Levels for Spillage and Carbon Monoxide in Combustion Appliances (Per BPI 1200)

D.1. Spillage assessment and CO measurement results shall be based on the following criteria:

- CO measured at 5 minutes of the main burner operation.
- Spillage assessed at 2 minutes of the main burner operation for warm vent, or in Domestic Water Heaters
- Spillage assessed at 5 minutes of the main burner operation for a cold vent.
- CO level at or below the threshold in Table 1 for the appliance being tested is ACCEPTABLE.
- CO level exceeding the threshold in Table 1 for the appliance to be tested is UNACCEPTABLE.

TABLE D.1.A – ACTION LEVELS FOR SPILLAGE IN COMBUSTION APPLIANCES

Test Results	Action Required
Greatest CAZ depressurization occurs with air handler on*	Conduct further analysis of the distribution system to determine if leaky ducts or other HVAC-induced imbalances are the cause of the spillage. If so, recommend distribution system repairs that will reduce or eliminate the CAZ depressurization.
Greatest CAZ depressurization occurs with the door to CAZ	Recommend measures to improve air transfer between the CAZ and the core of the house

closed, but is alleviated when the door is open*	
The cause of spillage has been traced to excessive exhaust** independent of CAZ door position, air handler, or a problem with the flue†	Verify that sufficient combustion air is available per *ANSI Z223.1/NFPA 54* for gas-fired appliances and *NFPA 31* for oil-fired appliances or recommend verification by a qualified professional. And/or Recommend further evaluation/service by a qualified professional to address the venting/combustion air issues

*In the case where both spillage and excessive CO are present, in addition to the specific recommendations above, recommend that the appliance be shut down until it can be serviced by a qualified professional. No dwelling will be left with combustion appliances that fail the spillage test.
**Refers to exhaust caused by mechanical ventilation and/or other means of exfiltration
†When a recommendation to replace atmospherically vented combustion equipment inside the pressure boundary is made, and when cost-effective, recommend replacement with direct-vented, or power-vented equipment (or non-combustion-equipment, such as a heat pump), which is ENERGY STAR labeled.

TABLE D.1.B – ACTION LEVELS FOR CO IN COMBUSTION APPLIANCES

Test Results	Action Required
Unacceptable CO level	Advise the homeowner/occupant that the appliance should be serviced immediately by a qualified professional. Note: If ambient CO levels do not exceed 70 ppm, testing of other appliances and other audit procedures may continue at the discretion of the auditor
Acceptable CO level	No action required

APPENDIX E – WPN 22-8 Optional Regional Weatherization Priority Measures Lists

1. Single Family wpn-22-8_attachment1-priority-list-single-family.docx
2. Manufactured Homes wpn-22-8_attachment2-priority-list-manufactured-homes.docx
3. Low-Rise Multi-family wpn-22-8_attachment3-priority-list-low-rise-multifamily-projects.docx

APPENDIX F – Allowable Measures Chart

2023-2024_Allowable-Measure-Chart-Audit

APPENDIX G – Variance Request Template

Variance Request Template.xlsx

APPENDIX H – "Build America, Buy America" (BABA)

WAP Memo 104 "Build America, Buy America" requirements.
On November 15, 2021, the President signed into law the Infrastructure Investment and Jobs Act (Public Law 117-58), also referred to as the Bipartisan Infrastructure Law (BIL), which provides funding for the Department of Energy's (DOE) Weatherization Assistance Program (WAP). BIL established a domestic content procurement preference for all federal financial assistance obligated for infrastructure projects after May 14, 2022, known as Build America, Buy America (BABA).

https://www.energy.gov/scep/wap/articles/weatherization-memorandum-104-weatherization-assistance-program-build-america-buy

APPENDIX I – DOE SERC Checklists

https://www.energy.gov/scep/wap/weatherization-assistance-program-resource-hub

- Cool Roof Post Evaluation Checklist
- Heat Pump Post Evaluation Checklist
- Heat Pump Water Heater Post Evaluation Checklist
- In-Home Energy Monitor Post Evaluation Checklist
- Prefabricated Extruded Polystyrene Wall Panels Post Evaluation Checklist
- Solar Hot Air System Post Evaluation Checklist
- Solar Hot Water Post Evaluation Checklist
- Solar PV Post Evaluation Checklist

Cool Roof Post Evaluation Checklist

PROJECT INFORMATION	
Property Address:	
Job# or Client ID:	
Inspector Printed Name:	
Inspector QCI Certification #:	
Inspection Date:	
Local code inspection(s): (if applicable)	Permit #_____Date Passed _____ Permit #_____Date Passed _____
Project Roof Information:	Type (e.g., metal, shingle) _____ Age____ Pitch angle (if any) (e.g., 2:12, flat) _____

ENERGY AUDIT INFORMATION	
Was an energy audit performed on this dwelling that included this installation?	☐ Yes ☐ No
If yes, was the measure Savings to Investment (SIR) less than 1?	☐ Yes ☐ No ☐N/A

PRODUCT INFORMATION	
Manufacturer:	
Product name:	
Type (e.g., integrated or coating):	
Manufacturer's Solar Reflectance Index (SRI) or Solar Reflectance and Thermal Emittance:	
COMMENTS:	

INSTALLATION				
Yes	**No**	**N/A**		**Note**
			Roof coating/integration installed per work order (e.g., complete coverage, specified material, etc.)	
			Cool roof meets minimum requirements outlined in SWS 5.0402.1	
COMMENTS:				

PERFORMANCE				
Yes	**No**	**N/A**		**Note**
			Roof condition is expected to last as long as the manufacturer specifies the useful life of the product	
			Is the roof coating material rated by the Cool Roof Rating Council? (https://coolroofs.org/directory/roof)	
			Low-sloping roof (9.5° or less, 2:12 rise over run) has a solar reflectance of at least 0.55 and a thermal emittance of at least 0.75 (or a solar reflectance index (SRI) of 64)	
			Steep sloping roof (9.5° or more, greater than a 2:12 rise over run) has a solar reflectance of at least 0.20 and a thermal emittance of at least 0.75 (or a solar reflectance index (SRI) of 16)	
COMMENTS:				

CLIENT EDUCATION				
Yes	**No**	**N/A**		**Note**
			Occupant(s), owner(s), and/or maintenance staff have been provided with user's manual, warranty information, installation instructions, and installer contact information	
COMMENTS:				

ADDITIONAL COMMENTS

_____ _____

Signature of Inspector Date

Heat Pump Post Evaluation Checklist

PROJECT INFORMATION	
Property Address:	
Job# or Client ID:	
Inspector Printed Name:	
Inspector QCI Certification #:	
Inspection Date:	
Local code inspection(s): (if applicable)	Permit #_____ Date Passed _____ Permit #_____ Date Passed _____

ENERGY AUDIT INFORMATION	
Was an energy audit performed on this dwelling that included this installation?	☐ Yes ☐ No
If yes, was the measure Savings to Investment (SIR) less than 1?	☐ Yes ☐ No ☐N/A

EQUIPMENT INFORMATION			
Heat Pump Equipment Type:	Air to Air Split ☐ Air to Air Package ☐ Mini-Split ☐ Ground source ☐ Other:_____		
Manufacturer:			
Model #:			
Serial #:			
The system is Energy Star or equivalent?	☐ Yes ☐ No		
SEER Rating:		Does this meet or exceed the SEER rating called for in the work order? ☐ Yes ☐ No	
HSPF Rating:		Does this meet or exceed the HSPF rating called for in the work order? ☐ Yes ☐ No	
COP Rating:		Does this meet or exceed the COP rating called for in the work order? ☐ Yes ☐ No	
Design load calculation result (i.e., Manual J) (kBTU/hr):	Heating Load: _____ Cooling Load: _____		Load calculation based on post-retrofit dwelling characteristics. ☐ Yes ☐ No

System installed capacity (kBTU/hr):	Heating: _____ Cooling: _____	
Is the installed capacity more than 115% of the load calculation?	☐ Yes ☐ No	
Refrigerant Information:	Type: ☐ R134a ☐R407c ☐R410a ☐R600 ☐R600a ☐R717 ☐Other_____	Charge (lbs/oz): _____ Pipe Length (ft): _____
Other Heating/Cooling systems in the Home:	☐None ☐Central Forced Air ☐Window AC Units ☐Baseboard Heat ☐Other_____ Percentage of heating load provided by existing system(s): _____% Percentage of cooling load provided by existing system(s): _____%	
COMMENTS:		

INSTALLATION			
Yes	**No**	**N/A**	**Verify by assessing, testing, and/or reviewing contractor-submitted documentation**
			The system is installed per work order/invoice and design documents
			The system is installed per manufacturer specifications
			Changes to the ductwork are completed per the work order
			Major duct leaks within conditioned space have been sealed, and all duct leaks outside of conditioned space are sealed
			Refrigerant lines are leak-free
			The air filter is present, clean, and meets the equipment's minimum MERV rating
			Occupant(s), owner(s), and/or maintenance staff have been provided with at least one (1) replacement filter
			Air-to-Air Split System meets minimum requirements set forth in SWS 5.0108.1
			Air-to-Air Package Units meet the minimum requirements set forth in SWS 5.0108.2
			Mini-Split System meets the minimum requirements set forth in SWS 5.0108.3
			Thermostat installation meets the minimum requirements set forth in SWS 5.0101.1
			Refrigerant Line installation meets the minimum requirements set forth in SWS 5.0103.1
			Refrigerant Charge meets the minimum requirements set forth in SWS 5.0103.2
			Duct Sealing meets the minimum requirements set forth in SWS 5.0106
			Duct Installation meets the minimum requirements set forth in SWS 5.0104.1

Comments:	

PERFORMANCE			
Yes	**No**	**N/A**	**Verify by assessing, testing and/or reviewing contractor submitted documentation**
			A heat pump system meets 100% of the home's heating load or a backup system is present
			The unit passes the duct leakage test if required
			Thermostat programming is complete and fully operational
			Refrigerant charge commissioned per manufacturer's specifications
			Airflow requirements for heating and cooling modes meet the manufacturer-specified CFM
			Airflow is unrestricted from registers, ducts, indoor heads, etc.
			The subcool and superheat temperatures are within manufacturer specifications (see installer documentation)

CLIENT EDUCATION				
Yes	**No**	**N/A**		**Note**
			Occupant(s), owner(s), and/or maintenance staff have been provided with the user's manual, warranty information, installation instructions, and installer contact information	
			Client understands system operation (i.e., thermostat)	
COMMENTS:				

_____ _____

Signature of Inspector Date

Heat Pump Water Heater Post Evaluation Checklist

PROJECT INFORMATION	
Property Address:	
Job# or Client ID:	
Inspector Printed Name:	
Inspector QCI Certification #:	
Inspection Date:	
Local code inspection(s): (if applicable)	Permit #_____ Date Passed _____ Permit #_____ Date Passed _____

ENERGY AUDIT INFORMATION	
Was an energy audit performed on this dwelling that included this installation?	☐ Yes ☐ No
If yes, was the measure's Savings to Investment (SIR) less than 1?	☐ Yes ☐ No ☐N/A

EQUIPMENT INFORMATION	
Manufacturer:	
Model #:	
Serial #:	
Tank Size:	
Uniform Energy Factor (UEF) Rating:	_____ Must meet Energy Star criteria or equivalent efficiency rating: https://www.energystar.gov/products/water_heaters/residential_water_heaters_key_product_criteria
Location:	☐Conditioned Space ☐Unconditioned Space ☐Basement/Crawlspace ☐Garage ☐Utility Room ☐Other_____
Any Adjacent Heat Sources:	☐None ☐Furnace ☐Boiler ☐Other_____
COMMENTS:	

INSTALLATION				
Yes	**No**	**N/A**		**Note**

			The system is installed per work order/invoice and design documents	
			The system is installed per manufacturer specifications	
			Heat Pump Water Heater installation meets the minimum requirements set forth in SWS 7.0302.3	
			Water lines that were insulated by WAP are insulated to R3 or greater	
COMMENTS:				

PERFORMANCE				
Yes	**No**	**N/A**		**Note**
			The condensate line is functional and connected to the drain or working pump	
			No water leaks are present in the installation area	
			The air filter is clean at the time of inspection	
			At the time of inspection water heater was in: ☐ heat pump mode ☐ hybrid mode	
			The water heater is NOT in pure resistance heat mode at time of inspection	
COMMENTS:				

ELECTRICAL				
Yes	**No**	**N/A**		**Note**
			The system has a dedicated circuit breaker that meets the manufacturer's specifications	
			Electrical service is protected and secure per AHJ and manufacturer specifications	
COMMENTS:				

CLIENT EDUCATION				
Yes	**No**	**N/A**		**Note**

			Occupant(s), owner(s), and/or maintenance staff have been provided with the user's manual, warranty information, installation instructions, and installer contact information	
			Air filter access is clearly labeled	
COMMENTS:				

ADDITIONAL COMMENTS

_____ _____

Signature of Inspector Date

In-Home Energy Monitor Post Evaluation Checklist

PROJECT INFORMATION	
Property Address:	
Job# or Client ID:	
Inspector Printed Name:	
Inspector QCI Certification #:	
Inspection Date:	
Local code inspection(s): (if applicable)	Permit #_____ Date Passed _____ Permit #_____ Date Passed _____

ENERGY AUDIT INFORMATION	
Was an energy audit performed on this dwelling that included this installation?	☐ Yes ☐ No
If yes, was the measure's Savings to Investment (SIR) less than 1?	☐ Yes ☐ No ☐ N/A

EQUIPMENT INFORMATION	
Manufacturer:	
Model #:	
Serial #:	
Installation location:	
User access method: (e.g., app, internet, etc.)	
Type of meter:	☐ Whole Home Meter ☐ Individual Circuit Meters
COMMENTS:	

INSTALLATION				
Yes	**No**	**N/A**		**Note**
			Home Energy Monitor is installed per work order/invoice	
			Home Energy Monitor is installed per the manufacturer's instructions	
			Note below if item(s) are monitored individually:	
			Heating system:	

			Cooling system:	
			Electric water heater:	
			Clothes dryer:	
			Refrigerator/Freezer:	
			Dishwasher:	
			Solar PV:	
			EV charging:	
			Other (please specify):	
			Other (please specify):	
			Other (please specify):	
COMMENTS:				

CLIENT EDUCATION				
Yes	**No**	**N/A**		**Note**
			Occupant(s), owner(s), and/or maintenance staff have been provided with the user's manual, warranty information, installation instructions, and installer contact information	
			The client signed a release of utility usage information if ongoing monitoring is planned	
			The client demonstrates they know how to access Home Energy Monitor data	
			(If Home Energy Monitor has been in place for a month or more) The client indicates behavior change because of Home Energy Monitor data	
COMMENTS:				

ADDITIONAL COMMENTS

_____ _____

Signature of Inspector Date

Prefabricated Extruded Polystyrene Wall Panels Post Evaluation Checklist

PROJECT INFORMATION	
Property Address:	
Job# or Client ID:	
Inspector Printed Name:	
Inspector QCI Certification #:	
Inspection Date:	
Local code inspection(s): (if applicable)	Permit #_____ Date Passed _____ Permit #_____ Date Passed _____

ENERGY AUDIT INFORMATION			
Was an energy audit performed on this dwelling that included this installation?	☐ Yes	☐ No	
If yes, was the measure's Savings to Investment (SIR) less than 1?	☐ Yes	☐ No	☐N/A

PRODUCT INFORMATION	
Manufacturer:	
Make/Model #:	
R-Value:	
COMMENTS:	

INSTALLATION			
Yes	**No**	**N/A**	
			Panels are installed per the work order/invoice (e.g., R-value, coverage, etc.)
			Panels are installed per the requirements of the authority having jurisdiction (AHJ) and the manufacturer installation directions (the most stringent of these apply)
			All wall panel penetrations and seams are sealed to prevent water and pest intrusion
			Adhesives and sealants are compatible with extruded polystyrene
COMMENTS:			

PERFORMANCE			
Yes	**No**	**N/A**	
			Panels resist air movement when subjected to a 50-Pascal pressure difference (e.g., during blower door testing)
			Panels cover 100% of the intended coverage area with no significant thermal anomalies noted
			Windows and doors operate as intended and no evidence of water or air infiltration exists
COMMENTS:			

ELECTRICAL, PLUMBING, HVAC			
Yes	**No**	**N/A**	
			All fixtures and terminations are extended to external wall plane based on site conditions (e.g., light fixtures, water spigots, exhaust vents, chimneys, fresh air inlets, etc.)
			All fixtures and terminated inlets/outlets operate as designed
			All fixtures and terminations are weatherproof and prevent water intrusion
COMMENTS:			

CLIENT EDUCATION			
Yes	**No**	**N/A**	
			Occupant(s), owner(s), and/or maintenance staff have been provided with, warranty information, installation instructions, and installer contact information
			Documentation signed by the installer was posted that at minimum includes: Install date, insulation type and R-value, coverage area, and installed thickness
COMMENTS:			

ADDITIONAL COMMENTS

_____ _____

Signature of Inspector Date

Solar Hot Air System Post Evaluation Checklist

PROJECT INFORMATION	
Property Address:	
Job# or Client ID:	
Inspector Printed Name:	
Inspector QCI Certification #:	
Inspection Date:	
Local code inspection(s): (if applicable)	Permit #_____ Date Passed _____ Permit #_____ Date Passed _____

ENERGY AUDIT INFORMATION			
Was an energy audit performed on this dwelling that included this installation?	☐ Yes	☐ No	
If yes, was the measure Savings to Investment (SIR) less than 1?	☐ Yes	☐ No	☐N/A

EQUIPMENT INFORMATION	
Manufacturer:	
Model #:	
Serial #:	
Panel Information:	# of panels_____ Footprint of absorber _____m^2 or _____ft^2
Installed Capacity:	Kw____ or BTUs/hr. _____
Panel Location (e.g., roof, wall):	
Orientation (e.g., S, SW):	
Tilt (If applicable) (e.g., 32 degrees)	
System Type:	☐ Active (uses powered fan) ☐ Passive (convective)
If active system;	Fan is powered by: ☐ Solar PV ☐ Grid Electricity Rated CFM: _____
COMMENTS:	

INSTALLATION			
Yes	**No**	**N/A**	
			Solar hot air system is installed per the work order/invoice
			Solar hot air system is installation per manufacturer instructions and design documentation
			If roof mounted, roof has 10 years or more of useful life remaining and is capable of handling additional load
			System and thermostat controls are operational and located minimum 4-5 feet away from the air intake and diffuser
			Solar collectors are located to minimize shading factor and maximize solar gain, but not interfere with other appliance operation (e.g., chimneys, vents, exhaust terminations)
			Materials used outdoors are UV-resistant and listed for outdoor use (exterior fasteners, sealants, etc.)
			Any building insulation disturbed during installation is restored to existing R-value or better
			Installation penetrations of the building shell are weatherproof and airtight
			Structure fire resistance is maintained as required by AHJ
			Collectors are installed above snow line if wall mounted
			Backdraft dampers are installed and operate correctly
			Air outlet is equipped with diffuser/grill
			Any ductwork attached to system is sealed per SWS 5.0106
			Any ductwork attached to system is installed per SWS 5.0104.1
			Electrical fan connections and wiring are installed according to manufacturer installation specifications and installation complies with NEC (National Electric Code) or local jurisdictions
Comments:			

PERFORMANCE			
Yes	**No**	**N/A**	
			Thermostat setpoint properly set Setpoint=_____F°
			Room temperature increased as specified by manufacturer
			Thermal efficiency rating of at least 15 percent (CFR 440.21(c)(1)(iv))
COMMENTS:			

CLIENT EDUCATION			
Yes	**No**	**N/A**	
			Occupant(s), owner(s), and/or maintenance staff have been provided with user's manual, warranty information, installation instructions, and installer contact information
COMMENTS:			

ADDITIONAL COMMENTS

_____ _____

Signature of Inspector Date

Solar Hot Water Post Evaluation Checklist

PROJECT INFORMATION	
Property Address:	
Job# or Client ID:	
Inspector Printed Name:	
Inspector QCI Certification #:	
Inspection Date:	
Local code inspection(s): (if applicable)	Permit #_____ Date Passed _____ Permit #_____ Date Passed _____

ENERGY AUDIT INFORMATION			
Was an energy audit performed on this dwelling that included this installation?	☐ Yes	☐ No	
If yes, was the measure Savings to Investment (SIR) less than 1?	☐ Yes	☐ No	☐N/A

EQUIPMENT INFORMATION	
Manufacturer:	
Model #:	
Serial #:	
Panel Information:	# of panels____ Footprint of absorber ___m^2 or _____ft^2
Installed Capacity:	Kw___ or BTUs/hr. ____
Solar Radiation (W/m^2):	
Panel Location (e.g., roof, wall):	
Orientation (e.g., S, SW):	
Tilt (If applicable) (If applicable) (Horizontal = 0):	
System Type:	☐ Active (pumped) ☐ Passive (dwelling water pressure only)
COMMENTS:	

INSTALLATION

Yes	No	N/A	
			Solar hot water system is installed per the work order/invoice
			Solar hot water system is installation per manufacturer instructions and design documentation
			Solar Hot Water system meets minimum requirements set forth in SWS 7.0302.6
			Materials used outdoors are listed as UV-resistant and listed for outdoor use (e.g., NRTL or UL listed)
			Any building insulation disturbed during installation is restored to existing R-value or better
			Installation penetrations of the building shell are weatherproof and airtight
			Structure fire resistance is maintained as required by AHJ
			The system incorporates approved freeze and overheat protection methods that are appropriate for the climate zone and that do not require customer action
COMMENTS:			

PERFORMANCE			
Yes	No	N/A	
			Sufficient hot water is supplied for the occupants
			Low-Flow devices (showerheads, aerators) are installed in all potential locations
COMMENTS:			

ELECTRICAL			
Yes	No	N/A	
			Water heater and electrical supply are grounded, per NEC or local building codes
			Proper overload fuse or circuit breaker protection installed, per NEC or local building codes
			Wiring and connections comply with NEC or local building codes and manufacturer instructions
COMMENTS:			

PLUMBING			
Yes	No	N/A	
			There are no leaks in the system
			Temperature actuated tempering valve installed set to 140°F max
			Potable water supplied to the solar storage tank meets manufacturer's minimum quality standards
			If any additives are used, the fill valve has a warning label: "Non-potable fluid. Do not drink."
			Valves, gauges, and instruments are labeled including any required warning labels

COMMENTS:	

Active Systems (if applicable)			
Yes	**No**	**N/A**	
			Fluid circulates in proper direction
			Controller has correct settings and is securely hard-wired or plugged into nearest outlet
			Sensors are placed correctly, attached securely, and adequately insulated. Plug sensor is installed on solar tank if a fitting is provided
			Sensors and wiring are installed to NEC or local codes. Wiring type is rated and listed for the environment in which installed
COMMENTS:			

CLIENT EDUCATION			
Yes	**No**	**N/A**	
			Occupant(s), owner(s), and/or maintenance staff have been provided with user's manual, warranty information, installation instructions, and installer contact information
COMMENTS:			

ADDITIONAL COMMENTS

_____ _____

Signature of Inspector Date

Solar PV Post Evaluation Checklist

PROJECT INFORMATION	
Property Address:	
Job# or Client ID:	
Inspector Printed Name:	
Inspector QCI Certification #:	
Inspection Date:	
Local code inspection(s): (if applicable)	Permit #_____ Date Passed _____ Permit #_____ Date Passed _____

ENERGY AUDIT INFORMATION			
Was an energy audit performed on this dwelling that included this installation?	☐ Yes	☐ No	
If yes, was the measure Savings to Investment (SIR) less than 1?	☐ Yes	☐ No	☐N/A

EQUIPMENT INFORMATION	
PV Module Manufacturer:	
PV Module Model #:	
PV Module Information	# of panels_____
Installed Capacity:	Kw____ or BTUs/hr. _____
Panel Location (e.g., roof, wall):	
Orientation (e.g., S, SW):	
Tilt (If applicable) (Horizontal = 0):	
Azimuth angle (facing south = 0, east – positive):	
PV system warranty is provided?	Warranty Terms:
	Shortest warranty portion of system (yrs/mo): _____
Inverter Capacity (W or Kw):	
Inverter Manufacturer:	Inverter is warrantied (recommended 10 years minimum).
Inverter Model:	

Number of Inverters:	
Rack Manufacturer:	
Rack Model:	
PV System Size Rating (STC DC/AC inverter capacity)	_____DC; _____AC
COMMENTS:	

INSTALLATION			
Yes	**No**	**N/A**	
			Solar PV system is installed per the work order/invoice
			Solar PV system is installation per manufacturer instructions and design documentation
			Solar PV system meets minimum requirements set forth in SWS
			Any building insulation disturbed during installation is restored to existing R-value or better
			Installation penetrations of the building shell are weatherproof and airtight
			Structure fire resistance is maintained as required by AHJ
			Materials used outdoors are UV-resistant and listed for outdoor use
			Dissimilar metals are electrically isolated to avoid galvanic corrosion
			Components, including inverter, are located to allow access, and are adequately protected
			Equipment, conduits, and boxes are all labeled
COMMENTS:			

PERFORMANCE			
Yes	**No**	**N/A**	
			Estimated annual kWh production: _____kWh
			The system is performing as designed
			Interconnection agreement has been signed by utility and the system is live/grid connected (if grid connection was intended)
			Installer documentation or inspector field measured: Conductor insulation test using a megaohm meter on all home-run wiring to ensure no leakage currents to earth (Pos-to-GND and Neg-to-Gnd resistance > 1 megaohms)
			Installer documentation or inspector field measured: Open-circuit voltage (Voc) and polarity of each string measured and documented. Compare voltage measurement to reference value

			Installer documentation or inspector field measured: Grounding resistance is < 25 Ohms
			Installer documentation or inspector field measured: Short-circuit current (Isc) of each string measured and documented. Compare current measurement to reference value
			Installer documentation or inspector field measured: Inverter's internal power meter and display using independent meters confirmed. (Once complete, inverter-displayed power readings can be used for subsequent reporting.)
			Installer documentation or inspector field measured: System output under actual conditions is within 5% of expected, calculated performance. Actual power delivery could be from faceplate of inverter or separate power measurement
			Installer documentation or inspector field measured: PV string maximum/minimum voltages are confirmed to be within inverter specifications
			Check inverter display and operational indicators for status and any error messages; Record operating status
			PV array maximum DC power has been confirmed to be within inverter specifications
COMMENTS:			

ELECTRICAL			
Yes	**No**	**N/A**	
			Wiring is completed (no loose connections or damaged wires) and wires are supported to prevent damage, not located in trafficked walking area, and not in contact with pooling water
			Inspect connectors (plugs) between modules and other wiring for tightness and any sign of overheating (plastic deformed or shiny)
			AC and DC disconnects specified, labeled, and location easily accessible
			Metallic surfaces that might become energized are properly grounded
COMMENTS:			

CLIENT EDUCATION			
Yes	**No**	**N/A**	
			Occupant(s), owner(s), and/or maintenance staff have been provided with user's manual, warranty information, installation instructions, and installer contact information
COMMENTS:			

ADDITIONAL COMMENTS

_____ _____

Signature of Inspector Date