

Program Year (PY) 2024

Wisconsin Weatherization Assistance Program Manual



The Wisconsin Weatherization Assistance program mission is to reduce energy costs for eligible low-income households by improving the energy efficiency of their homes while ensuring their health and safety.

PY2023 - 2024 Weatherization Program Manual

Foreward

The federal Weatherization Assistance Program (WAP) was created in 1976 to assist low-income families who lacked resources to invest in energy efficiency. The Weatherization Assistance Program is operated in all 50 states, the District of Columbia, Native American tribes, and U.S. territories. Funds are used to improve the energy efficiency of homes occupied by low-income households, using the most advanced technologies and testing protocols available in the housing industry. The energy conservation resulting from the efforts of state and local agencies helps our country reduce its dependence on foreign oil and decrease the cost of energy for families in need while improving the health and safety of their homes.

Wisconsin's Weatherization Assistance Program is funded with a combination of state and federal funds including U.S. Department of Energy (DOE), Low Income Home Energy Assistance Program (LIHEAP or EAP), and state Public Benefits (PB) funding. PB funding may only be used on buildings served by a participating electric utility.

Home Energy Plus (HE+) includes the Wisconsin Home Energy Assistance Program (WHEAP), Home Energy Plus Program Services, and the Weatherization Assistance Program (WAP), and is administered by the Wisconsin Department of Administration (DOA), Division of Energy, Housing and Community Resources (DEHCR or 'the Division'), through a network of county agencies, tribal governments, community-based organizations, and housing authorities. The [Division website](#) provides information for the general public, weatherization, and energy assistance program agencies.

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Chapter 1.0 | Definitions and Acronyms

agency

A non-profit entity under contract with the Division to provide weatherization services to low-income families as defined in [10 CFR 440.15](#). (DOE refers to local weatherization agencies as “Sub-Grantees”, while the State of Wisconsin uses the term “agency”.)

air sealing

A systematic approach to tightening a building shell to reduce uncontrolled heat loss through air migration into and out of the heated envelope.

appliance

Any device powered by electricity or fuel designed for household use. This includes, but is not limited to refrigerators, freezers, dehumidifiers, heating systems, and water heaters.

applicant/case head

The person whose name is in Field 2 of the Wisconsin Home Energy Plus application form. Applicant and case head are used interchangeably for purposes of the Home Energy Plus Program. For more information on Applicant/Case Head see [WHEAP Manual](#) Section 2.2 Non-Financial Eligibility.

asbestos-containing material (ACM)

Any material or product which contains more than 1 percent asbestos ([OSHA 1910.1001\(b\)](#)).

authorized agent

A person who is designated by a property owner to sign the Work Agreement and other required weatherization field forms.

average cost per dwelling unit (ACPU)

DOE establishes the amount each program year for DOE funds.

baseload measures

Energy conservation measures that reduce non-heating energy use or cost (e.g., installation of LEDs in place of incandescent lighting; electric to natural gas water heater fuel switch).

Bipartisan Infrastructure Law (BIL)

BIL funds are appropriated by the Infrastructure Investment and Jobs Act, Public Law 117-58, to U.S. DOE for allocation to the states and territories. On November 15, 2021, the President signed into law the Infrastructure Investment and Jobs Act (Public Law 117-58), now referenced as the Bipartisan Infrastructure Law (BIL), which provides \$3.5 billion in funding for the national Weatherization Assistance Program until the funds are expended.

blower door

A diagnostic tool used to locate points of infiltration in the building envelope and help prioritize the air sealing protocols.

- **as is blower door test** – The blower door test completed prior to any work on the building that provides the CFM leakage of the house with the pressure difference at 50 pascals.
- **final blower door test** – The blower door test taken at the completion of Wisconsin Cost-Effective sealing protocols to measure CFM₅₀ reduction.

bonding

See “payment bonds” below.

Building Performance Institute (BPI)

The certifying body for the DOE Home Energy Professional Energy Auditor and Quality Control Inspector certifications.

building

A structure containing one or more units. A building has an identifiable site address such as a fire number or street address. A United States Postal Service PO Box number is a mailing address and does not constitute a building address.

Bureau of Community Development (BCD)

A subdivision of DEHCR.

Bureau of Housing (BOH)

A subdivision of DEHCR.

callback

Additional work required as a result of a final inspection or complaint/concern and occurs prior to a unit being reported as complete.

categorical eligibility

All household members must be recipients of W-2/TANF, FoodShare, or SSI for each of the three months preceding the month of application. W-2 is considered a categorical eligibility criterion only if there is a “cash benefit”. For more information on Categorical Eligibility see [WHEAP Manual](#) Section 2.3 Financial Eligibility.

Code of Federal Regulations (CFR)

The general and permanent rules published in the Federal Register by the departments and agencies of the federal government. The CFR is divided into 50 titles that represent broad areas subject to federal regulation.

common area

Any portion inside a multi-unit building that is not residential space (“unit”). Common area may be intended for the use of all residents (hallways, entryways), for access only by specific residents (storage lockers) or areas not accessible to residents but dedicated to systems serving residents (boiler rooms).

**completed energy audit**

An energy audit is completed when all data collection is complete, a NEAT/MHEA audit run with the current contract year library shows a cumulative SIR of 0.8 for non-DOE and 1.0 or greater (when applicable) for DOE funded jobs, a work order is created, a Work Agreement is signed by the agency and customer, and no contingencies or reasons for deferral remain. The date when all conditions are met shall be recorded in the HE+ System/WisWAP in the Audit Completion Date field.

completed measure

An energy conservation, health and safety, or repair measure that has been installed in accordance with all standards and specifications contained in this manual and/or other program guidance, including the Wisconsin Weatherization Field Guide.

completed unit

A unit that has received all appropriate weatherization measures required by the energy audit and meets the following criteria: the building has passed a final inspection; the property owner, or the owner's authorized agent, has completed the owner sign-off document, or a good faith effort has been made to obtain the sign-off; and a completion date is entered on the associated HE+ System/WisWAP job.

Community Development Block Grant (CDBG)

HUD funding housing rehabilitation program(s).

confidential information

Sensitive data are any information of which the loss, misuse, unauthorized access to, or modification of could adversely affect the Home Energy Plus (HE+) Program, contracted agencies, program employees, and/or customers. Sensitive data and information include, but are not limited to, Social Security numbers (SSNs) and Personally Identifiable Information (PII) meaning information that can directly identify a specific individual, household member, or account-specific information.

Continuing Education Unit (CEU)

A credit for verified completion of non-academic, post-certification professional training.

Contract Planning Workbook (CPW)

A workbook for weatherization budget and production planning.

contractor

A business entity that enters into a contractual agreement with an agency for the provision of services. A contractor may include a vendor or lower-tier subcontractors.

correction

The change in funding after a building is closed, or edits are made to an existing funding source in HE+ System/WisWAP after it is invoiced. A correction does not include additional field work on a unit. See also [2.1.8 Reworks](#) and [2.1.9 Corrections](#).

cost allocation

A method used to ensure costs are charged to funding sources appropriately and accurately. Cost allocation plans identify the methodology by which this takes place.

customer

Individual applying for and/or benefiting from the HE+ Program. Customers may include WHEAP-eligible households, free riders, renters, and property owners. May be also referenced as client.

deferral of service

A temporary delay of weatherization services to an eligible building due to conditions that impede completion of weatherization work or preclude the installed materials from performing for their expected lifetime. See [3.6 Deferral of Weatherization Services](#).

denial of service

A permanent delay of weatherization services to an ineligible building. See [3.5 Denial of Weatherization Services](#).

Department of Energy (DOE)

The U.S. Department of Energy, whose mission is to advance energy technology and promote related innovation in the United States. DOE also refers to funds provided by DOE.

disability

A self-declared physical or mental impairment or a designation made by a state or federal program that substantially limits one or more of a person's major life activities; or results in the person receiving either Veteran's or Social Security disability benefits.

Division

The State of Wisconsin, Department of Administration, Division of Energy, Housing and Community Resources (DEHCR).

Division (Home Energy Plus) website

Official website of the Department of Administration. Includes information regarding the Wisconsin Home Energy Assistance Program, the Wisconsin Weatherization Assistance Program, and the Home Energy Plus Program Services.

<https://energyandhousing.wi.gov/Pages/Home.aspx>

DLR

Direct labor rate.

DOE priority households

Elderly (persons 60 and older), persons with disabilities, families with children (under 6 years old), and households with a high energy burden ([10 CFR 440.16](#)).

economic unit

A person or group of persons related or unrelated, who live together in a unit and jointly share in providing the necessities of life for the person(s) in the group. The necessities of life are shelter, heat, and utilities. NOTE: Persons living in a cooperative housing arrangement who have their own room and share common spaces are all part of a single economic unit.

elderly person

A person who is 60 years of age or older.

Energy Assistance

The component of the Wisconsin Home Energy Assistance Program (WHEAP) that provides households with benefits to assist in meeting the cost of home energy. See also “Low Income Home Energy Assistance Program (LIHEAP).”

energy audit

An assessment and documentation of existing thermal, mechanical, electric baseload and health and safety related conditions. This may be based on a Division-approved energy audit software program that generates a list of recommended weatherization measures.

energy conservation measures (ECMs)

Installed measures intended to provide energy cost savings. ECMs are in contrast with Health and Safety and repair measures that do not always return an energy cost savings but are necessary to complete ECMs.

ENERGY STAR® standards

When stated in this manual that a product “shall meet ENERGY STAR® standards”, it shall be certified, labelled, and listed on the [ENERGY STAR®](#) website, and conform to the criteria used by the ENERGY STAR® program to rate that product.

fair market value

The best estimate of gross proceeds if a unit of property were to be sold in a public sale.

Field Data Collection Form (FDCF)

The notes, sketches, and photos, maintained in the customer file that record building dimensions, materials, systems, and layout including sufficient detail that a qualified energy auditor could reproduce the energy model and Work Order created for the building.

final inspection

The inspection performed on a building by someone who did not install measures on the building following the completion of all on-site work and the completion of any callbacks.

financial audit

An audit conducted in accordance with generally accepted auditing standards, U.S. Government Auditing Standards, and state single audit guidelines. See [5.1.4 Financial Audits](#).

free rider

A unit in a multi-unit building whose occupants have not applied for or do not meet the Home Energy Plus eligibility requirements but which shall receive weatherization services and be reported as a completed unit because the building is eligible to receive weatherization services.

Formula

Formula funds are annual U.S. DOE Weatherization Assistance Program grant allocations to the states and territories.

good faith dispute

A contention by an agency that goods delivered or services rendered were of a lesser quantity or quality than ordered or specified by contract, were faulty or were installed improperly, or any other reason giving cause for the withholding of payment by the agency until the dispute is settled.

group homes

Facilities that provide supportive housing for families and/or unrelated individuals. A group home has a clearly definable identity that distinguishes it from more informal, family-type setting (e.g., a residence for persons with disabilities).

Health and Safety (H&S)

Allocation of budget category for H&S measures installed in units (XHA codes in WisWAP)

heating costs

The cost of all sources of space heating used for residential heating purposes. Heating costs for commercial or business spaces are excluded.

high energy burden household

A low-income household whose residential energy burden (residential expenditures divided by the annual income of that household) exceeds the median level of energy burden for all low-income households in the State [10 CFR 440.3](#).

Home Energy Plus (HE+)

The umbrella term used for the suite of low-income programs administered by the Division (e.g. WHEAP, Weatherization Assistance Program, Program Services (Furnace and Water Conservation)).

Home Energy Plus Program Services

State's heating system and water conservation response program. It is implemented jointly by WHEAP and WAP providers. The Program Services Manual provides details on program operations and policy.

Home Energy Plus System (software)

The Division's online data management system used for financial and data management of Weatherization program operations, tracking buildings and units, identifying and tracking costs, and invoicing incurred costs. The HE+ System is located at: <https://heplus.wi.gov>



Suite of integrated web and database programs, currently used to manage client applications to WHEAP and WAP programs but being expanded to integrate management of program data and reporting and invoicing of Grantee's WAP expenditures.

Home Energy Plus Training & Technical Assistance (HE+ TTA) website

The secure (password-only access) website (<http://homeenergyplus.slipstreaminc.org>) created to support the training and technical needs of Home Energy Plus Program grantees. It includes a calendar of events, information on training, training aids and materials developed under this contract, archived presentations, access to an online safety data sheets system, an online customer education (Weatherization Guidebook) system, a database of completed workforce training, and other printed or digital media.

HOME

HOME Investment Partnerships Program (HUD funded), which funds a wide range of activities including construction, purchase, and/or rehabilitation of affordable housing units for rent or homeownership or provides direct rental assistance to low-income households.

household

Any persons or group of persons living together in a unit on the Home Energy Plus Application date who are an economic unit and who directly purchase home energy or make undesignated payments for energy in the form of rent.

Housing Quality Standards (HQS)

Standards established by the federal Department of Housing and Urban Development, to identify "decent, safe and sanitary" housing units that may be eligible for HUD programs.

HUD

Federal Department of Housing and Urban Development, a funder of Housing and CDBG programs.

HVAC

Heating, ventilation, and air conditioning.

indoor air quality

The quality of indoor air relative to its acceptability for healthy human habitation. For example, the presence of by-products of a combustion appliance is considered to render indoor air unsuitable for healthy habitation.

infiltration/exfiltration

Outdoor air unintentionally entering/leaving the building, typically through cracks or gaps in the building envelope.

Informational Transmittal (IT)

Formal communications provided to the network via email regarding policy or requesting information. ITs are uploaded to the T&TA website for future reference. The Program year is included in the numbering sequence.

lead-safe work

Conditions that meet the OSHA, EPA, and DHS requirements for adequate protection from lead exposure for both the building occupants and the workers and contractors performing the weatherization activities. See [9.4 Lead and Asbestos Policy](#).

LHRG

Lead Hazard Reduction Grant.

Low Income Energy Advisory Committee (LIEAC)

A Policy Advisory Council (PAC) established in accordance with [10 CFR 440.17](#). The group consist of cross-sector members that serve low-income populations (utilities, Public Service Commission, WHEAP and Weatherization Subgrantees, etc.).

Low Income Home Energy Assistance Program (LIHEAP)

Federal block grant program designed under 42 U.S.C. 8621 to provide benefits and services to assist low-income households with the cost of energy used for home heating (also referred to as “Energy Assistance”). LIHEAP funds are used together with other funding sources to operate the Wisconsin Home Energy Assistance Program (WHEAP). [Chapter 16.27\(3\), Wis. Stats.](#) directs 15% of the annual LIHEAP block grant be transferred to the Weatherization Assistance Program (also referred to as “EAP” funds).

lost materials

Materials that cannot be accounted for at the time of inventory reconciliation, including stolen materials.

LSHP

Lead-Safe Homes Program.

major measures

A measure required to be completed in order to effectively weatherize the building and/or maintain the integrity of other weatherization measures. A high priority measure, which if skipped, would result in “partial” weatherization of a unit. Major measures are, but not limited to air sealing, duct sealing of ducts outside the thermal boundary, attic insulation, wall insulation, foundation insulation, sill insulation, and floor or belly insulation. If major measures are refused by a household, the building may be deferred (see [3.6 Deferral of Weatherization Services](#)).

Manufactured Home Energy Audit (MHEA)

A computerized energy audit tool used for manufactured homes and is part of the Weatherization Assistant software package. See also Weatherization Assistant Guide on the [HE+ TTA website](#).

measure skipping

Not installing, in order of decreasing the cost and increasing the savings-to-investment ratio (SIR), the cost-justified energy conservation measures (ECMs) and related Repairs Measures (RM) included in the work scope produced by the audit tool.

**minor infiltration**

Air sealing work performed when blower door testing cannot be performed. Minor air sealing work is limited to probable attic bypass and key junctures, glass repair or replacement, and miscellaneous sealing that will affect the occupants' comfort.

multifamily building

A building that contains five or more units.

multi-unit building

A building that contains more than one unit.

National Energy Audit Tool (NEAT)

A computerized energy audit used for 1 to 4-unit buildings and is part of the Weatherization Assistant software package. See also Weatherization Assistant Guide on the [HE+ TTA website](#).

Office of Management and Budget (OMB)

The federal Office of Management and Budget issues circulars in the areas of uniform administrative requirements and financial audits collected in federal regulations in [2 CFR Part 200](#).

Occupational Safety and Health Administration (OSHA)

The United States Congress created OSHA in 1970 to assure safe and healthful working conditions by setting and enforcing standards and providing training and education. OSHA is part of the United States Department of Labor.

owner contribution

The portion of the cost of weatherization that the owner of a building pays. See [3.9 Owner Contribution](#).

owner sign-off

Completion Certificate for Weatherization Program Work signed by the owner or authorized agent that states the weatherization work has been completed as agreed and in an acceptable manner.

payment bonds

A payment bond is a type of surety bond issued to contractors which guarantees that all entities involved with the project will be paid. A payment surety bond is a legal contract, a type of bond, that guarantees certain employees, subcontractors, and suppliers are protected against non-payment.

Personally Identifiable Information (PII)

Tier One sensitive data includes: SSNs by themselves or in combination with any PII (including date of birth, names, address, phone number, fuel account number and name, and income information), the combination of date of birth and name without an SSN, WHEAP-related single party checks returned to the local agency.

Tier Two sensitive data includes: PII elements that may be needed to complete effective business communications in support of the HE+ Programs (name, address, phone number, fuel account information, and income information).

poverty level

Household income in relation to family size as defined by federal poverty guidelines.

pressure diagnostics

Measuring air pressures and flows in different zones of a building to determine air leakage between the zones.

program income

Gross income earned by an agency from grant-supported activities, including but not limited to income from service fees, sale of commodities, usage or rental fees, and royalties, patents and copyrights. Program income shall be used to weatherize additional units within the same contract performance period. Owner contributions and leveraged funds are not considered Program Income. See also [2 CFR 200.80](#), [DOE WPN 22-1](#), and [5.3.2.7 Job Cost Reduction](#).

property

Real estate and buildings, non-consumable equipment, data devices and software, tools, vehicles, inventory, and consumable materials.

Public Benefits

Under [Wis. Stats. s. 16.957](#), the Utility Public Benefits provides funding for the Home Energy Plus programs. For more information see the Wisconsin Public Benefits HE+ Annual Report available on the [Division website, WHEAP page](#).

public hearing

US DOE requires that the Grantee must provide **a minimum of 10 calendar days' notice** of a public hearing to inform prospective Subgrantees of how they may obtain a copy of the proposed Grantee Plan and must conduct one or more public hearings to receive comments (verbal or written) on the proposed plan. Grantees can proceed with virtual public hearings, as long as the provisions within [10 CFR 440.14](#) regarding public notice and ability for public to comment are adhered to (i.e., Webinar, Live Stream, etc.).

Quality Assurance (QA)

Section of the DEHCR Home Energy Plus Bureau.

Quality Control Inspector (QCI)

An inspector certified by the Building Performance Institute (BPI) who possesses the knowledge, skills and abilities in the National Renewable Energy Laboratory [QCI Job Task Analysis](#).

rental unit

A unit occupied by a tenant whose name does not appear on the proof of ownership document. See [3.4 Proof of Ownership](#).

repair measure

Items necessary for the effective performance or preservation of energy conservation measure materials (e.g., shingles, roof cement).

residence

A unit where household members listed on the WHEAP application are living on the WHEAP application date.

rework

The addition of a measure or editing of measures in HE+ System/WisWAP after a building has been closed. A rework includes additional field work on a unit. See also [2.1.8 Reworks](#) and [2.1.9 Corrections](#).

room

A living room, kitchen, dining room, bedroom, family room, den, study or other room, excluding bathrooms, entryways, unfinished basements, hallways, unheated attics and porches, closets or areas occupied by persons who are not part of the applicant's economic unit. The number of rooms in a unit is determined by the WHEAP agency as part of the application process and is a factor in establishing WHEAP benefits. Rooms or other areas used only for commercial purposes are not considered eligible space for weatherization services.

savings-to-investment ratio (SIR)

A calculation used in NEAT and MHEA that refers to the ratio between the energy cost savings over the assumed lifespan of a measure versus the investment cost of installing that weatherization measure.

SES

Self-evaluation study of WAP program operations and outcomes, performed periodically to assess program effectiveness.

separate living quarters

Living quarters in which the occupants do not live and eat with any other persons in the structure, and which have either direct access from the outside of the building or through a common hall or complete kitchen facilities for the exclusive use of the occupants. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements and includes shelters for homeless persons ([10 CFR 440.3](#)).

shared meter

In a multi-unit rental building, residential space heating energy costs are metered by one device and to an account billed to the owner.

Standard Work Specifications (SWS)

Guidelines and specifications that identify outcomes for a whole-house approach to installing residential energy efficiency measures. The [SWS](#) was developed by the National Renewable Energy Laboratory and the U.S. Department of Energy.

subcontractor

An entity that enters into an agreement with a contractor to provide all or a portion of the contractor's weatherization responsibilities.

temporary shelter

A building with the principal purpose to house, on a temporary basis, individuals who may or may not be related to one another (e.g., transitional housing for homeless persons and domestic abuse shelters). Nursing homes or similar institutional care facilities are not eligible buildings ([10 CFR 440](#)). See [3.3.2 Temporary Shelters](#).

Training and Technical Assistance (T&TA)

Activities designed to maximize energy savings, minimize production costs, improve program management and crew/contractor "quality of work," and/or reduce the potential for waste, fraud, abuse and mismanagement. Funds used for Grantee monitoring, training support and providing assistance. Subgrantees receive an annual T&TA fund allocation.

Training and Technical Assistance Work Plan

The T&TA implementation plan established each year during the contract to adjust to budget variations, and to identify specific T&TA goals, tasks and deliverables, establish timelines for those tasks, allocate resources and establish performance metrics.

true up

The annual financial process to close out grants at the end of the contract. The Division issues guidance to subgrantees via an Informational Transmittal.

unit

A single family house, stationary mobile or manufactured home, apartment, group of rooms, or a single room occupied as a separate living quarters ([10 CFR 440.3](#)).

unusable materials

Weatherization materials that can no longer be installed due to damage, loss, inadvertent ordering of an incorrect size or the elimination by the Division of previously allowable weatherization measures. See [5.3.2.6 Unusable Materials](#) and [7.4.3 Inventory Disposal](#).

vendor

An entity that enters into an agreement to provide commodities or services to an agency and/or a contractor.

Weatherization Assistant

[Weatherization Assistant](#) is an energy audit software tool developed for the U.S. DOE Weatherization Assistance Program by the Oak Ridge National Laboratory.

weatherization measures

Energy conservation measures, energy-related health and safety measures, and other repairs that may be installed and funded as determined by the Division.

**Weatherization Operators of Wisconsin (WOW)**

WOW is an organization representing the eighteen weatherization agencies (program operators) in Wisconsin.

WISCAP

Wisconsin Community Action Program.

Wisconsin Home Energy Assistance Program (WHEAP)

See “LIHEAP” above.

HE+ System/WisWAP

See “Home Energy Plus System (software)”.

WHEAP agency

A county or its subcontractor that administers the Wisconsin Home Energy Assistance Program. See [County Resources](#) webpage to locate a WHEAP agency by county.

WHEAP Referral Report (priority list)

A list of potential weatherization households prioritized based on the following formula: (Sum of WHEAP heating and electric benefit amounts) + (Sum of DOE priority household categories).

work agreement

A written agreement between an agency and the owner/agent of an eligible building that discloses the type and amount of weatherization work to be done on the building and other conditions both parties shall agree to, including the right for representatives from the agency as well as state and federal government, or their designee, to verify the delivery of weatherization services and the quality of those services. See [2.1.5 Customer Notifications and Education](#).

work order

Document that specifies the weatherization work to be performed and materials to be installed on a unit.

Weatherization Program Notice (WPN)

An archive of all DOE WPNs is online at <https://www.energy.gov/eere/wap/weatherization-program-notices-and-memorandums>.

Chapter 2.0 | General Management

An agency shall make all reasonable efforts to deliver comprehensive weatherization services to income-eligible households in the most cost effective, efficient, and timely way possible. In doing so, the agency will maximize the use of available funding in delivering weatherization services.

The purpose of this manual is to identify Wisconsin Weatherization Assistance Program (WAP) requirements for agencies and financial auditors. It is considered part of the annual contract/grant agreement, incorporated by reference. The order of precedence for contract compliance is the weatherization contract, followed by this Weatherization Program Manual and then the Wisconsin Weatherization Field Guide and Weatherization Assistant Guide. The Division reserves the right to have the final authority in any cases of dispute.

Several Home Energy Plus website pages host additional documents including field forms, procurement templates, official Division communications, and training and technical assistance tools. See [Appendix B](#) for a complete listing. It is the agency's responsibility to ensure the forms and documents they are using meet current weatherization program requirements.

2.1 Program Management

The mission of the Wisconsin WAP is to reduce energy costs for eligible low-income households by improving the energy efficiency of their homes while ensuring their health and safety.

Achieving the primary goal of energy efficiency is dependent on effective program management that strives to maximize energy savings, minimize production costs, improve program management and quality of work, and reduce the potential for waste, fraud, abuse, and mismanagement.

The Sub-grantee (agency) shall supply or provide all necessary personnel, equipment, materials and supplies, to install allowable weatherization and energy conservation measures in eligible low-income households per the Wisconsin Weatherization Assistance Program Manual, the Home Energy Plus Program Services Manual, and the Wisconsin Weatherization Field Guide, and in compliance with applicable federal and state regulations as identified in the SWS specifications for work quality outlined in [WPN 22-4](#) Sections 1-3. All work shall be performed in accordance to the DOE-approved energy audit procedures and [10 CFR 440 Appendix A](#).

2.1.1 Conflict of Interest

Each agency shall develop, implement, and keep on file a plan for dealing with potential conflicts of interest. Conflicts of interest covered by the plan shall include all situations, actual or perceived, when the agency, members and relatives of the agency's board of directors, agency staff, and relatives of agency staff have an interest in a business (or organization) providing services or materials, or property proposed to receive weatherization services. At a minimum, the plan shall set forth the procedures and steps the agency will follow to deal with conflicts of interest in:

- Purchase of materials and services,
- Receipt and processing of applications,

- Prioritizing and scheduling of services,
- Determining services (energy auditing) for buildings,
- Installing measures in buildings,
- Conducting final inspections, and
- Obtaining owner sign-off.

Weatherization of a property in which an agency has an interest is a special case of conflict of interest. When an agency has partial or complete ownership of a property that is eligible for weatherization, the following process shall be followed:

1. The agency reviews its Conflict of Interest Policy as it applies to the potential project.
2. The agency sends a message through the [HE+ Help Desk](#) indicating that the property is eligible and proposes who would conduct the energy audit (agency or third party).
3. The Division reviews the request and approves or denies auditor proposal.
4. If approved, the energy audit is conducted.
5. The agency submits the following to the Division for review, these documents can be uploaded to the HE+ System/WisWAP at a minimum (additional information may be requested):
 - a. Computerized audit file,
 - b. Field data collection form(s),
 - c. Audit photos including, but not limited to, building exterior, existing conditions, and mechanicals,
 - d. List of measures to be performed and by whom (e.g., contractor, agency crew), and
 - e. Diagnostic Workbooks
6. The Division approves or denies the request.
7. The agency notifies the Division when the building is reported as complete.
8. The Division schedules the property for Quality Assurance inspection.

2.1.2 Local Coordination

An agency shall coordinate efforts with local agencies providing energy assistance and other organizations serving low-income households. This includes working with the vendors that do not participate in Public Benefits funding. Weatherization and WHEAP agencies shall work together to provide outreach to customers and to resolve application discrepancies, referral list issues, and any other issues or questions related to eligibility. If unable to be resolved at the local level, submit the question or issue to the [HE+ Help Desk](#).

HE+ Program Services (furnace/water heating/conservation)

The agency, as a condition of their Weatherization contract, agrees to provide emergency and non-emergency furnace repair and replacement, water conservation services for the WHEAP agencies within their service territory. This service is billed through the HE+ System/WisWAP. Reference the Program Services manual for policy and guidance.

Wisconsin State Tribal Initiative

[Wisconsin Executive Order #39](#), issued in February 2004, affirms the government-to-government relationship between the State of Wisconsin and [Tribal governments](#) located within the State of Wisconsin. Government-to-government relations involve respectful and cooperative communication and dealings that are designed to achieve a consensus before a decision is made or an action is taken, and to implement programs in a collaborative manner.

The intent of this policy is to improve the planning and delivery of State services to Tribal governments, Tribal communities, and Tribal members by developing principles and a process for consultation on these service policies in Wisconsin. DOA and Tribal governments work to ensure eligible tribal members receive services in a cost effective and timely manner. It is the responsibility of the weatherization agency to collaborate with local Tribal governments to ensure potential customers are aware of the program and the process of application and completion of weatherization of eligible homes.

2.1.3 Priority of Service

An agency shall develop an internal prioritization plan for serving priority groups. An agency shall give priority of service to households based on the Priority ID number found in the HE+ System Referrals Report. The Referrals Report is a list of potential weatherization households prioritized based on the following formula: (Sum of WHEAP heating and electric benefit amounts) + (Sum of DOE priority household categories).

Referrals with the lowest Priority ID numbers shall generally receive the highest priority. Where a Tribal household is in alignment with the DOE priority definition, the Tribal household shall be included in the targeted high priority of service group regardless of the Priority ID number on the HE+ System referral, and agencies shall prioritize tribal households to ensure work is completed in a timely manner.

Although determined initially by information contained on the WHEAP application, prioritization is tied to the unit, not the applicant. If the eligible household moves, they will not establish a new priority ranking until they apply for WHEAP at their new residence.

2.1.4 Home Energy Plus Logo

An agency shall use the official Home Energy Plus logo when creating weatherization documents such as brochures, program marketing and outreach materials and agency websites. Agencies shall not use their own logos in lieu of the Home Energy Plus logo. The official logo and detailed usage guidelines are on the [Home Energy Plus Training & Technical Assistance \(HE+ TTA\) website](#), under the 'Administration' drop-down menu.

Changes or additions to the logo are not allowed. Agencies may develop, print, and publish their own Weatherization informational materials such as brochures or program marketing materials. Program materials prepared by the local agency that will be available to the public shall identify the program as being administered by the State of Wisconsin Home Energy Plus Program. Documents used only for internal purposes do not require a logo. Agencies are not required to seek preapproval of marketing materials unless otherwise instructed. Any materials developed



using the logo may be reviewed as a part of the monitoring process and shall be made available for review upon request by the Division.

2.1.5 Customer Notifications and Education

An agency shall ensure that persons with limited English proficiency (LEP) have meaningful and equal access to benefits and services. This assistance goes beyond provision of brochures in Spanish, Hmong, or another language. As some individuals may not read English, or any other language, the agency shall have a mechanism to communicate orally with people with limited English proficiency.

Customer Bill of Rights

The Customer Bill of Rights shall be provided to all weatherization program customers, regardless of funding source. The Customer Bill of Rights provides information concerning rights to safety, the right to be informed, warranty information, and the steps a customer may take in the event a warranty issue is not resolved. An agency shall provide the Customer Bill of Rights as early in the weatherization process as possible. The customer's signature on the Work Agreement shall signify receipt. The Customer Bill of Rights is available on the [HE+ TTA website](#) under Weatherization | Forms.

Work Agreement

A work agreement shall be signed by the owner/agent of an eligible building prior to the commencement of weatherization work. The agency shall use the Wisconsin Weatherization Assistance Program Work Agreement documents available on the [HE+ TTA website](#) under Weatherization | Forms.

The work agreement shall detail the weatherization work to be completed. The owner or authorized agent shall sign the work agreement prior to the installation of weatherization measures. Following completion of all work, a final inspection is conducted and a signature by the owner or authorized agent is required to verify the proposed work was completed in an acceptable manner.

Tenant Notification

The agency shall provide written notifications to tenants of rental buildings as described in [3.8 Tenant Notification](#). An optional template is available on the [HE+ TTA website](#) under Weatherization | Forms.

Health and Safety Checklist

A Health and Safety Checklist is required for each occupied unit in 1 to 4-unit buildings. In 5+ multifamily buildings, a single Health and Safety Checklist is required for the building. See [9.1.1 Health and Safety Checklist](#).

Customer Guidebook

The Weatherization Guidebook shall be provided to site-built single-family homes including single condominiums, and any 2 to 4-unit buildings where DOE funds were used. An agency shall complete and distribute the Guidebook to each unit occupant within 60 days of reporting a building as complete. The Guidebook contains information about installed

materials, appliances, and mechanicals including warranty information and installer contact information, and is available on the [HE+ TTA website](#).

2.1.6 Quality Control System

Weatherization Program Notice 22-4: Quality Work Plan Requirements

This guidance defines what constitutes a quality installation of weatherization measures, outlines how those measures are inspected and validated, and prescribes acceptable training and credentialing of workers.

Each agency shall develop, maintain, and implement a documented Quality Control System (QCS). A QCS includes procedures that are designed to provide a detailed review of the weatherization program process including an on-site unit check and measurement of customer satisfaction. The QCS process is not the same as the final inspection completed on each job. Agencies shall have a mechanism to track jobs receiving a QCS review and shall document management review and approval. Several optional checklists for review and documentation are available under Weatherization | Resources on the [HE+ TTA website](#).

Each agency QCS will be reviewed during the annual Administrative Review process and kept on file at the Division. If changes are made to a QCS on file, the agency shall submit a copy of the updated QCS to the [HE+ Help Desk](#).

Quality control shall be performed continuously throughout the contract year in correlation with production. The following elements shall be included in the QCS:

1. Prior to the job being released into production, the program manager, or designee shall review and approve all jobs meeting the following criteria:
 - a. Single-family houses and mobile homes where completed energy audits show an estimated job cost of \$15,000 or greater. Cost-effective energy conservation measures shall not be removed from a job to bring the estimate under the \$15,000 threshold. A note of the agency approval shall be included in the building file in the HE+ System/WisWAP.
 - b. Single-family houses and mobile homes where completed energy audits show total estimated health and safety costs of \$5,000 or greater. A note of the agency approval shall be included in the building file in the HE+ System/WisWAP.
2. After job completion, evaluate a minimum of 5% of all jobs and document with a note in the HE+ System/WisWAP that the job was part of QCS review. Assess the following items:
 - a. Energy Audit accuracy and appropriateness.
 - b. Work Order/Work Agreement accuracy and appropriateness.
 - c. Completeness of work performed (final inspections).
 - i. When it is necessary for individuals who audit units to also perform final inspections of those same units, the agency shall include a written plan in the QCS detailing the process by which the agency will assure the quality and integrity of the audit as well as of the final inspection. An agency shall receive approval prior to allowing the same individual to performing both the energy audit and final inspection on a unit (see 2.1.7 below).

- d. Quality of work performed (for example, in-progress quality control inspections).
 - e. Compliance with applicable health and safety requirements.
 - f. Customer satisfaction with work performed.
 - g. Contractor and/or agency crew performance and management.
3. A feedback loop for discussing work performance that is below required standards with those performing the work (contractors and/or agency staff).
 4. Verification of heating system replacements identified by contractors that were not recommended by the computerized energy audit. This may include using multiple contractors with replacements performed only by a contractor other than the one who identified the failure, obtaining a percentage of failed heating system units and verifying failures with physical or destructive tests, or using other methods to ensure that reported heating system failures are accurate.
 5. Documenting receipt and resolution of all complaints.
 6. Immediately reporting all serious complaints and incidents to the Division, including those having potential legal consequences, suspected or potential fraud, and incidents relating to severe structural damage or impacting customer or worker health. An optional Weatherization Complaint Report form is available on the [HE+ TTA website](#) under Weatherization | Resources.

2.1.7 Final Inspections

Final inspections shall be completed on every unit. The final inspection shall be performed after the completion of any callbacks and before the owner or authorized agent and final inspector signs off on the Completion Certificate. All final inspections of units completed using DOE funds shall be performed by a certified Quality Control Inspector (QCI). The Home Energy Plus DOE QCI Form shall be completed, uploaded to the HE+ System and kept with the customer file for all units where any DOE funds are used. The Final Inspection Form and photos shall be completed for each building and uploaded to the HE+ System/WisWAP. Baseload job final inspection can be completed by phone call with the customer and documented in the customer file unless complaints have been received about the work performed.

Whenever feasible, final inspections shall be completed by individuals who did not audit the building. In all cases, the final inspection shall not be completed by an individual involved in the installation of the weatherization measures on the inspected unit. When it is necessary for individuals who audit units to also perform final inspections of those same units, the agency must receive prior approval by submitting an updated QCS to the Division as described in 2.1.6 above.

2.1.8 Reworks

Any weatherization work performed on a unit after the unit has been reported as completed in HE+ System/WisWAP is considered a rework. All rework expenses require prior Division approval using the HE+ WisWAP rework tab, to be allowable. If a rework is being requested more than one year after the completion date, the agency shall ensure the customer is eligible for HE+ Program services prior to submitting the rework request. DOE funds shall not be used for rework expenses.

Weatherization work that was omitted or does not meet the program requirements is the responsibility of the agency. An agency is encouraged to utilize insurance to cover expenses related to employee or contractor negligence or warranty issues related to weatherized units.

2.1.9 Corrections

Corrections include HE+ System/WisWAP system edits such as changing a funding source or a cost on an invoiced measure due to an administrative oversight, after a building has been closed. All corrections shall be completed prior to the contract end date.

2.1.10 Training and Technical Assistance

The Division allocates Training and Technical Assistance (T&TA) funds to each agency. An agency is required to develop and submit a plan for T&TA expenditures per annual Division direction. An agency shall comply with all mandatory training requirements as directed by the Division.

2.1.11 Energy Auditor Certification

A person auditing homes in the Wisconsin Weatherization Assistance Program shall obtain a Wisconsin Weatherization Energy Auditor Certification within 12 months of beginning to audit homes for the Weatherization Program. Auditors working toward an Energy Auditor Certification will be considered an Energy Auditor Trainee and shall have their audits reviewed and signed-off on by a certified Energy Auditor. Completion of the Energy Auditor Certification requirement advances the energy auditor beyond the trainee status.

Further details can be found in the [Energy Auditor Job Task Analysis](#).

2.1.12 Administrative Review

Each Program Administrative Review (PAR) and Finance Administrative Review (FAR) shall be completed with a Closeout Conference Call to discuss the review results with the Agency. At a minimum, these conference calls shall be attended by the Agency Executive Director and Wx Program Director and/or Finance Director as appropriate, along with the required DEHCR staff.

2.2 Documentation and Record Keeping

An agency shall comply with the applicable federal and state laws, and Division regulations concerning the confidentiality of customer records.

2.2.1 IT System Requirements

An agency shall have all IT hardware (equipment that allows a user to create, store, or transmit data), software (computer application/program or data) and service subscriptions, including but not limited to email hosting, and desktop support necessary to meet general requirements for program management and financial reporting. Computers, laptops, tablets, and desktop PCs shall use a version of Microsoft (MS) Windows® operating system. Productivity software loaded on the computers shall be a version of MS Office® compatible with Division software.



Transmittal of MS Office files to the Division shall be in MS Word, MS Excel, MS PowerPoint, .wdz (Wx Assistant), or PDF file format. Other file formats may be transmitted at the request of the Division.

An agency shall have reliable access to the Internet at a sufficient connection speed to meet business requirements. Google Chrome shall be the internet browser used to access the HE+ System/WisWAP.

The agency shall appoint a HE+ System/WisWAP 'Profile Management Administrator (PMA)' with a written request to the Division via the [HE+ Help Desk](#). Any changes to this appointment require written notification to the Division.

The PMA is responsible for:

- a. Creation of new, and maintenance of current, HE+ System/WisWAP contacts/permissions/user profile information (including review of the user profile name for appropriateness upon creation) within their agency.
- b. Creation of new, and maintenance of current, HE+ System/WisWAP contacts/permissions/user profile information (including review of the user profile name for appropriateness upon creation) for agency staff.
- c. Maintenance of current HE+ System/WisWAP user profiles includes:
 - i. Inactivate user profiles who will be off the system for more than two weeks on vacation, maternity leave, summer leave, or any other reason.
 - ii. Immediately deactivate user profiles who have been terminated, retired, quit, or otherwise have left the program.

Any staff with a user profile has the responsibility to maintain their user Login Name and password as confidential. Usernames and passwords shall not be shared with anyone, including other agency staff. The user logged in is responsible for all activity occurring under this user profile. All activity in the system is recorded and time stamped according to the user login.

To safeguard the integrity and security of data maintained in HE+ System/WisWAP, an agency shall limit contracted energy auditors' access to the database. Such contractors are allowed only to add, edit, or delete measures. The correct permissions setting for these functions is "JobMeasureModifyOwnGrantee."

2.2.2 Timely HE+ System/WisWAP Data Entry

All HE+ System/WisWAP data entry shall be performed within five working days of the completion of the activity as follows:

- Add a building and edit building and unit information, as needed, within five working days of receiving a verification of interest in weatherization services.
- If weatherization service is deferred, change the unit status and enter a deferral date, reason, and comments within five working days of sending the Deferral Notification.
- For regular weatherization jobs only, create a BID and upload WA audit within five working days from the completion of the audit. An energy audit is completed when all data collection is complete, when applicable a NEAT/MHEA audit run with the current

contract year library shows a cumulative SIR of 1.0 or greater for DOE jobs or 0.80 SIR for LIHEAP and PB jobs, a work order is created once the audit has successfully uploaded, a Work Agreement is signed by the agency and customer, and no contingencies or reasons for deferral remain. The date when all conditions are met shall be recorded in HE+ System/WisWAP in the edit building, Audit Completion Date field, and the auditor name should be selected from the drop-down menu.

- Complete job costing for each measure (quantity, labor hours, unit cost, and total cost, when applicable) as soon as possible following receipt of invoices and/or cost information.
- For regular weatherization jobs only, enter a job completion date as soon as feasible after the final inspection, following the completion of all on-site work and completion of any callbacks. All measures must be invoiced or checked ready for invoice or not installed prior to entering a job completion date. The job completion date should match the date the agency representative and owner or authorized agent, when feasible, signed the Completion Certificate.

For guidance on measure reporting in HE+ System/WisWAP see [Appendix D](#).

2.2.3 Customer Files

The following information is required to be included in or associated with customer files. All Home Energy Plus (HE+) electronic documentation associated with the HE+ System/WisWAP Building ID, and HE+ System/WisWAP job and invoice, is considered part of the customer file. The HE+ document upload satisfies the HE+ customer file retention requirements. Electronic documentation may be printed and included in the customer file, but printing is not required (paperless systems are allowed). If an agency is notified that a file review will be performed by the Division, the Department of Energy, or an associated auditing or quality assurance organization, the agency must make available all documents listed below.

1. Verification of ownership. Upload to HE+ System/WisWAP.
2. Deferral Notification letter in HE+ System/WisWAP.
3. Work agreement signed by property owner or their authorized agent and an agency representative prior to the installation of weatherization materials and measures.
4. Completion Certificate signed by the final inspector and property owner or their authorized agent following completion of all weatherization work.
5. The Field Data Collection Form completed to prepare the energy audit.
6. When applicable, electronic files, or reference(s) to the location(s) of the files for:
 - a. Weatherization Assistant audit
 - b. Diagnostic Workbook
 - c. Therm Calculator
 - d. Electric Fuel Switch Calculator Worksheet
 - e. Freezer Replacement Calculator
7. Work order, including:
 - a. Documentation of any callbacks;
 - b. Quality control record, if performed;

- c. Justification for any Recommended Measures not completed.
 - d. Job detail report documenting any non-DOE/LIHEAP/Public Benefits weatherization work on the unit; and
 - e. Instructions for crew when possible or confirmed asbestos-containing materials and/or lead paint will be disturbed.
8. Health and Safety Checklist for each unit in 1 to 4-unit buildings, and for each multi-family (5+ unit) building. See [9.1.1 Health and Safety Checklist](#).
 9. Documentation that the EPA Booklets “A Brief Guide to Mold, Moisture and Your Home,” “The Lead-Safe Certified Guide to Renovate Right,” “A Citizen’s Guide to Radon,” and the Division “Customer Bill of Rights” were distributed to each household.
 10. “Refusal of Ventilation: Release of Liability, Indemnification and Waiver of Claims” form, if applicable.
 11. Heating System Checklist available on the [HE+ TTA website](#) under Weatherization | Forms, if applicable.
 12. Documentation of the sizing calculation for replacement heating systems. Acceptable sizing calculations are REScheck™, ACCA Manual J, or an ACCA approved sizing formula, if applicable.
 13. Results of any positive tests for asbestos or lead
 14. Renovation Recordkeeping Checklist(s), if applicable.
 15. For rental units: documentation of unit’s monthly rent and documentation of contribution calculation.
 16. Documentation of any waivers or approvals pertaining to the job.
 17. Photographs, or references to the location of photos, including at a minimum:
 - a. The frontal view of the unit’s exterior,
 - b. Each appliance, window, and door before replacement, if applicable. The photos shall clearly document compliance with Division standards for replacement,
 - c. Health and Safety replacement - Leaky water heater before replacement, if applicable. The photos shall clearly document compliance with Division standards for replacement,
 - d. Any incidental repair measure (IRM) to be included in order to complete the installation/protection of energy conservation measures
 - e. Any condition adversely affecting the installation of weatherization measures.
 - f. Photo documentation of lead-renovator and asbestos containment practices as described in Table 9.3 in [Chapter 9](#); and,
 - g. On deferred units, pictures documenting the reason(s) for deferral (e.g., mold or other problems).
 18. Documentation of historical review submission and response, when applicable.
 19. Building Permit(s), if required by local government. If a permit is not issued by the local jurisdiction, then a copy of the receipt for payment is acceptable documentation.
 20. DOE Quality Control Inspection (QCI) Form, when applicable. The DOE QCI Form is available on the [HE+ TTA website](#) under Weatherization | Forms.
 21. Final Inspection Form and photos of measures, repairs and health and safety items.

2.2.4 Historic Review

For buildings 50 years old or older, certain measures may be subject to review by the Wisconsin Historical Society (WHS). Historic review is only required when federal funds are expensed, and not required if only PB funds are used to weatherize a building.

Measures that will change the appearance of the exterior of a home 50 years old or older are subject to review. Measures that will change the appearance of historically significant elements of the interior of a building 50 years old or older are subject to review. Examples of items that require review include replacement of exterior windows or doors, removal of original/ornamental lighting fixtures, or significant structural alterations to walls or roofs.

Some measures are exempt from review as long as those measures do not alter the appearance of the home or adversely affect the property. For more information, see the document titled “Historic Review - List of Exempt Activities” available on the [HE+ TTA website](#) under Weatherization | Resources.

While other weatherization work may proceed, measures subject to Historic Review are not to be completed without written permission from the Division. Requests shall be sent to the [HE+ Help Desk](#) with an email subject line of “Historic Review Request” and shall include:

- County the home is located in;
- Complete street address;
- HE+ System/WisWAP Building ID Number;
- Year built (or estimate);
- A list of non-exempt items planned for replacement;
- Photos of the items planned for replacement;
- A photo of the exterior of the home from several views (front, back, and unique exterior features);
- Notes about improvements completed since the home was built (such as construction of additions, covering or replacement of original siding or replacement of original windows); and,
- If the home is in a rural area, the Township, Range, and Section Numbers as found on the property tax bill.

An optional Historic Review Request Template is available on the [HE+ TTA website](#) under Weatherization | Resources.

Once a measure is submitted to WHS, the Society has up to 30 days to review the planned work. When received, the Division permission is printed and placed in the customer file. WHS may require additional review and request further documentation on a case-by-case basis.

Additional requests may include detailed photos, building history or material specification for proposed replacement items.

2.2.5 Record Retention

An agency shall retain all records associated with the Grant as detailed below for three years after the final Federal Financial Report (FFR) has been submitted by the state, in accordance with federal regulations ([2 CFR 200.333](#)).

1. An agency shall retain all financial and procurement records, supporting documentation, and statistical records.
2. An agency shall store their agency cost files and label or name each file according to the time period involved.
3. All records maintained in accordance with the operation of the weatherization program shall be available to the Division on request for inspection, examination, excerpting, transcription or financial audit.
4. For all financial and Customer File records created during a Grant Period the following record disposal schedule shall be applied.

| Grant Period | Disposal Date | DOE Grant Award |
|-------------------------|------------------|-----------------|
| 07/01/2017 – 06/30/2022 | After 09/30/2025 | EE0007959 |
| 07/01/2022-06/30/2025 | After 09/30/2028 | EE0009940 |
| 07/01/2022-06/30/2027 | After 09/30/2030 | EE0010025 (BIL) |

An agency shall consider Social Services Department staff working with WHEAP or with Income Maintenance Programs such as W-2/TANF and Food Stamps (Food Share) as employees of the Division for purposes of confidentiality. Therefore, an agency shall permit these staff access to necessary information concerning customers.

2.2.6 Open Records/Public Records

Agencies are subject to State Public Records laws, ([Wis. Stats. Chapter 19](#), subchapter II, sections 19.21 through 19.39). These laws relate to record retention by the agency and its contractors/vendors and to the provision of information (known as “complete public access”). An agency shall:

1. Forward a written copy of all records requests to DOA, DEHCR or directly to DOA, Office of the Secretary, Legal Office, P.O. Box 7864, Madison, WI 53707-7864.
2. Provide records to requestors, as required; or
3. Request that DOA coordinate the response to the records request.

If an agency receives a request to participate in a study or evaluation related to weatherization (other than Division or Slipstream projects), the agency shall notify the [HE+ Help Desk](#) and receive approval from the Division prior to agreeing to participate.

2.3 Handling Sensitive Data

An agency shall not use confidential information for any purpose other than the limited purpose of their contract and shall not disclose such confidential information to any persons other than those who have a business-related need to have access to such information.

An agency shall ensure program employees, both internal and subcontracted, shall take reasonable efforts to protect and secure sensitive information. Sensitive data are any information of which the loss, misuse, unauthorized access to, or modification of could adversely affect the Home Energy Plus Program, contracted agencies, program employees, and/or customers. Sensitive data and information include but are not limited to Social Security Numbers (SSNs), Personally Identifiable Information (PII) meaning information that can directly identify a specific individual, applicant household member, or account specific information.

2.3.1 Non-Disclosure Agreement

An agency shall institute and maintain reasonable security procedures to maintain confidential information while in its possession or control, including transportation, whether physically or electronically. Confidential information means all tangible and intangible information and materials, including all proprietary and PII. For more specific information regarding confidentiality and PII see agency's weatherization contract (Article 36) and [2 CFR 200.79](#).

All staff that have HE+ System/WisWAP access will be prompted to agree to the Conflict of Interest/Non-Disclosure Agreement Form upon gaining access to the HE+ System/WisWAP. agency employees that work with weatherization and have access to confidential information but do not have HE+ System/WisWAP access shall sign a paper copy. The Conflict of Interest/Non-Disclosure Agreement is available on the HE+ Program Information page under the Agreements/Forms heading. This agreement is valid for the duration of employment with the agency. The agency is responsible for any breach of the contract by any agency employees.

2.3.2 Sensitive Data Tiers

For the purposes of the following policy, sensitive data has two tiers.

Tier One sensitive data includes:

- SSNs by themselves or in combination with any PII (including date of birth, names, address, phone number, fuel account number and name, and income information), and
- The combination of date of birth and name without an SSN.

Tier Two sensitive data includes:

- PII elements that may be needed to complete effective business communications in support of the Home Energy Plus Programs (name, address, phone number, fuel account information, and income information).

Agencies and their contractors shall limit the use and exchange of sensitive data to the minimum required to conduct Home Energy Plus Program business effectively.

When using sensitive data individually or in quantity, contracted Home Energy Plus Program agencies, contractors, subcontractors, and participants shall take reasonable actions to ensure the protection of sensitive program data that are: collected, displayed, transferred, stored, analyzed, or destroyed. Appendix A of the WHEAP Manual identifies minimum requirements that shall be used for equipment, information collected, and methods of transferring sensitive information. Contracted agencies shall have documentation and planned procedures in place for

the handling of sensitive data and be able to make them available upon request. Weatherization Referral Applications are considered to be Tier Two data and may be shared electronically.

2.3.3 Desktop Computers

Desktops that are used for collecting, displaying, transferring, analyzing, or storing Tier One or Tier Two sensitive data shall apply the following standards:

1. Desktops shall be locked when left unattended by authorized personnel. Re-entry into the desktop shall require a username and password.
2. An automated screen saver lock shall be enabled after 15 minutes of inactivity. Re-entry into the desktop will require a username and password.
3. Hard drives shall be cleansed using at least a seven pass overwrite procedure (commonly referred to as the Department of Defense (DOD) standard), where the drive is written over electronically to eliminate all data prior to surplus or re-assignment to another user or work area. Contracted agencies shall make available upon request verification that the device has been sanitized meeting industry standards, seven pass overwrite, degaussing (sanitation based on magnetism), or complete physical destruction of the hard drive media.

2.3.4 Portable Computing Devices

Portable computing devices that are used for collecting, displaying, transferring, analyzing, or storing Tier One or Tier Two sensitive data shall apply the following standards:

1. Personally assigned portable computing devices shall have full disk (hard drive) encryption requiring a username and password.
2. Portable computing devices shall have the boot up from external or secondary devices disabled. Boot up shall only be permitted from the hard drive.
3. An automated screensaver lock shall be enabled after 15 minutes of inactivity. Re-entry into the laptop will require a username and password.
4. Portable computing devices that are inactive for 15 minutes shall automatically lock.
5. Do not store Tier One sensitive data on shared pool portable computing devices.
6. Hard drives shall be cleansed using at least a seven pass overwrite procedure (commonly referred to as the Department of Defense (DOD) standard), where the drive is written over electronically to eliminate all data prior to surplus or re-assignment to another user or work area. Contracted agencies shall make available upon request verification that the device has been sanitized meeting industry standards, seven pass overwrite, degaussing (sanitation based on magnetism), or complete physical destruction of the hard drive media.

2.3.5 Portable Media

Portable devices used for collecting, displaying, transferring, analyzing, or storing Tier One or Tier Two sensitive data shall apply the following standards:

1. Files that contain Tier One sensitive data shall require a password to open.
2. Media that may contain sensitive information shall be encrypted and require a username and password to access the media prior to file or folder access.

3. Media shall be stored in a restricted access location, surrounded by a durable physical barrier that is not portable.
4. Disposal of the media shall require wiping electronic media with at least a 7 pass overwrite of the entire medium, degaussing (sanitation based on magnetism), or complete physical destruction of the medium.

2.3.6 General Electronic File Creation and Storage

Tier One sensitive data shall not be used to name files or folders. Faxing or transmitting original or copies of SSN cards, driver's licenses, identification cards, or any Tier One data is prohibited.

2.3.7 Shared Network Drive

Shared network drives are accessible to individuals through a server for the purposes of sharing electronic files and folders. Files containing Tier One and Tier Two Sensitive data stored on a network drive shall be stored in a secured folder limited to staff that require access to the data.

2.3.8 File Transfer Protocol (FTP) Sites

An FTP is an internet site intended to transfer files or folders. Tier One and Tier Two Sensitive data on FTP sites shall require the following standards:

- Files require a password to open.
- The password shall not be stored in the file name, file properties, or other related information files about the file (aka metadata).
- Password is to be provided to the end user via phone, email, or other separate method of communication.
- Sensitive data shall not be stored on an FTP site as a long-term or permanent solution.

2.3.9 Email

An agency shall not email Tier One sensitive data. An agency may not request applicants to submit Home Energy Plus applications by email. An agency shall not accept Home Energy Plus applications by email. Upon receipt of application materials from applicants or household members by email, the material shall be quarantined and handled appropriately. The sending individual shall be contacted, informed of the policy, and provided an alternative option for submitting the application. Weatherization Referral Applications are considered Tier Two data.

2.3.10 Hard Copies

Hard copies are any information printed, written, or displayed on a surface, such as paper.

Storing hard copies:

Tier One sensitive data that are printed or physically displayed on media shall:

1. Be stored in a locked access location (key code door, key, combination lock, etc.).
2. Meet programmatic requirements for record retention requirements. See specific program policies for requirements.
3. Be disposed of through complete destruction of the material, including shredding the media into confetti or burning the materials.

Tier Two sensitive data that are printed or physically displayed on media shall:

1. Be stored in a restricted access location.
2. Meet programmatic requirements for record retention requirements. See specific program policies for requirements.

Be disposed of through complete destruction of the material, including shredding the media into confetti or burning the materials.

Hard copies in transit:

When Tier One sensitive data are printed or physically displayed on medium that is in transit:

- The data shall be stored in a location secured by a durable physical barrier requiring a key, such as a locking metal file case, locking vehicle trunk, lock box, or delivery truck.
- When transporting hard copies containing Tier One data, the media shall always be attended by an authorized individual.
- When transporting hard copies containing Tier One data, a log shall be maintained of applications in transit from the point of origin and point of receipt.
- The log of hard copy applications in transit will be made available upon request.

When Tier Two sensitive data are printed or physically displayed on medium that is in transit:

- When transporting hard copies containing Tier Two data, the media shall always be attended by an authorized individual.

2.3.11 Quality Assurance

Contracted agencies shall have procedures established to ensure:

1. Employees and contractors are made aware of the sensitive data policy requirements annually. The agency is responsible for ensuring signers of the Non-Disclosure Agreement have a full and complete understanding of the Home Energy Plus Policy for Handling Sensitive Data.
2. Technology and devices are within the standards set forth in this chapter.
3. When scanning (making an electronic copy of) documents for storage, the original hard copy or source data are to be maintained until the scanned document imagery is secured. Original hard copies and source data are to be handled and destroyed in accordance with applicable document retention guidelines.
4. Documentation is written and maintained for plan of action regarding incident management and data handling. Employees are to immediately notify their supervisor if it is suspected that sensitive data may have been compromised in any way (i.e. loss, theft, unattended media, including, but not limited to, PCs and laptops). Incident Information to be recorded and retained:
 - a. Date, time, and location of incident.
 - b. Description of what happened to expose the data.
 - c. List of potential impacted identities shall be made available upon request in a password secured document.

- d. Plan of prevention and correction.
 - e. Incident information will be password protected in a secured folder on the network drive and restricted to the necessary authorized individuals.
 - f. The Division shall be notified of any incidents and corrective actions.
5. Contracted agencies and subcontracted agencies shall not:
- a. Scan, photocopy, or retain photo identification of program customers or household members.
 - b. Scan, photocopy, or retain Social Security cards of program customers or household members.
 - c. Send or request materials to be sent containing social security numbers by public or private mail, post, or messenger service.

Chapter 3.0 | Eligibility

3.1 General Eligibility

To be eligible for weatherization, both the building and the household(s) residing in the building unit(s) must meet HE+ program eligibility criteria.

Within the constraints of the program, Agencies shall provide services to buildings that have rental units occupied by eligible households. Agencies are required to make a substantial effort to weatherize a number of rental units that is proportional to the percentage of renters in the low-income population residing in their service territory.

3.2 Household Eligibility

Household eligibility is established by the WHEAP provider in the county where the applicant resides. For information regarding WHEAP eligibility guidelines, see the [WHEAP Manual](#), Chapters 3 and 4.

3.2.1 Eligibility Timeline

There are two eligibility stages, and both are contingent upon the household remaining at the address for which the initial eligibility was established.

Stage 1: The household is eligible for weatherization services for one year from the WHEAP application date, contingent upon building eligibility. During this one-year time period, an energy audit shall be completed or the eligibility of the household for weatherization shall be re-established by re-applying for WHEAP.

Stage 2: The completed energy audit date is the start of the Stage 2 time period. The unit shall be reported as completed within one year of this date. If a building is vacated while work is in progress during Stage 2, the agency may contact the [HE+ Help Desk](#) for guidance on expensing and reporting incomplete units.

Deferrals do not extend the eligibility time periods. When either time period is exceeded, household eligibility shall be re-established by the WHEAP agency, and a new priority for service is established.

3.2.2 Multi-unit Eligibility

When only Public Benefits or EAP funds are used to weatherize multi-unit buildings:

1. 50 percent or more of the units must be occupied by eligible households; or
2. 50 percent or more of the units will be occupied by eligible households within 180 days under a federal, state, or local government program for rehabilitating or making similar improvements to the building. The agency shall receive approval from the Division prior to utilizing this qualification process. Contact the [HE+ Help Desk](#) to request permission.

When **any** DOE funds are used:

1. 66 percent or more (50 percent or more for duplexes and 4-unit buildings) of the units in

- the building must be occupied by eligible households; or
2. 66 percent or more of the units will be occupied by eligible households within 180 days under a federal, state, or local government program for rehabilitating the building or making similar improvements to the building. The agency shall receive approval from the Division prior to utilizing this qualification process. Contact the [HE+ Help Desk](#) to request permission.

All units required to meet the percentage amounts above shall be eligible before the energy audit is completed or the eligibility of the household shall be re-established by re-applying for WHEAP. If the multi-unit building is not eligible for weatherization, service to the entire building shall be denied.

3.2.3 WHEAP Applications for Multifamily (5+ unit) Buildings

Weatherization agencies shall refer multifamily buildings to the local WHEAP agency for application intake. The local WHEAP agency shall complete an application for any households in the building without a current year application and discuss the eligibility results with the weatherization agency within 30 days of receipt of the referral.

If the building does not have the required number of eligible units to proceed with weatherization after the local WHEAP agency has completed application efforts, the two agencies shall discuss what further steps may be necessary to qualify additional households or decide to delay weatherization of the building.

3.3 Building Eligibility

Once initial household eligibility is established by the WHEAP agency, the weatherization agency shall determine building eligibility. A building must be a structure including a stationary mobile home, single-family house, multi-unit apartment building, or qualified shelter or other group facility. Government institutions, halfway houses, nursing homes, recreational vehicles (RVs), cars, trucks, and tents are not eligible buildings. Buildings having only a commercial use are not eligible for weatherization. If a structure was originally designed and built for a use other than residential (e.g., manufacturing, commercial, worship) and has been converted to residential or is now being used as a residential building, the agency shall receive approval from the [HE+ Help Desk](#) prior to proceeding with weatherization.

A building is eligible for weatherization if it:

1. Contains the required number of units occupied by eligible households, or contains units that will become eligible within 180 days under a Federal, State, or local government program for rehabilitating or making similar improvements to the building; and
2. Has not been previously weatherized, or
3. Completion Date on or before 7/1/2007 for DOE, Public Benefit and LIHEAP funding.
4. Previously weatherized buildings may also be eligible for renewable energy technologies including solar and heat pump technology (including necessary collateral activities) utilizing Public Benefit funding, provided that the agency submits a scope of work (including a budget) and receives **prior approval** from the Division before proceeding. Building units must be served by a participating Public Benefits utility. The

data template shall be completed and submitted to the Help Desk for approval. The data template is located on the T&TA website.

The Home Energy Plus System has updated functionality for Re-Weatherization. A building is eligible for re-weatherization if a current year HE+ application deems the household income eligible. Adding a Re-weatherization Cycle will be allowed on Buildings where the Job Completion Date is on or before 7/1/2007 for DOE, Public Benefit and LIHEAP funding. Units previously weatherized may receive any additional measures as determined by an assessment utilizing DOE approved energy audit protocol. A Completed Unit has received all appropriate weatherization measures required by the energy audit and meets the following criteria: the building has passed a final inspection; the property owner, or the owner's authorized agent, has completed the owner sign-off document, or a good faith effort has been made to obtain the sign-off; and a completion date is entered on the associated HE+ System/WisWAP job.

The Add Re-Wx Cycle ribbon action will be enabled (green) in the system. The ribbon action will be disabled (red) for a Job Completion Date after 7/1/2007. In the situation where a mobile home was weatherized but now a different mobile home is on the same lot, you are required to email/call the [HE+ Help Desk](#) so that the Division can manually update the RE-WX cycle for the property address.

3.3.1 Group Homes

Agencies may weatherize eligible private, non-profit, or publicly owned long-term group homes. If a group home is owned by a religious organization, the agency shall use PB funds if PB eligible and EAP funds if not PB eligible.

Group homes are eligible when they meet the household and building eligibility criteria above. The agency shall establish the number of units in the building using the Separate Living Quarters definition in Chapter 1. For example:

- Single Units: If residents share a kitchen, the building may only be qualified as a single unit with all residents counted as one household for application purposes.
- Multiple Units: If the group home is composed of more than one unit, determine eligibility for each unit and treat it as the building type it most closely resembles (e.g., 2 to 4-unit).

The owner or operator of a group home is required to pay at least 15 percent of the total cost of weatherization if space heating is billed to an account paid by the owner or operator or the owner/operator provides the heat.

3.3.2 Temporary Shelters

A temporary shelter is any unit or units whose principal purpose is to house, on a short-term basis, individuals who may or may not be related to one another (e.g., transitional housing for homeless persons, domestic abuse shelters). Nursing homes, prisons, or similar institutional care facilities are not eligible temporary shelters.

Agencies may weatherize temporary shelters without an income eligibility test or WHEAP application. However, only properties owned by non-profit entities or units of government and their subsidiaries, such as housing authorities, are eligible. If a temporary shelter is owned by a

religious organization, the agency shall use PB funds if PB eligible, and EAP funds if not PB eligible.

The owner of a temporary shelter is required to pay at least 15 percent of the total cost of weatherization if space heating is billed to an account paid by the owner or operator or the owner/operator provides the heat.

For the purpose of determining how many units exist in a shelter, an agency shall count each 800 square feet of the shelter living area as a unit **or** count each floor of the shelter that has living area as a unit.

3.3.3 Buildings Containing Commercial Property

Commercial property is not eligible for weatherization. If a building contains one or more eligible units **and** is also used for commercial purposes, only the part of the building that is residential may be weatherized.

Where a measure will need to be installed on both the eligible unit and commercial area to be effective (e.g., insulating sidewalls) the agency shall charge the portion associated with the eligible unit to the program and charge the portion associated with the commercial area to the property owner. The cost of weatherizing the commercial space charged to the property owner may not be counted toward a required owner contribution for weatherization of the residential space. If the property owner declines the measure or declines to pay for the portion associated with the commercial area, the building shall be denied.

3.3.4 Owner-occupied Multifamily Buildings – Condominiums

If each unit in a multi-unit building is separately owned and occupied by the owner, then each eligible unit shall be created as a separate building in HE+ System/WisWAP. Work on common area measures is allowed only when all units in such a building are occupied by eligible households.

3.3.5 Limitations and Exceptions to Building Eligibility

A building is not eligible for weatherization, even if occupied by an eligible household, if the building was previously weatherized with program funds, unless:

- The building was damaged by fire, flood, or natural disaster, and repair of the damage to weatherization materials is not covered by insurance; or
- The building is eligible for re-weatherization.

If the occupancy of the unit changes to another low-income family, the unit does not become eligible for additional weatherization. A building is not eligible for weatherization, even if occupied by an eligible household, if a federal, state, or local program has designated the building for acquisition or clearance within 12 months from the date weatherization would be scheduled to be completed.

3.4 Proof of Ownership

The agency is responsible for verifying ownership by obtaining a copy of one of the following documents and retaining the documentation in the customer file and upload to the HE+ System/WisWAP:

- Property tax bill, deed, or verification statement from the county assessor's office.
- Life-estate or life-tenancy documentation that is recorded with the County Register of Deeds. If the life-estate is included in the provisions of a will made by the former owner of the property, the requirement for registration may be waived. Contact the [HE+ Help Desk](#) for further guidance.
- A land contract, the buyer may be considered the property owner if the land contract is registered with the county and the buyer is responsible for paying property taxes and building maintenance. Notarization of a land contract does not establish the buyer's claim to the property.
- A Quit Claim Deed and required additional information, including but not limited to evidence that the tax records show the new owner as responsible for paying property taxes or evidence the giver of the deed was the owner of the property at the time of conveyance. A Quit Claim Deed alone is not sufficient proof of ownership.

3.4.1 Manufactured Homes

Mobile or manufactured homes on private property are not required to be titled according to State of Wisconsin law. If a customer resides in a mobile or manufactured home that is on private property and does not have a Certificate of Title, a Bill of Sale, or a copy of a Homeowner's Insurance, the customer must provide documentation that identifies the owner of the property where the address, such as property tax records, deed, or other verification of ownership of the land on which the manufactured home sits.

If a customer resides in a mobile or manufactured home that is located in a mobile home park or community (not on private property) and does not have a Certificate of Title, the agency may complete a title search through the Department of Safety and Professional Services (DSPS) website at <https://esla.wi.gov/verifylicense>. If the search returns a report with the correct owner's name, a serial number, and a title number, a printed copy of that report will serve as a substitute for the Certificate of Title. The agency is encouraged to work with the customer to obtain a title by mailing the completed application and necessary payment to the [DSPS](#).

If the customer is unable to provide or acquire a title, the following documents may provide sufficient proof of ownership:

- Bill of Sale;
- Copy of the Homeowner's Insurance where the document provided identifies the household member's name as the building owner and describes the building (e.g., serial number, make and year);
- Property tax or municipal permit fee records that name a household member or homeowner as responsible for the taxes at the address listed on the HE+ Application.

3.5 Denial of Weatherization Services

Agencies shall provide comprehensive weatherization services to eligible units occupied by eligible low-income persons. Weatherization services shall be denied when:

- The housing type is not an eligible building.
- The building was previously weatherized and is not eligible for re-weatherization.

Upon denial of weatherization program services, the applicant shall be given a copy of the agency's appeal procedure (see [3.7 Appeal Process](#)).

3.6 Deferral of Weatherization Services

The decision to defer work is difficult but necessary in some cases. Whenever appropriate, educational information on how to address the deferral reason shall be shared with the customer. Agencies shall pursue reasonable options on behalf of the building owner and use good judgment in dealing with difficult situations. Agencies shall not defer service without pursuing other options and identifying other resources to address identified hazards.

The Division administers several housing programs that may be appropriate referral resources, including:

- [Community Development Block Grant \(CDBG\) - Small Cities Housing Program](#)
- [CDBG – Housing Revolving Loan Fund Program](#)
- [HOME Homebuyer and Rehabilitation Program](#)
- Weatherization Readiness Funds: [DOE WRF](#), [LIHEAP](#), [Public Benefits Repair \(see 8.10.1\)](#)

Weatherization services shall be deferred when:

- The customer refuses major measures which would result in a “partial” weatherization of a unit, per [WPN 23-6](#) – Attachment 8. The decision to decline a major measure must be documented in the customer file.
- Repair measures (per measure type) \leq \$1000 cause the proposed cumulative SIR to drop below 1.0 for DOE jobs, and 0.80 SIR for Public Benefits or LIHEAP funded jobs and the agency chooses not to use the LIHEAP or Public Benefits Repair (ZZ Repair codes) option or it is not an eligible housing type to address the reason for deferral. Agencies shall then defer all services to the customer until the repair issue is addressed with other funds.
- Any repair measures (per measure type) $>$ \$1000 will result in a deferral. LIHEAP, Public Benefits or DOE Weatherization Readiness Funds (ZZ Repair Codes) can be used to address this reason for deferral. Agencies shall then defer all services to the customer until the repair issue is addressed with other funds if readiness funds are not used.
- A manager, or designee, review of health and safety costs is required for single-family houses and mobile homes where completed energy audits show total estimated health and safety costs of \$5,000 or greater. A note of the agency approval shall be included in the building file in the HE+ System/WisWAP. Estimated health and safety costs in excess of \$5,000 may indicate that an excessive proportion of the work to be completed

is not expected to generate sufficient energy savings to proceed with weatherization. LIHEAP, Public Benefits or DOE Weatherization Readiness Funds (ZZ Repair Codes) should be considered on a case-by-case basis to address deferral issues.

- The building condition or occupants present a serious crew safety concern.
- There are no energy conservation measures to complete and/or the cumulative SIR is less than 1.0 for DOE funded jobs, and less than 0.80 for Public Benefits and LIHEAP funded jobs. All jobs must have ECMs to use Repair or Health and Safety funds.
- Replace, repair, or install primary heating systems when existing primary heating systems are unsafe, inoperable, or nonexistent. No home may be left without a safe primary heating system after weatherization where climate conditions require heating (i.e., all climate zones except zone 1 as defined by ASHRAE). If unable to meet this requirement, deferral is required.
- There are changes to household eligibility status.
- The building is listed for sale, in foreclosure proceedings, or is foreclosed.

Pictures documenting the reason for deferral shall be part of the customer file record and uploaded to the HE+ System/WisWAP. Agencies shall create a building in the HE+ System/WisWAP reporting system, document the deferral status, and select the reason(s) for deferral. As shown in Table 3.1 below, most deferral reasons require a notification letter be sent to the customer unless accessing DOE WRF, PB or LIHEAP Repair funds to address the reason for deferral. When planning to use DOE WRF, PB or LIHEAP Repair funds, mark the building as deferred but do not send a deferral notification.

Special conditions apply to asbestos deferrals and corrective action taken by the customer ([WPN 22-7](#)). See [9.6 Asbestos-Containing Materials \(ACM\)](#) for additional information.

Table 3.1: Deferral Reasons and Notification Letters

| Deferral Reasons | Notification Letter Required |
|--|------------------------------|
| Air Quality: Chemical or Combustion Hazard | Yes |
| Asbestos: Non-vermiculite | Yes |
| Asbestos: Vermiculite-Attic | Yes |
| Asbestos: Vermiculite-Sidewall | Yes |
| Building for Sale or in Foreclosure | Yes |
| Clutter/Restricted Access to Work Areas | Yes |
| Dangerous/Illegal Activity | Yes |
| Lead Paint Hazard | Yes |
| Mold/Moisture | Yes |
| Occupant Health condition | Yes |
| Possible Asbestos-Containing Material | Yes |

| Deferral Reasons | Notification Letter Required |
|---|------------------------------|
| Refused/Unable to Pay Contribution | No |
| Remodeling | Yes |
| Repair: Structural and/or Electrical Deficiencies | Yes |
| Sewage/Animal Feces | Yes |
| SIR < 1.0 DOE or < 0.80 PB/LIHEAP based on Modeling | Yes |
| SIR <1 due to repairs/H&S | Yes |
| Vermin/Pests | Yes |
| Water/Moisture Issues: Basement, Roof, or Ceiling | Yes |
| Other | Yes |

3.6.1 Deferral Notification Requirements

Upon the decision to defer weatherization program services, the customer shall be notified in writing within five working days based on Table 3.1 above. The notification shall be sent by mail or hand delivered. Agencies shall continue to make appropriate referrals to any programs available to assist customers in resolving the deferral issue(s). A notification letter is not required to be sent to the customer when plans are to use repair or Weatherization Readiness funds to address the reason(s) for deferral; however, the building shall be placed in deferral status until weatherization work is able to begin and all repairs have been completed,

Notifications shall include:

- A copy of the agency’s appeal procedure.
- The Deferral of Service Notification Template is available in the HE+/WisWAP System.

The notice shall include the reason for the deferral, and the means by which the customer can rectify the situation so the weatherization measures can be performed. The requirements for rectifying the deferral shall be reasonable and appropriate to the severity of the situation being addressed. The agency shall provide the customer a reasonable timeframe to correct the identified issue. The deferral notice shall indicate the date in the Form on the HE+ System/WisWAP.

Any eligible customer that complies fully with these requirements shall be reinstated and the status of the building in HE+ System/WisWAP can be changed to In-progress so weatherization work can progress as soon as reasonably possible. There is no time extension for the eligibility period due to a deferral. If the unit cannot be reported as complete within the eligibility period, the customer must reapply for WHEAP, and they do not retain their priority.

3.7 Appeal Process

Agencies shall have an internal appeal process. Upon the deferral or denial of weatherization program services, the customer shall be given a copy of the agency’s appeal procedure. The



appeal process may be the same when an applicant is denied service or when service is deferred. If, after following the appeal process, a customer wishes to contact the Division, they shall be provided with the HE+ Plus Hotline number: 1-866-HEAT-WIS (432-8947).

3.8 Tenant Notification

By signing the Rental Work Agreement, the owner agrees not to raise rent(s) for a period of one year, beginning on the date of the completed final inspection, because of the increased value of the unit(s) when the value is increased solely because of the weatherization work. Agencies shall inform tenants of this rent provision. An optional Tenant Notification form is available on the [Home Energy Plus Training & Technical Assistance \(HE+ TTA\) website](#) under the Forms heading. If a complaint arises due to an alleged violation of the Rental Work Agreement and the complaint is not resolved through the agency complaint process the tenant may submit a written request for investigation to:

Department of Administration
Division of Energy, Housing and Community Resources
Quality Assurance Section
PO Box 7970
Madison, WI 53707-7970

3.9 Owner Contributions

In rental buildings with two or more units where owners are responsible for paying heating costs or that have a shared meter for space heating, owners are required to make a contribution amounting to a minimum of 15 percent of the total cost of the weatherization work. Non-profit organizations that are owners or managers of eligible rental property are not exempt from the 15 percent contribution requirement. Owners who are themselves eligible for WHEAP are exempt and **not** required to make an owner contribution. An owner shall meet the contribution requirement with a cash contribution.

Agencies wishing to collect additional contributions from rental building owners shall draft an agency policy and request approval via the [HE+ Help Desk](#).

3.9.1 Multifamily (5+ unit) Buildings

Owner contributions may be used to cover the cost (or a portion of the cost) of any allowed weatherization measure that does not meet a minimum 0.80 SIR test under the following conditions:

1. The owner's contribution shall be equal to or exceed the buy-down amount needed to generate a measure SIR greater than or equal to 0.80 for Public Benefits and/or LIHEAP funded jobs.
2. The owner's contribution shall be at least 15 percent of the total cost of measures performed when the heat is provided through a shared meter.
3. The buy-down of measures shall not result in other cost-effective measures being dropped. All measures that were cost-effective after the initial energy audit remain a part of the list of measures to be completed.

4. The cumulative SIR shall be greater than or equal to 0.80 for Public Benefits and/or LIHEAP funded jobs.
5. There shall be documentation in the customer file of the energy audit, including measures that will be completed which have an initial SIR of less than or equal to 0.80 for Public Benefits and/or LIHEAP funded jobs.
6. A summary of all costs associated with the weatherization of the building shall be retained in the customer file and uploaded to the HE+ System, including documentation of owner's contribution.
7. The owner's contribution can be used for the replacement of water heater(s) not eligible as an energy conservation measure. A copy of the paid invoice for the water heater(s) shall be uploaded to the HE+ System for documentation. See Section 8.7.3.2 Multifamily Water Heater Replacement Specifications for additional information.

Chapter 4.0 | Baseload Services

4.1 General Policy

Baseload Services is a program available for 1 to 24-unit buildings and is funded with Public Benefits and EAP funds only. Receipt of Baseload Services does not prevent an eligible unit from receiving full weatherization services in the future. Baseload Services and full weatherization do not have to be completed within the same contract year. See [4.6 Expenditures, Budget Lines, and Direct Labor Rate](#) for additional guidance.

4.1.1 Eligibility and Priority of Service

An agency shall target Baseload Services as described in [2.1.3 Priority of Service](#). Households are eligible for Baseload Services when they meet all eligibility requirements for the weatherization program. Such households may include:

- Units with an SIR < 0.80; or
- Households that are referred by the WHEAP agency and receive heating system work under the Home Energy Plus Program Services, such as Emergency Furnace or Non-Emergency Furnace services; or
- Households with high electrical use.

4.1.2 Assessments and Work Agreements

A computerized energy audit is not required for buildings to be considered for Baseload Services. The agency shall complete an initial visit to assess Baseload needs prior to delivery of refrigerator and/or freezer measures. The agency may complete lighting measures during the initial visit. The agency shall use the Baseload Services Work Agreement and shall address rental property-related items such as owner contribution and ownership of appliance(s), as required.

If the agency performed an energy audit of the building, then that audit may count as the initial visit; however, the agency shall verify that the audit reflects the current building conditions, including verifying the same appliances observed during the energy audit are still present and verify the customer has a current eligible application in the HE+ System/WisWAP. All Baseload work shall be completed within one year of the HE+ application date.

Applicable Weatherization Program Manual requirements relating to materials and provision of services apply, with the exception of items identified in this chapter.

4.1.3 Documentation and Customer Files

[2.2.3 Customer Files](#) applies as follows for buildings that receive Limited Services:

- Retain items 1 – 4 at a minimum, and all documentation (including photographs) relating to site conditions, expenses, decisions, and activities performed related to the building.
- Recordkeeping requirements related to qualification for services, status determinations, and rental property apply.
- Photographs shall include, at a minimum:

- The view of the unit’s exterior – all sides
- Each appliance prior to replacement, including the nameplate showing model information, etc.
- Providing the Baseload Services customer with a Weatherization Customer Guidebook is optional.

4.2 Allowable Measures

The delivery of Baseload Services shall meet or exceed Wx Program standards. The agency shall recommend measures on the basis of the requirements; however, customer acceptance of all recommended measures is **not** required. The following table provides a summary of the allowable measures included as Baseload Services, along with applicable requirements:

Table 4.1: Allowable Baseload Measures

| Measure Category | Measure Detail |
|------------------|---|
| Lighting | LED Bulb |
| | LED Exit Light |
| | Halogen Torchiere Replacement |
| Refrigerator | Remove Existing Unit(s) |
| | Replacement |
| Freezer | Remove Existing Unit(s) |
| | Replacement |
| Water Heater | Electric to Natural Gas conversion only |

4.2.1 Refrigerator Replacement and Removal

Follow all applicable policies and requirements in [8.8 Baseload Measures](#), with the following exception: A functioning refrigerator manufactured prior to January 1, 2004, is eligible for replacement with a properly sized new unit. The agency may replace a newer refrigerator if NEAT/MHEA modeling indicates an SIR of 0.8.0 or greater for the replacement.

4.2.2 Freezer Replacement and Removal

Follow the applicable policies and requirements in [8.8 Baseload Measures](#), with the following exception: A functioning freezer manufactured prior to January 1, 2004, and greater than or equal to 7 cubic feet, is eligible for replacement with a new manual-defrost unit of comparable or smaller size. Consolidation of two or more existing freezers with a single new replacement is allowed if both existing freezers qualify for replacement. The agency may replace a newer freezer, if NEAT/MHEA modeling indicates an SIR of 0.80 or greater for the replacement.

4.2.3 Refrigerator and Freezer Specifications

Technical specifications are available in Refrigerator/Freezer Attachment 4 available on the [HE+ TTA website](#) under Weatherization | Procurement.

4.2.4 Water Heater

An Electric to Natural Gas conversion water heater replacement is allowable as a Baseload measure when an existing natural gas service is available in the building. Follow all applicable policies and requirements in [8.7.3 Water Heater Replacement General](#).

4.3 Reported Units and Quality Control

A building does not need to receive all allowable Baseload measures in order to be reported as a Baseload Services unit. The status of units served in the Baseload Services program should be tracked in program data systems as “Deferred”. A final inspection is not required for every unit that receives Baseload Services. If the Baseload job receives full weatherization, that inspection may count toward meeting the 5% QCS requirement.

Mobile homes shall not be reported under Baseload Services. Mobile homes shall be reported as a regular unit. If the unit comes out of deferral status, contact the [HE+ Help Desk](#) to request a rework job to account for the additional measures.

4.4 Future Full Weatherization

When full weatherization will occur within one year of the completion date of Baseload Services, the original water heater, refrigerator and/or freezer energy usage may be modeled to take credit for the energy savings. A comment shall be entered in the comment box on the Weatherization Assistant measure to explain that replacement(s) occurred under the Baseload Services Program.

4.5 Warranty Requirements

The agency shall warranty Baseload Services workmanship and products for at least one year commencing from the date of installation.

To avoid excess costs associated with replacing failed light bulbs, light bulbs that fail within the warranty period shall be exchanged in a cost-effective manner, such as having customers bring failed light bulbs into the agency office for exchange.

4.6 Expenditures, Budget Lines, and Direct Labor Rate

Charge those costs associated with the *installation* of Baseload measures (e.g., measure-hours and materials) to the Wx Operations budget line only. Charge support costs related to Baseload Services to the Wx Program Support budget line, as allowable. Baseload Services Program Support costs are limited to Public Benefits and EAP funds.

Count Baseload measure-hours toward Available Production Hours in the Direct Labor Rate calculation; do not deduct Baseload measure hours.

The agency may move unspent Baseload Services funds to the Wx Operations, Wx Health & Safety, or Wx Program Support budget lines.

Chapter 5.0 | Financial Standards

5.1 Procedures and Documentation

The agency shall establish and maintain fiscal control and accounting procedures as required in [Wis. Stats. 46.036\(4\)](#) and the federal regulations in [2 CFR Part 200](#). These procedures shall be in writing and consistently applied, and shall include procedures for determining the reasonableness, allocability, and allowability of costs in accordance with the provisions of the applicable federal cost principles and the terms and conditions of the award. Agencies shall maintain accounting records on a double entry basis. Agencies are strongly encouraged to maintain records on the accrual basis of accounting. Agencies shall maintain separate accounting for distinct programs and activities, and for allocating program expenses to grants and awards that provide funding for the program.

The agency shall, before each new contact, submit to the Division a contract plan establishing contract goals and performance benchmarks. The Division will review the submitted plan and may request changes. The Division will regularly, during the term of this contract, review performance toward contract goals. Contract allocations may be adjusted based on the outcome of the contract performance review.

Federal and state regulations require the Division to perform regular quality assurance monitoring of Agencies' technical, operational, and management performance. This monitoring is accomplished through work including, but not limited to, field inspections, investigation and resolution of complaints, and regular review of agency performance metrics, administrative processes, procurement activities, accounting and data management systems, or financial reports and audits. Agencies shall support, facilitate, and cooperate with all Division monitoring activities, being responsive to data and document requests and making personnel and resources available to Division-designated staff conducting quality assurance activities. Agencies shall respond to Division monitoring efforts within time frames required by the Division. The Division may require the creation of corrective action plans as deemed necessary. Agencies shall implement Division-approved action plans immediately, adjusting policies and procedures, implementing recommended training activities, or completing other corrective activities as required.

Agencies shall immediately notify the Division of all changes in key personnel, including the program manager or director of the weatherization program, the chief executive (CEO, Executive Director, etc.), leader of the Board (Chairperson or President), or the senior financial manager/administrator. Agencies shall immediately notify the Division of any potential financial conditions that could adversely impact program operations. Examples of these conditions include pending legal activity by a vendor, customer, or employee; organizational cash flow shortages; and allegations or investigations of fraud or embezzlement. Failure to notify the Division of potentially adverse financial conditions is sufficient grounds for immediate termination of the contract.

5.1.1 Source Documentation

Agencies shall maintain at least the following documentation of funding sources (see [2.2.5 Record Retention](#)):

- Approval to secure funds,
- Applications and requests for modifications,
- Signed contract and modification approvals,
- Board minutes, and
- Proof of receipt/deposit slip, including date, amount, source of funds, and identification of receipt of funds in cash ledger.

5.1.2 Expenditure Documentation

Agencies shall maintain at least the following documentation of expenditures:

- Written prior authorization where required,
- Budget approval,
- Budget amendment approval,
- Extension of vendor contracts,
- Internal prior authorization,
- Purchase order,
- Travel authorization,
- Employee contract or time records signed by employee and supervisor,
- Proof that goods or services were received, bill of lading, and receipt or invoice marked “received” with initials or name of person accepting delivery, and
- Proof of payment using check stubs or copies of checks/vouchers including:
 - Source of funds,
 - Date paid,
 - Amount paid,
 - Authorization of payment, and
 - Identification of application in disbursement ledger.

5.1.3 Cash

- Agencies shall make intact deposits (no cash back).
- The Division does not allow cash payments except from petty cash.
- It is not necessary to keep funds from separate grants (contracts) in separate bank accounts; however, Agencies shall maintain separate financial records for each grant.
- Agencies shall perform bank reconciliation at least once per month.
- Advances may only be used for allowable weatherization costs that occur during the grant period.

Grant funds may only be used for allowable weatherization program expenses. Any use of weatherization program funds for expenditures other than those allowed by the weatherization program, even on a temporary basis, may result in immediate termination of the contract.

5.1.4 Financial Audits

Agencies shall have an annual certified audit performed utilizing Generally Accepted Accounting Principles and Generally Accepted Auditing Standards. When corrective action plans for audit findings are developed in response to audit findings, they shall be immediately forwarded to the Division.

Federally Funded Awards:

Governmental and Non-profit Grantees, or their assignees, that expend federal funds during their fiscal year shall comply with the federal regulations in [2 CFR Part 200 Subpart E](#), and the State Single Audit Guidelines issued by the Wisconsin Department of Administration. Audit reports are due to the Federal Audit Clearinghouse within the earlier of 30 calendar days after receipt of the auditor's report(s), or nine months after the end of the audit period.

State Funded Awards:

If an audit is required under the federal regulations in [2 CFR Part 200 Subpart F](#) as described above, then this section does not apply as State Funded Awards will already be included in that audit.

Governmental and Non-profit Grantees, or their assignees, which received state funds during their fiscal year, shall comply with the requirements set forth in the State Single Audit Guidelines issued by the Department. Audit reports are due to the Department within the earlier of 30 calendar days after receipt of the auditor's report(s), or nine months after the end of the audit period.

Review the Department of Administration's [Single Audit Compliance Supplement](#) for details on submission of the reporting package. Questions or comments on the State Single Audit Guidelines should be directed to the DOAS Single Audit Coordinator.

Article 29 from the contract states that audit reports shall be emailed as a text searchable, unsecured PDF file to DOADOASSingleAuditCoordinator@wisconsin.gov. In addition, audit reports shall be emailed as a text searchable, unsecured PDF file to DOASSAGGeneral@wisconsin.gov.

Agencies shall have a method for resolving questioned costs.

The selection of the audit firm shall comply with procurement requirements, with the following exceptions:

1. A Request for Proposal (RFP) shall be used instead of Weatherization Request for Bid (RFB) template.
2. An RFP is required regardless of cost.

See [6.11 Financial Audit Request for Proposal](#) for more information on procurement of financial audit services.

5.1.5 Interest Income

Interest income is income earned on advances of program funds. Agencies shall maintain unspent advance balances in interest-bearing accounts. The accounts shall be liquid and carry no penalty for early withdrawal. During the contract year, advances are reallocated among program funding sources (DOE, LIHEAP, and Public Benefits) as funds are expended.

Interest shall be allocated to the appropriate Weatherization funding source based on the advance funding at the time the interest was earned, as shown on HE+ System/WisWAP Fiscal-Interest Income Allocation Report. Agencies shall report interest earned monthly on the invoice in HE+ System/WisWAP. To the extent possible, interest earned after June 30, but associated with the prior year's contract shall be included in the close-out report. Any necessary amendments to the interest reported in the close-out may be conveyed to the Division by e-mail.

Interest earned on DOE funds **over \$500** shall be returned to the State quarterly. Checks shall be made out to the U.S. Department of Energy and submitted to the Division. Interest earned on LIHEAP and Public Benefits funds, and interest earned on DOE funds totaling \$500 or less may be retained by the agency and shall be used for weatherization program purposes. Interest earnings are not Job Cost Reduction funds.

5.1.6 Material Purchasing

The Division does permit blanket purchase orders. Material purchases shall be tracked to an individual job or managed through a material inventory system that tracks assignment to an individual job. Agencies shall have a process in place for tracking purchases through the process if using blanket purchase orders.

There shall be documentation of each material purchase including:

- Vendor identification
- Job identification number (when applicable)
- Quantity
- Unit description
- Unit price
- Authorizing signature
- Date

For materials stored at the agency there shall be a material inventory log, a record of all obligations and a way to identify unpaid obligations.

5.2 Disallowed Costs

Disallowed costs are expenses that are not reimbursable using grant funds, as determined by the Division. If the Division cannot determine if an expenditure is allowable due to inadequate records or documentation, the questioned cost will be disallowed. Agencies shall reimburse the Division for the amount of any disallowed costs. Disallowed costs include but are not limited to:

- Production and Quality Bonus and/or incentive pay for staff or contracts.

- Interest expenses, except as allowed under [2 CFR 200.449](#).
- Rework expenses except when specifically authorized by the Division.
- Equipment and vehicle purchases with funds other than PB, except when a disposition or trade-in is specifically approved by the Division.
- Unusable, damaged, or lost materials in excess of the limit specified in Section 5.3.2 below.

The Division **does not** allow the use of Training and Technical Assistance (T&TA) funds for:

- Costs related to attending meetings (except as noted in 5.3.7 below); or
- Equipment purchases over the life of a contract that total more than \$5,000, without prior written approval from the Division.

5.3 Allowable Costs

An agency shall expend funds provided under contract in conformance with the approved Contract Work Plan (weatherization contract Attachment H) and the following limitations:

1. Administrative expenditures shall not exceed 10 percent of the budgeted amount per funding source. Total administrative expenditures may exceed the percent specified in an agency's contract and the contract planning workbook if original amount allocated was not 10 percent. Documentation of expenditures is required of total actual allowable expenditures.
2. Agencies claiming all the administrative expenses as specified in their CPW but falling short on production are currently required to reimburse the Division for all administrative expenses claimed that exceed the percentage amount of total allowable expenditures except as specified below.
3. The Division will use the "Monthly Production Vs Contract Plan" report in HE+ System/WisWAP to analyze budget and production percentages. If the "% of Annual Budget" expenditures do not exceed the "% of Annual Units Goal" by more than 5%, Agencies will not be required to reimburse the Division for administrative expenses claimed in excess of the CPW administrative percentage of total allowable expenditures. Agencies should ensure that they have the documentation necessary to support the expenses for their annual single agency audit. Agencies that exceed the 5% ratio, will be evaluated individually by the Division, in consultation with the agency to determine, what, if any reimbursement will be due to the Division.
4. DOE Health and Safety budget shall not be overspent.
5. T&TA budget shall not be overspent, and under-spent DOE T&TA funds shall not be used to cover over-spending of other funds.
6. Public Benefit (PB) funds may be used only in territories being served by a retail electric utility that is collecting fees and participating in the state Public Benefits Program under [Wis. Stats. s.16.957](#).
7. Funds cannot be transferred between funding sources.
8. Expenditures shall meet the reasonableness, allocability, and allowability requirements of generally accepted accounting principles (GAAP) and federal regulations in [2 CFR 200](#).

9. Administrative and Support expenditures shall be invoiced from each fund proportional to the Operations expenditures and should generally align with the monthly production plan in the Contract Planning Workbook.
10. Agencies shall monitor and manage average unit costs in relation to their contract plan. At the close-out of a contract cycle, the percentage of total annual budget expenditures (excluding T&TA) shall not exceed by more than 5 percent the percentage of annual unit goal completions. This data is found in the HE+ System/WisWAP “Monthly Production vs. Contract Plan” report.
11. Except as stated above, positive balances in one budget line item may be shifted to cover cost overruns in other line items. Costs shall be in accordance with applicable state and federal regulations.
12. All costs expensed to a contract shall fall within the contract period. All principal payments on lines of credit shall be made only with funds from the contract period in which the expenses were incurred. The only exception is for financial audit fees, which, even though the expense relates to a prior contract period, shall be expensed to the current contract.
13. Expenditures incurred for the installation of allowable measures on a completed unit shall be reimbursed under the contract year the unit is reported completed. Costs for the installation of allowable measures may be accrued prior to the contract year in which a completed unit will be reported and reimbursed when the unit is reported as completed (Advance funds shall not be used to cover these costs). To avoid disallowed costs, an agency shall ensure that all measures are active and allowable under the subsequent contract.
14. **Incentive Compensation: Recruitment, Referral and Retention Bonuses**

The agency may elect to use up to 2% of the full contract allocation for bonuses as described below. Agencies shall use best judgement to develop a plan that includes eligibility criteria, such as satisfactory performance, that allows the flexibility based on needs within the organization, the Weatherization Assistance Program and budget allocation. The timeframe to payout bonuses shall be incorporated into the agency plan. Bonuses will be allowable only with Program Support and Administration Public Benefits funds based on the budget category that pays the employee wages. Weatherization crews shall be paid out of Public Benefit support. Agency developed Recruitment, Retention, Referral Bonus plans will not need to be submitted to the Division but will be reviewed during the Program Administrative Review. **Production bonuses are not permitted. Year-end bonuses are not permitted with program funds if there is a surplus of contract funds at the end of the contract.** All weatherization employees shall be informed of the agency Bonus plan prior to implementation and before services are rendered. Agencies shall track the number of employees hired and retained using these funds and provide this information to the Division upon request.

 1. **Recruitment Bonus (per staff person) Optional**

Prorated at various intervals based on meeting bonus plan milestones and satisfactory performance. Administrative and financial positions are also eligible and should be prorated if they also have non-weatherization responsibilities.

2. **Retention Bonus (per staff person) Optional**
Retention bonus on an escalating amount based on longevity in the program for new and existing staff. The staff member must be employed as part of the Weatherization Program and may be prorated for mid-year hires. Staff on temporary leave or those that provide other agency non-weatherization services that are not part of the WAP shall have the retention bonus prorated based on the percent time used in the applicable cost allocation for the contract year.
3. **Referral Bonus (per weatherization staff person who refers a candidate that is hired in WAP) Optional**
A weatherization staff member may be eligible for the referral bonus if a candidate is referred and hired for any Weatherization related position. The referred candidate must be a new member to the organization. The agency Policy should identify criteria and timeline on when the referral bonus may be issued to the existing Weatherization staff member.

5.3.1 Administration

Total agency administrative expenses shall not exceed the contracted percent of total actual allowable expenditures.

Under administration, an agency may charge salaries, wages, and fringe benefits for weatherization-related personnel. For agency-wide administrative, human resource, finance, and clerical positions, Agencies may charge as direct expenses only the portion of salaries, wages, and fringe benefits that can be directly allocated to the Weatherization Program. agency-wide administrative, human resource, finance, and clerical costs that are directly expensed **cannot** also be recovered as indirect costs. For more information on direct and indirect costs see [2 CFR 200.413](#) and [2 CFR 200.414](#).

The Division allows as administrative expenses such items as:

- Space
- Supplies (paper, pencils, etc.)
- Furniture
- Operational equipment (fax machines, photocopy machines, etc.)
- Computer systems and supplies
- Telephone
- Postage
- Copying
- Utilities (Weatherization Program share)
- Training (including state-sponsored or agency-developed training)
- Professional membership dues in business, technical, and professional organizations and subscriptions to trade business, technical, and professional periodicals
- Indirect costs, pursuant either to a federally-approved indirect cost rate, or election of a de minimis rate (see [2 CFR 200.414](#)), but only up to the amount allowable in an agency's administration budget lines, regardless of the federally approved or de minimis

rate.

- Out-of-State travel (with prior Division approval of the agency T&TA Workbook) when directly related to operation/administration of the Weatherization Program and allowed by contract. The T&TA Workbook must be amended and approved by the Division if the Out of state travel was not included in the prior approved T&TA Workbook.

5.3.2 Operations

Operations expenses result from installing energy conservation measures (ECMs), Health and Safety measures, and Repair measures. Measure costs may be comprised of direct labor, materials, delivery, and contractor costs.

5.3.2.1 Direct Labor

The agency shall include the following when calculating an agency direct labor rate:

- Direct labor costs, including taxes, vacation/holiday time, and job prep/transportation time,
- Supervisory costs,
- Inventory control personnel,
- Warehousing (program share of space, utilities, etc.), and
- That portion of wages and fringe benefits for the program manager and other program staff that directly relate to crew and/or contractor field operation.

Agencies are required to use the Direct Labor Rate Calculation worksheet in the Contract Planning Workbook, to calculate their direct labor rate. This calculation shall be performed, at a minimum, prior to the start of the annual contracting cycle for planning purposes, any time there are significant personnel or cost changes, and/or as directed by the Division.

The Direct Labor Rate (DLR) worksheet in the Contract Planning Workbook is designed based on the assumption that the agency will not use funds from the Training & Technical Assistance (T&TA) budget line for the wage costs of crew members or any staff splitting their time between Operations and Support (DLR-supported staff) involved in training activities. When these costs are known or can be anticipated, they should be recovered using the Operations and Health & Safety budget lines. Accordingly, enter anticipated training time for DLR-supported staff into the Contract Planning Workbook when this method is followed.

On a monthly basis, the agency shall compute the variance between actual and recoverable direct labor expenses. Recoverable direct labor expenses are determined by multiplying measure hours completed by the direct labor rate. Agencies are required to maintain a record of measure hours completed. The use of the Direct Labor Rate Monthly Variance Tracking Spreadsheet, found in the Contract Planning Workbook, to perform the monthly reconciliation is strongly recommended. It is acceptable to charge labor during training time to the Training and Technical Assistance budget.

“Measure hours completed” shall be calculated in one of two ways:

1. All measure hours worked on completed and uncompleted jobs during the month,

whether the job has been reported in HE+ System/WisWAP or not. Use this method if the agency's policy is to expense direct labor costs when incurred, rather than to inventory unbilled labor costs.

2. All measure hours on jobs that have been completed and reported in HE+ System/WisWAP during the month. Use this method if the agency's policy is to inventory unbilled labor costs, rather than expensing these costs when incurred.

The DLR shall be adjusted only if it has been determined that variances are unlikely to reverse or self-correct prior to the end of the contract. If any changes occur to the DLR within the contract, the agency shall update the WisWAP default DLR. Monthly reconciliation records shall be retained and may be reviewed for any continuing pattern of excessively high variances between actual and recoverable direct labor expenses.

5.3.2.2 Materials Installed

The cost of materials installed that meet Weatherization Program standards and specifications (see [6.12 Specifications](#)). If materials in stock no longer meet program specifications, an agency may continue to install materials that met standards when purchased, until the stock of materials is depleted, unless the Division directs otherwise.

5.3.2.3 Delivery

The cost of having a third party transport weatherization materials to the program warehouse or directly from the seller to the job site is an allowable cost.

5.3.2.4 Contractor Costs

Contractor costs are the reasonable cost of the installation of weatherization measures by a private contractor.

5.3.2.5 Repair Costs

The cost of incidental repairs, if such repairs are necessary to make the installation of weatherization materials effective, are allowable costs when NEAT/MHEA auditing requirements have been followed as required. \$ 1,000 limit per unit.

5.3.2.6 Unusable Materials

Total charges for unusable materials shall not exceed 0.25 percent of the total contract year Operations, Health and Safety, and Baseload expenses. These costs shall not be charged to a weatherization job. These costs shall not include damage to installed materials or mechanicals. An agency may only charge unusable materials exceeding 0.25 percent of the total contract year Operations expenses if approved, in writing, by the Division.

5.3.2.7 Job Cost Reduction

Job cost reduction funds are defined as the gross income earned during the contract year by an agency from grant supported activities and contributions from outside sources such as local utilities or property owners (see [3.9 Owner Contributions](#)) in support of an agency's Weatherization Program. Weatherization resources shall not be used to earn income from

activities not permitted by program rules. Job cost reduction funds shall be spent on allowable Weatherization Program activities. These activities are subject to the same regulations and conditions as other Weatherization Program funds. All income generated from the installation of allowable measures shall be returned to the Weatherization Program and used to weatherize additional units.

Job cost reduction funds shall be:

- Used within the contract year earned;
- Spent on the same job that generated the fund when feasible;
- Included in the total estimated cost when modeling the measure in Weatherization Assistant; and
- Reported in a HE+ System/WisWAP job measure when work is completed. All measures, including those paid for entirely with job cost reduction funds, shall be reported in the HE+ System/WisWAP job.

An agency shall maintain financial records by contract year of job cost reduction funds earned and spent, including the source and amount. Records of the expenditure of job cost reduction funds shall follow the same general guidelines as contract funds.

Funds from other programs such as CDBG, HOME, some utility programs, or private foundation grants are generally not considered job cost reduction funds. Leveraged funds do not need to be recorded in WisWAP if the measure is paid in full with leveraged funds and performed independently from the weatherization job. For example, if a job is deferred due to a repair issue that will be addressed with CDBG funds, the job can remain in deferred status until the repair has been completed. After the deferral reason has been corrected, the building status can be changed, and the audit can be run without the corrected repair measure. If the SIR is greater than or equal to 0.8 the agency may proceed with weatherization. Leveraged funds shall not be used to decrease the cost (“buy-down”) of a measure in Weatherization Assistant.

5.3.3 Program Support

Program support costs are allowable costs when incurred in the provision of weatherization services as described in this section.

5.3.3.1 Support Labor

Support labor includes costs for staff directly managing weatherization activities and program staff. Agencies shall not include administrative, human resources, finance, and clerical staff costs described in [5.3.1 Administration](#) without prior written approval from the Division. To request approval, Agencies shall submit a waiver request with the Contract Planning Workbook prior to the start of the contract year.

Allowable support labor costs directly tied to the installation of weatherization measures include:

- Direct supervision of Weatherization Program staff by the Weatherization Program Manager and/or Director,
- Energy audits,

- Final inspections,
- Procurement of weatherization services and commodities and associated contractor management,
- Training time not included in the Direct Labor Rate calculation or not included in the T&TA Workbook,
- Data entry in HE+ System/WisWAP, and
- Customer outreach, intake, and scheduling appointments for agency field staff and contractors.

5.3.3.2 Transportation

This is the cost of transporting weatherization materials, tools, equipment, work crews, supervisory personnel, and energy auditors. Vehicle usage expenses may include mileage reimbursement for non-agency owned vehicles and may also include expenses for agency-owned or -leased vehicles used for weatherization, such as:

- Gas and oil
- License and taxes
- Tires and vehicle repairs
- Vehicle insurance (collision and liability)
- Vehicle purchased using PB funds
- Vehicle lease
- Vehicle lease termination
- Vehicle storage costs

Vehicles purchased or leased by the WAP that benefit more than one program may make the equipment available for use on other projects or programs provided that such use does not interfere with the work on the projects or program for which it was originally acquired.

A cost allocation for vehicle usage by other programs shall include an equitable distribution of reimbursement to the WAP for all costs, including those noted above. Use the standard IRS mileage rate for passenger vehicles and light-duty pickup trucks. For crew trucks and other large vehicles, establish a reimbursement rate that accounts for all expenses including those noted above.

5.3.3.3 Tools and Equipment

The Division allows the purchase and/or lease of tools and equipment necessary to install weatherization materials effectively. Tools and equipment shall include non-consumable items such as tape measures, insulation blowers, ladders and also consumable equipment (e.g., saber saw blades, replacement filters for dust masks, blades for utility knives, etc.). A cost allocation for use of Weatherization Program tools and equipment by other programs shall include an equitable distribution of reimbursement to the WAP for all costs, including equipment maintenance and calibration expenses. See [7.1 Property](#) for further definitions of and requirements for agency property.

Repair and maintenance costs for tools and equipment are also allowable costs.

5.3.3.4 Other Support

Other support includes the following costs that occur as a result of staff performing weatherization tasks or contractors obtaining payment bonds:

- Telephones
- Office supplies
- Postage
- Copying
- Space
- Computer supplies and service contracts
- Computer equipment for production-based activities
- Equipment lease or purchase (other than computers)
- Payment bond premiums (see [6.15 Bonding](#))
- Reimbursement of travel to attend meetings of the Weatherization Operators of Wisconsin (WOW)
- Staff uniforms (includes work boots)

5.3.4 Health and Safety

An agency shall expense treatment of Health and Safety hazards in accordance with [9.1 General Policy](#). Health and Safety expenses for single-family houses and mobile homes are limited to \$5,000 unless the Program Manager or designee, has reviewed the entire audit and approved the complete work order. A document or note of the agency approval shall be included in the building file in the HE+ System/WisWAP. Health and Safety measures are to be itemized in the computerized audit, but not included in the Cumulative SIR calculation. DOE Health and Safety expenses shall not exceed the contract DOE Health and Safety budget line item. When using DOE for Health and Safety items an ECM must be associated with the same job using DOE funds.

5.3.5 Liability Insurance

The agency shall charge the cost of insurance for the following to this cost category:

- Personal injury
- Property damage
- Operations
- Product liability
- Pollution Occurrence Insurance (POI) – (See [5.3.5.1 Pollution Occurrence Insurance \(POI\)](#))

The Division strongly recommends that a competitive process is followed for an agency-wide purchase of a liability insurance policy; for example, receiving at least three quotes from an insurance broker.

The cost of liability insurance for vehicles is **not** allowed in this budget line item. It is a transportation cost. Payment of liability deductibles is not an allowable cost. Any deductible payments shall be paid only from agency (non-restricted) funds. The cost of mold and mildew coverage is **not** an allowable cost. Self-insurance is **not** allowed.

5.3.5.1 Pollution Occurrence Insurance (POI)

DOE and the Division strongly recommend Agencies, contractors, and lower-tier subcontractors be covered by a POI policy. POI coverage is not allowed for vendors providing commodities only (including refrigerator/freezer delivery), or for contracts that provide services such as energy audits or final inspections. Recommended minimum limits are \$500,000 per occurrence, \$500,000 aggregate for the policy term, and a maximum \$2,500 deductible per occurrence.

An agency shall decide whether to cover its contractors under its POI insurance as “additional named insured” or pass the liability to such contractors. If an agency chooses not to have POI or has POI but chooses not to cover its contractors, it shall inform contractors and require a signed waiver that indemnifies the agency and the State. The language suggested is as follows:

The Contractor shall indemnify and hold harmless the Weatherization agency, the State of Wisconsin, and all of their officers, agents, and employees from all suits, actions, or claims of any character brought for or on account of any injuries or damages received by any persons or property resulting from the operations of the Contractor, or of any of its agents or subcontractors, in performing work under this Agreement.

Allowable costs are for a POI policy that covers WAP-related work being performed under an agreement with a funding source to perform such work on their behalf. The cost for non-Weatherization Program work covered under a POI policy performed by crews or contractors is not an allowable weatherization cost and shall be paid for from sources other than the weatherization contract.

If an agency does not obtain POI or require contractors to have POI, the cost to do remediation, clean-up, relocation, medical expenses, any litigation/settlement, or any other resulting costs is not an allowable weatherization expense and must be covered by another funding source.

For more information on POI see the [WAPTAC FAQs – Pollution Occurrence Insurance](#).

5.3.6 Financial Audit

The Weatherization Program is classified as a major program as defined in [2 CFR Subpart F – Audit Requirements](#).

An agency shall charge the cost of the required financial and compliance audit of the Weatherization Program to the Financial Audit budget line. Do not include the cost of a financial audit in the agency’s indirect cost rate. Separate funding is available for audit costs, and the costs shall **not** be paid with administrative funds.

The cost of a financial audit shall be **either** the cost of a separate audit of the Weatherization Program **or** the Weatherization portion of an agency-wide audit.

5.3.7 Training and Technical Assistance (T&TA)

An agency shall not exceed the budgeted amount for Training and Technical Assistance. Training and Technical Assistance activities are intended to maintain or increase the efficiency, quality and effectiveness of the Weatherization Program at all levels. Such activities shall be designed to maximize energy savings; minimize production costs; improve program management, crew, and contractor quality of work; and reduce the potential for waste, fraud, abuse, and mismanagement.

An agency shall use T&TA Funds for:

- The cost of training programs and training materials,
- In-state travel costs and registration fees for training weatherization staff,
- Labor/Fringe costs for staff compensated from weatherization funds while attending weatherization related training,
- The cost of subscriptions to Weatherization Program-related periodicals,
- Program evaluation costs, including labor costs, in accordance with the program budget,
- Costs associated with in-state or out-of-state training when approved in the agency T&TA Workbook. Meal reimbursement rates shall conform to agency travel policies and shall not exceed rates established by the General Services Administration (GSA). Hotel rates shall not exceed the rate for the conference. Any travel expenses falling outside of the conference or the days immediately preceding and following are not reimbursable without a documented reason (i.e., Weather, flight delays).
- The cost of training certifications that are required by the Division or DOE, including but not limited to, Energy Auditor, Quality Control Inspector, Lead-Safe Renovator, Asbestos Supervisor, and Asbestos Inspector.
- The cost of travel to Ad Hoc Work Group meetings for designated employees;
- State-directed agency meetings;
- All or part of the cost of training contractors (see [5.3.7.2 Contractor Training](#)) is only permitted with DOE or PB T&TA funds; and
- Education for customers on energy conservation practices, including the information that is relevant to conditions noted in the home, the identification of the measures completed on their home and how to maintain those measures over their lifetime. The Wisconsin Weatherization Customer Guidebook is designed to incorporate that information for the program's customers.

Training Plans must ensure that all Weatherization field staff receives Comprehensive training. Agencies shall work to expend over 50% of the T&TA funds to Comprehensive training for retrofit installers, crew leader, energy auditor and quality control inspector.

Comprehensive:

Comprehensive trainings follow a curriculum aligned with the NREL Job Task Analysis (JTA) for that occupation. Comprehensive training is delivered in cooperation with Slipstream as a training program accredited by a DOE approved accreditation organization or a Health and Safety training/refresher offered through a separate provider.

Specific:

Specific trainings focus on a single-issue, short-term training to address deficiencies in the field (Production Based Training – PBT). Conferences, whether in-state or out-of-state are included in this category. The Management, Leadership and Professional Development Trainings delivered through Slipstream are also included in this category.

5.3.7.1 T&TA Labor Costs

Labor costs paid with T&TA funds are limited to:

- Labor that is directly linked to a specific training activity;
- Training labor hours for training of staff or a stipend for contractor employees who are compensated from Weatherization funds;
- Labor included in the approved T&TA agency Workbook;
- Labor used to provide customer education after the installation of energy conservation measures; and
- Labor required as a part of program evaluation.

There shall be complete documentation of any labor costs associated with an agency’s internal training, including the training activity/topic; the hours involved in the training, and names and positions of those trained; the development and distribution of the individualized Weatherization Customer Guidebook; and the hours charged for the participation in and support of program evaluation (e.g., state or national evaluation).

5.3.7.2 Contractor Training

Any costs associated with training contractors shall be preceded with a retention agreement in exchange for the training. Reimbursement may include the registration fee, course materials, mileage, meals, lodging costs and stipend as specified in the retention agreement. Only PB T&TA funds may be used for reimbursement of any costs associated with training of contractors.

Whenever possible, the term of a retention agreement shall coincide with the one-year contract (between the agency and the Contractor) or one-year renewal period. Otherwise, the retention agreement shall be for the duration of the contract from the time the training is provided, not to exceed one year. Training, but not certification as a Lead or Asbestos Company or maintenance of any certifications, may be provided to contractors meeting retention requirements. Note that the retention agreement requirement does not apply to agency or State contractor orientation sessions or when Agencies provide instruction to contractors on improving technique as needed.

Agencies shall consider whether the term of the retention agreement aligns with the cost of training provided. Contact the Division for additional guidance regarding this, if needed. The required Retention Agreement Template can be found on the [HE+ TTA website](#) under Weatherization | Procurement. The template may be edited as specified in the document.

T&TA funds may also be used to train contractors at the Subgrantee level participating in the Program. The use of T&TA funds to reimburse contractors is limited to T&TA that supports the four Home Energy Professionals occupations (i.e., Retrofit Installer Technician, Crew Leader, Energy Auditor, and QCI). The T&TA Plan must describe contractor T&TA activities, including:

- Description of the training topics/courses to be provided for contractors.
- Assessment of need, including estimated number of contractor employees that will attend training.
- T&TA reimbursement types and amounts.
- Description of the impact contractor reimbursements have on T&TA budget.

Guidelines for developing a policy for contractor T&TA reimbursements:

- As applicable, Contractor must be selected in accordance with 2 CFR 200 compliant procurement policies and procedures.
- Subgrantees must clearly communicate how training will be paid for during the procurement process, so contractors know what costs to exclude and include in the bid. Training must either be included in the contractor overhead or reimbursed per the approved T&TA Plan, not both.
- Subgrantees must clearly communicate the T&TA reimbursement policies and procedures in a binding agreement with the contractor.
- All funds used for contractor reimbursements must be from T&TA budget line item.
- Reimbursement for the time to attend training must be reasonable and based on Subgrantee-specific labor rates or other available data.
- Travel reimbursements must be based on actual costs, not to exceed the GSA Per Diem Rates, or equivalent

Subgrantee-specific policy.

- The plan should set limits and thresholds for contractor reimbursements, for example:
 - A fixed dollar amount per day of training or per training course.
 - Total dollars to a contractor firm.
 - Course or exam fees per trainee.
 - Limits on the number of exam retakes that will be reimbursed. Apply an exam retake policy consistently to Subgrantee employees and contractors.
 - All applicable pre-requisites are required to be eligible for the Energy Auditor and Quality Control Inspector exams.

Reimbursement should be provided per a contractually agreed upon timeline following completion of the T&TA activity including any requisite submitted documentation.

In making the determination to pay for contractors' training, Subgrantees should secure a retention agreement in exchange for the training. The retention agreement should require that contractors will work in the Program for a specific amount of time that equates to the value of the costs associated with the T&TA provided.

5.3.7.3 Out-of-State Travel

Out-of-state travel for conferences or other training shall be approved through the T&TA Workbook. Workbooks will be sent to Agencies for completion and Division approval prior to the start of a new contract year. T&TA Workbooks may be amended and submitted to the HE+ Help Desk for approval at any time during the contract year. Agencies shall have a board approved out of state travel and reimbursement policy. The policy shall be submitted with the T&TA Planning Work Plan. Agencies that do not have a board approved travel reimbursement policy shall use U.S General Services Administration, [GSA rates](#) for reimbursement.

5.3.8 Braiding Funds (DOE, PB, and EAP)

DOE funds shall only be used to weatherize 1 to 4-unit site-built homes meeting all required DOE standards and specifications. Jobs that have a cumulative SIR of 1.0 or greater, and any individual energy conservation measures (ECMs) for which DOE funding is used shall have an SIR of 1.0 or greater (air sealing is an exception) and will be reported as DOE units. Other funds must be used to pay for measures with SIRs less than 1.0. PB and EAP funds are allowed for weatherization of all housing types. In general, funds may be braided (split) on a measure basis as allowed in HE+ System/WisWAP with the following exception.

1. If a customer refuses ventilation required by ASHRAE 62.2-2016, DOE funds shall not be used. All measures in the building must be invoiced to PB or EAP. See [8.9.2 Mechanical Ventilation](#).

The following measures are funded **only** by PB and EAP. In some areas where the utility does not participate in PB, EAP may be the only available funding source.

- Water Heater Conversion – Indirect Fired Water Heater
- Freezer – Replacement
- Freezer – Remove Additional Unit
- Health and Safety Air Quality – Other Remediation
- Window Replacements / Door Replacements

Verify your agency has PB or EAP funding available for planned expenditures toward these measures. See also [Appendix D](#) HE+ System.

5.3.9 Average Cost Per Unit (ACPU)

The Department of Energy (DOE) sets a limit on the **average amount** of DOE funds that can be spent **per unit**. For Program Year 2023 to 2024, the statewide Average Unit Cost limit is \$8,009 for DOE Bipartisan Infrastructure Law (BIL) funds and \$8,250 for DOE Formula funded jobs. Agencies shall manage job costing to adhere to this average limit for DOE funds spent on all units completed in a contract year. DOE fund line items included in determining the Average Cost Per Unit are Program Support and Operations.

5.4 Reporting Requirements

The agency shall submit reports to the Division on a monthly and contract basis. The agency shall also submit special reports as requested by the Division.



An authorized agency representative shall review all reports and sign financial reports before submission. The Division reserves the right not to accept as timely reports that are incomplete or inaccurate.

When submitting electronic financial reports, clicking the “Approve” button in HE+ System/WisWAP has the same implications as a signature and shall only be performed by an authorized agency representative.

5.4.1 Monthly Financial Reports

Monthly reports shall be submitted through the HE+ System/WisWAP electronic system by the fifteenth (15th) day following each contract month. Completed unit information to be included on the monthly invoice can be entered any time before the invoice is created.

Electronic reports received by the 5th of the month will be reimbursed first and a second reimbursement for those received by the 15th. If the 5th or the 15th of the month fall on a weekend or holiday, the deadline is extended to the next business day.

Monthly financial reports are subject to a four-stage approval process before reimbursement:

1. Initial agency approval,
2. agency authorized representative approval,
3. Division representative approval, and
4. Division of Enterprise Operations (DOE) representative approval.

The expenditure reports shall present an accurate statement of allowable costs incurred for the month. The agency shall submit separate Weatherization Expenditure Reports each month for each grant funding source.

5.4.2 Unit Reporting

All measures identified in a work order shall be invoiced in the contract year the unit is reported as complete. If a measure is completed and invoiced, the unit shall be completed in that contract year. If the unit is not completed by the end of the contract year, any invoiced measure costs will be disallowed and shall be backed out and reentered for the new contract year. Costs for the installation of allowable measures may be accrued prior to the contract year in which the completed unit will be reported, and then reimbursed when the unit is reported as complete. To avoid disallowed costs, care shall be taken to ensure that all measures are active and allowable under the subsequent contract.

5.4.3 Final Program Review (Close-Out Report)

To every extent possible, all Department of Energy (DOE) funds must be fully spent by June 30th. The agency shall submit the Final Program Close-out Invoice to the Division no later than 60 calendar days from the end of the contract period or upon termination of a contract. No production charges are allowed unless approved by the Division.

Close-out Report is included when the Close-out Invoice is generated through the HE+ System and contains the following information:

- The return of unspent advance funds, by funding source, if applicable.
- The return of overspent admin amount, if applicable.

- The total number of completed units. (Must match HEPlus Average Invoice Cost per Unit Report.)
- Job Cost Reduction Reconciliation.
- Program Support Expended to Planned.
- Interest Income earned from advances, by fund source.
- Admin expended as a % of total actual allowable expenses.

The amount due on the Close-out Report for unspent advance can change upon approval of the final invoice. Checks for the return of unspent advance funds and/or overspent administration are to be made payable to the Department of Administration. Once the payment has been received, the final invoice will be approved.

5.4.3.1 Final Close-out Invoice

The agency shall submit, through the HE+ System, a final close-out invoice within 60 days from the end of the performance period. No unit production reporting is allowed on the close-out invoice.

As part of the close-out process, a reconciliation of all budget line items to actual costs must be conducted.

Reminders:

- DOE Health & Safety shall not be overspent.
- DOE Training and Technical Assistance (T&TA) expenditures shall not exceed the available budget and must be spent on eligible T&TA activities.
- Administrative expenditures shall not exceed the budget amount by fund.

5.4.3.2 Units Completed

An agency shall report the total number of units completed during the contract period on the Close-Out Report. The total number of units shall reconcile to the Average Invoice Cost per Unit HE+ System/WisWAP report which can be found in Reports/Fiscal/Average Invoice Costs per Unit.

5.4.3.3 Job Cost Reduction (JCR) Reconciliation

An agency shall report the following JCR information on the Close-Out Report:

1. Enter the Total Cost Reductions amount earned in the contract year; and
2. Enter the total Amount Expended in HE+ System/WisWAP in the contract year.

The Total Cost Reductions amount and the total Amount Expended in Home Energy Plus/WisWAP shall reconcile to the Average Cost per Measure HE+ System/WisWAP report found in Reports/Job Costing/Average Cost per Measure.

5.4.3.4 Tools and Equipment Purchased

If an agency used federal funds (DOE or LIHEAP) to purchase tools or equipment with an individual purchase price of \$5,000 or more, the agency shall provide a list and include the item description, purchase price, funding source(s), and, if applicable, the percent of funding split if purchased with more than one funding source. Include a total dollar amount for the equipment expenditures listed.

5.4.3.5 Vehicles Purchased/Leased

If an agency used federal funds (DOE or LIHEAP) to purchase and/or lease a vehicle with a purchase price of \$5,000 or more, the agency shall provide a list of vehicles purchased and/or leased and shall include the vehicle year and model, purchase price, funding source(s), and, if applicable, the percent of funding split if purchased with more than one funding source. Include a total dollar amount for all vehicle purchase(s)/lease(s) listed.

5.4.3.6 Interest Income Earned from Advances

An agency shall identify, by funding source, per contract year, the amount of interest earned from each funding source and the amount of DOE interest returned to the Division. Close-Out Reports will not be finalized until any interest owed to DOE has been returned and the Close-Out invoice reflects the amount returned. See [5.4.3 Final Program Review](#).

5.4.3.7 Weatherization Interest Income Allocation Report

The Interest Income Allocation Report is available on HE+ System/WisWAP | Fiscal to assist Agencies with properly reporting all interest income earned on advance funds to the proper fund source (EAP, PB, and DOE). Advances are made from one or more contract funds at the beginning of the contract year and Agencies are required to maintain advance amounts received in an interest-bearing bank account. As individual contract funds are expended through the course of the contract period, it is necessary for advance amounts to be reallocated to contract funds with sufficient available balances. The Interest Income Allocation report provides Agencies with the correct percent allocation breakdown by fund for the month they are reporting expenses. Agencies are required to use this report when reporting interest income amounts earned on the monthly invoice. The invoice will have the total amount of interest reported by date, broken out by funding source.

The Interest Income Allocation report is found in HE+ System/WisWAP under Reports | WisWAP | Fiscal | Interest Income Allocation. The report parameters will default to the current contract year and your agency ID/Name (based on user login credentials). Select the contract month for which expenses are being reported and click Create Report. The report results will display the percentage by fund to which an agency shall allocate and report any interest income earned on that month's invoice.

5.4.3.8 Admin Expended

An agency shall calculate the amount of allowable admin that can be reimbursed based on the total funds expended through close-out, including Job Cost Reduction, multiplied by the final approved Weatherization Monthly Contract Plan Administration Rate.

5.4.3.9 Special Reports

Special reports may be requested from the agency by the Division regarding program operations, customer services and energy savings, or other as defined by the Division. Special reports shall be submitted as indicated on the request.

Chapter 6.0 | Procurement

6.1 Procurement Requirements

Agencies shall comply with all procurement requirements of the Weatherization Program. Such requirements include a combination of State of Wisconsin and federal requirements (Code of Federal Regulations in [2 CFR 200](#); the [Wisconsin State Procurement Manual](#), [Weatherization Program Notices](#); and all other applicable federal requirements). Requirements of these rules and regulations apply, regardless of their inclusion in this Manual.

An agency is subject to the following general requirements:

1. Maintain records sufficient to detail the history of a procurement and retain documentation to demonstrate compliance with requirements. These records shall include the following: a rationale for the method of procurement, selection of contract type, contractor selection or rejections, and the basis for the contract price. Optional Procurement Records Checklists are available on the [Home Energy Plus Training & Technical Assistance \(HE+ TTA\) website](#) under Technical Assistance | Wx Procurement | Pre-Award Resources.
2. Demonstrate effort to utilize small businesses, minority-owned businesses, women-owned businesses, and disabled veteran-owned businesses (see [6.13 Affirmative Action/Contract Compliance](#)).
3. Follow open records requirements after a bid process is complete and contracts are executed with selected vendors. All open records requests are determined on a case-by-case basis (see Wis. Stats. Chapter 19, subchapter II, sections 19.21 through 19.39 and PRO-105).
4. Be responsive to inquiries or requests for information from bidders following a commodities contract award.
5. Award contracts to the lowest responsive and responsible bidder(s), in accordance with the best interests of the agency.
6. Award contracts only to responsible contractors who possess the ability to perform successfully under the terms and conditions of a procurement.

6.2 Code of Conduct

An agency shall maintain a code, or standard, of conduct that will govern the performance of its officers, employees, and agents engaged in the awarding and operation of contracts.

No employee, officer, or agent of the agency shall participate in the selection, award, or administration of a contract supported by federal or state funds if a real or apparent conflict of interest exists. Accepting gratuities, favors, anything of monetary value from contractors, or having a financial interest in a firm selected for award, would cause a real or apparent conflict of interest to exist.

6.3 Annual Procurement Planning

Annual planning to determine an agency's procurement needs is strongly recommended by the Division. An annual procurement planning template is available on the [HE+ TTA website](#) under

Weatherization | Procurement. This template can assist an agency with annual procurement planning including identifying commodities and services to be acquired and the timing and method of procurement based on potential contract cost. Use of this template is optional.

6.4 Competition

All procurements shall be conducted in a manner to provide open and free competition. Agencies should be alert to organizational conflicts of interest and non-competitive practices among contractors that may restrict or eliminate competition or otherwise restrain trade.

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

6.5 Cost Analysis

If an agency is considering a change from using primarily agency staff to subcontracting for a service (or the reverse), the agency shall perform a cost analysis prior to implementing the change. Agencies shall document the results in the procurement file.

Agency procedures shall require a review of proposed procurements to avoid purchase of unnecessary or duplicative items. Consideration shall be given to consolidating or separating procurements to obtain a more economical purchase. Where appropriate, an analysis of lease versus purchase alternatives shall be performed to determine the most economical approach.

6.6 Procurement Method and Contract Cost

Applicable requirements shall be followed based on the estimated contract cost, including:

1. Estimated contract cost shall be based on a determination of whether commodities or services could reasonably be acquired from a single procurement. When an agency chooses to purchase like items in separate purchases, the rationale for this decision shall be documented as part of the cost analysis (e.g., HE+ Program Services (Emergency Furnace, water conservation and Weatherization HVAC services were purchased separately due to the unique requirements for Emergency Furnace service)).
2. Serial contracting is the practice of issuing a series of smaller purchase orders to one or more vendors for the same (or very similar) commodity or service to avoid completing the more structured bid process that would be required if the acquisitions were completed as a single procurement. Serial contracting is prohibited.
3. RFBs and RFPs shall require that agency procurement decisions are final and not subject to appeal to the Division or the Department of Administration.
4. Agencies shall plan procurements to ensure that serial purchasing does not occur. Commodities or services that can logically be grouped together (refrigerators and freezers; bath fans and range hoods; miscellaneous weatherization materials such as lumber, hardware and adhesives, etc.) shall be procured using a method based on the anticipated aggregate dollar threshold. This aggregate total is for the term of the fiscal year beginning July 1. See Table 6.1 below.
5. Potential contract extensions shall be taken into account when calculating the aggregate

total for all procurement types.

6. When a building requires specialized equipment or services, including specialized expertise that is not covered under a prior procurement, a separate procurement is required. Provide bidders with the opportunity to acquire detailed information that allows accurate pricing for the complete scope of work.
7. When necessary, equipment or services are covered under a prior procurement Agencies have the option to perform a separate procurement for specialized or unique situations and are encouraged to do so if this option will likely result in lower overall costs.

Table 6.1: Procurement Methods and Requirements for Non-Vehicle Purchases

| Requirements | Best Judgment \$5,000 or less | Simplified Bid \$5,001 – \$50,000 | Sealed Bid (RFB) Over \$50,000 |
|--|----------------------------------|--------------------------------------|---|
| File Records demonstrating need and detailing history of the procurement | Required | Required | Required |
| Identify all applicable standards and specifications | Required | Required | Required |
| Solicitation List | Optional | Strongly Recommended | Required |
| Minimum number of bid prices required | n/a | 3 (when available) | 3 (when available) |
| Cost Sheets | Optional | Required | Required |
| Term of Contract | Purchase Order | Up to 3 years (with renewals) | Up to 3 years (with renewals) |
| Terms and Conditions | Purchase Order | Required | Required |
| HE+ Bid Template | n/a | Optional | Required |
| Public Notice of Intent | n/a | n/a | Required |
| Bid Meeting | n/a | Optional | Required as necessary |
| Public Bid Opening | n/a | n/a | Required |
| Awards to Multiple Bidders | n/a | Optional | Strongly Recommended |
| AA/CC | Optional | Optional | Required for services contracts only |
| MBE Search | Optional | Optional | Required |
| Payment Bonds | Optional | Optional | Required for services contracts only (see Section 6.15) |

| Requirements | Best Judgment \$5,000 or less | Simplified Bid \$5,001 – \$50,000 | Sealed Bid (RFB) Over \$50,000 |
|---------------------|---|---|--|
| Retention Agreement | n/a | Required if a 1-year contract is signed and agency will reimburse contractor T&TA expenses | Required if agency will reimburse contractor T&TA expenses |
| Method of Award | Vendor judged best able to supply goods or services | Lowest Responsible Bidder | Lowest Responsible Bidder |
| Contract Renewal | n/a | Optional for one-year periods (maximum 2); notice must be given in original bid specifications | |

Applicable requirements from [2 CFR 200](#) shall be followed, including:

1. The “cost plus a percentage of cost” and the “percentage of construction cost” methods of contracting shall not be used.
2. Agencies shall not use time and material type contracts, unless prior written approval has been obtained from the Division, and only:
 - a. After a determination that no other contract is suitable (the determination shall document why it is not possible to estimate the extent of work, the duration of work, or the anticipated costs), and
 - b. If the contract includes a ceiling price that the contractor would exceed at their own risk.

More specific guidance on conducting various procurement methods is available on the [HE+ TTA website](#) under Weatherization | Procurement. Agencies should contact the [HE+ Help Desk](#) if an exception is identified or if further guidance is required.

6.7 Purchases up to \$50,000

The requirement to identify the applicable Wisconsin Weatherization Field Guide and Weatherization Program Manual standards and specifications applies to both forms of procurements up to \$50,000 (See [6.12 Specifications](#)).

6.7.1 Best Judgment Purchases \$5,000 or Less

When the estimated cost of a transaction is \$5,000 or less, an agency shall select the vendor judged best able to supply the goods or services. Consider the following when selecting a vendor:

1. Location of delivery point
2. Quality of goods/services to be supplied
3. Price
4. Conformity with specifications and standards

5. Purpose for which the goods/services are required
6. Date of delivery
7. Capacity to supply the goods/services in a timely manner

6.7.2 Simplified Bid Purchases \$5,001 to \$50,000

When the estimated cost of a transaction, or multiple like transactions, is between \$5,001 and \$50,000, an agency shall demonstrate a good faith effort to obtain bid prices from three or more qualified bidders and make a selection based on lowest price. These bid prices may be:

1. Written price quotes,
2. Quotes on file (e.g., catalogs, online printouts, etc.),
3. Telephone or other oral quotes,
4. Oral quotes shall include the name of the firm and individual, date, price quote, delivery information, and other pertinent information.
 - a. When an oral quote is accepted, the bidder must confirm the bid in writing.
5. Written bids.

To increase the likelihood of a pool of qualified bidders, developing a solicitation list is strongly recommended (retain this documentation as part of the procurement record).

In the event that a simplified bid solicitation does not result in three bids, document that at least three appropriate, qualified bidders were solicited. Document steps taken (solicitation list, mailed or e-mailed invitations to bid, etc.) to obtain multiple bids.

When procuring services with a simplified bid, bidders shall be provided with a written document that includes method of award, cost sheet, specifications, and applicable terms and conditions. The agency shall use the modified version of the terms and conditions for Simplified Bidding, available on the [HE+ TTA website](#) under Weatherization | Procurement and select the terms and conditions applicable to the procurement action.

Document all received bids on a written bid summary form. The form may be any format designed by the agency; however, it shall contain information showing the basis for the selection (e.g., low cost, delivery terms, etc.). An exception to this requirement applies to vehicle purchases in the range of \$5,001 to \$50,000 (see [6.9.1 Modified Simplified Bid for Vehicle Lease or Purchase \\$5,001 to \\$50,000](#)).

The contract renewal terms identified in Section 6.8.3 (below) may also be incorporated into a simplified bid process, using the same conditions.

6.8 Sealed Bid Purchases over \$50,000

The Sealed Bid process is used for soliciting bids from at least three bidders (when available) when the procurement is expected to cost over \$50,000. This process is also referred to as Request for Bid (RFB). There are different requirements for procurement of vehicles over

\$50,000 (see [6.9.2 Sealed Bid Vehicle Lease or Purchase from Sources Other than agency](#)). A Request for Proposal (RFP) process is required for financial audit services regardless of cost (see [6.11 Financial Audit Request for Proposal](#)).

For the procurement of services and commodities, except for a financial audit, the agency shall use the required templates and attachments available on the [HE+ TTA website](#) under Weatherization | Procurement. Agencies shall modify RFB templates only as directed by notes within the documents and by direction provided by the Division. Cost sheet and specification attachments may be edited by the agency as needed.

6.8.1 Bid Procedures

The following requirements apply to Sealed Bid procurements:

1. Documentation of compliance with requirements shall be retained.
2. Use of a solicitation list to announce the procurement (including potential vendors/contractors). The agency shall ensure that lists of persons, firms, or products which are used in acquiring goods and services are current and include enough qualified sources to ensure open and free competition.
3. Publishing a public Notice of Intent to request bids in a local/regional newspaper that reaches potential vendors for the service territory. Trade, civic, or social publications may provide additional means of attracting small, veteran-owned, minority, or handicapped business bidders.
4. The opening and reading of bids are open to attendance by interested bidders and the general public. Attendees are allowed only to observe and to take notes. Where the length or complexity of an RFB does not allow reading of entire bids, only the names of bidders are announced at the bid opening. See the [Wisconsin State Procurement Manual, PRO-304](#) for detailed procedures regarding sealed bid processes.
5. Faxed or emailed bids are not allowed. An agency may propose a system for accepting email bids, but written Division approval is required prior to implementation.
6. Agencies may award contracts to multiple bidders to ensure adequate capacity for timely completion of contracts. Bid awards to multiple contractors are strongly recommended and shall be clearly stated in the Method of Award. See the HE+ TTA website under Weatherization | Procurement for Method of Award examples.
7. Follow the Minor Omissions Policy for Weatherization agency Procurements available on the HE+ TTA website under Weatherization | Procurement. No change is allowed that would impair the interests of the agency or would be inequitable to other bidders, and in no event shall a bidder be allowed to change the unit price, volume, or quantity provided in its original bid. For more information see the Wisconsin State Procurement Manual, PRO-304, VII.
8. If less than three bids are received the agency shall ensure procurement file documentation demonstrates due diligence in conducting a competitive procurement process and that the bid price accepted is reasonable (2 CFR 200.320(f)). Follow the guidance below from PRO-305, II to ensure documentation demonstrates:
 - a. The probability of receiving more than one bid existed at the time of solicitation,
 - b. The receipt of less than three responses was not due to restrictive specifications

- or conditions,
- c. The bid price received is fair, and,
- d. A second solicitation will probably not elicit further bids.

6.8.2 Cost Sheet Requirements

If the Cost Sheet for an RFB or Simplified Bid is created and distributed as an editable digital (e.g., MS Excel) file, the Division recommends creating and distributing a matching non-editable (e.g., Adobe .pdf format) file. In the RFB, Cost Sheet and all communications, specify that in the event of any discrepancy, the non-editable version of the Cost Sheet will be considered.

When a procurement includes a labor rate (time) or material mark-up percentage, these costs shall be incorporated into the calculation of Grand Total Cost, as identified in the example cost sheet below.

To the maximum extent possible, the agency shall define the items to be procured as fixed price items, including time (e.g., installation of measures). There may be exceptions in which the Grand Total Cost requirement does not apply; contact the [HE+ Help Desk](#) for guidance.

The following cost sheet is provided as an example to clarify this requirement:

| Measures - Cost of Materials & Installation | Estimated Quantity | Unit Cost | Total Item Cost |
|---|--------------------|--------------------------|------------------|
| Measure a | 12 | \$1,056 | \$12,672 |
| Measure b | 80 | \$2,030 | \$162,400 |
| Measure c | 44 | \$456 | \$20,064 |
| Category 1 Total | | | \$195,136 |
| Measure x | 10 | \$55 | \$550 |
| Measure y | 17 | \$343 | \$5,831 |
| Measure z | 11 | \$17 | \$187 |
| Category 2 Total | | | \$6,568 |
| Additional labor hours | 1000 | \$40 | \$40,000 |
| | Value | Bidder provided % | |
| Misc. materials mark-up | \$1000 | 15% | \$150 |
| GRAND TOTAL | | | \$241,854 |

6.8.3 Contract Renewal

A contract resulting from an HE+ Weatherization or Program Services RFB, or simplified bid process, may be renewed for two (2) additional one (1) year periods, for a total of three (3) years, if:

1. Notice was given in the original bid specifications, and
2. Agreement is by mutual consent.

This time period is at the discretion of the agency and may be modified by the agency to provide either no renewals, or a one-year renewal only.

6.9 Vehicle Lease or Purchase

Vehicle lease or purchase shall be based on a demonstrated agency need.

Only PB funds, funds resulting from an approved disposition, or an approved disposition applied as a trade-in, may be used to **purchase** vehicles. PB, DOE, or LIHEAP funds may be used to **lease** vehicles.

Agencies shall request Division approval for vehicle purchases with a total purchase price over \$5,000 per unit (see [7.1 Property](#)). A disposition request and a request for purchase may be submitted to the Division at the same time. An optional disposal/approval template is available on the [HE+ TTA website](#) under Weatherization | Procurement.

Agencies shall use the total purchase price to determine a procurement method, and whether permission to purchase is required. If trading in vehicles, the trade-in value shall not be deducted when determining the total purchase price and procurement method.

When the estimated lease or purchase cost of a vehicle is \$5,000 or less, an agency shall select the vendor judged best able to supply the required vehicle. Agencies shall use a modified simplified bid process for lease or purchase of vehicles totaling \$5,001 to \$50,000. Agencies shall use a sealed bid process for lease or purchase of vehicles totaling more than \$50,000.

See Table 6.2 below.

If leasing vehicles, Agencies shall use the total vehicle purchase price as the basis for the lease contract amount.

If exercising an option to buy a vehicle at end of lease term, Agencies are allowed the option of reviewing recent local/regional auction sales and NADA Blue Book values of comparable vehicles as sufficient justification to buy a vehicle out of lease at a competitive price. This option is based on program efficiencies realized due to the vehicle already being in service, and knowledge of vehicle's operating and maintenance history, etc. Agencies shall maintain full documentation of comparable vehicle pricing reviews.

Table 6.2: Vehicle Procurement Method

| | | Procurement Method (based on total cost) | | |
|-----------------|---|--|---|----------------------------|
| Allowable Funds | | \$5,000 or less | \$5,001 – \$50,000 | Over \$50,000 |
| Purchase | PB – Division-approved trade-in or disposal | Best Judgment (see 6.7.1) | Modified Simplified Bid (see 6.10.1) | Sealed Bid (see 6.10.2) |
| Lease | PB DOE LIHEAP | | | |

6.9.1 Modified Simplified Bid for Vehicle Lease or Purchase \$5,001 to \$50,000

The Division will allow lease or purchase of new or used vehicles through a modified simplified bid process. Prior to beginning procurement, the agency shall ensure equal comparison between vehicles and provide vendors with specifications that are specific enough to meet the agency needs, yet also encourage competition.

Do not include specification features that may preclude the ability of a vendor to bid (must have a “Hemi” engine, specific color, etc.). This process is particularly important when considering used vehicles. See 6.10.2 for additional requirements on vehicle purchases.

The following requirements apply to lease or purchase of new or used vehicles through a modified simplified bid:

1. All vehicles shall be purchased only with PB funds, funds resulting from an approved disposition, or an approved disposition applied as trade-in.
2. PB, DOE, or LIHEAP funds may be used to lease vehicles.
3. A minimum of 3 bids shall be obtained from qualified vendors.
4. Notice shall be provided to an appropriate list of potential bidders.
5. Specific information shall be provided to all bidders (e.g., location of delivery point, dealer to pay for delivery, specifications and standards, date of delivery, and quality).
6. Consider quality of vehicle to be supplied, price of vehicle including delivery, conformity with specifications, purpose for which the vehicle is required, and date of delivery.
7. The Sealed Bid process is required when a total of more than \$50,000 of vehicles will be purchased, regardless of the number of vendors or vehicle types.

6.9.2 Sealed Bid Vehicle Lease or Purchase from Sources Other than agency

Agencies shall use a sealed bid process for lease or purchase of vehicles totaling more than \$50,000. See general procurement guidelines (Section 6.8) for purchases in excess of \$50,000 and obtain a minimum of three (3) bids. See the [HE+ TTA website](#) under Weatherization | Procurement for a Vehicle RFB template.

The agency shall have possession of the purchased vehicles and the title during the term of the contract when the purchase was made.

The following requirements apply to Vehicle lease agreements and purchases:

1. Vehicle Specifications:
 - a. Age of vehicle (if used)
 - b. Mileage (if used)
 - c. Vehicle type
 - d. Body style
 - e. Size (½ ton, 1 ton, etc.)
 - f. Engine size
 - g. Accessories/options
 - h. Description of vehicle's general condition (if used)
 - i. Early lease termination clause
 - j. Lease/purchase contract conditions
2. Obtain a minimum of three sealed bids from different sources for lease of similar types of vehicles for the same time period.
3. Leases with maintenance clauses may not be compared to those without them.

6.9.3 Vehicle Lease from agency

The agency may lease vehicles it owns to its weatherization operation. The Division allows cost allocations to the extent that the costs are reasonable according to:

1. Costs of comparable vehicles, if any,
2. Market conditions in the area, and
3. Type, life expectancy, condition, and value of the leased vehicle.

If the agency leases a vehicle to the Weatherization Program, charges to the Program may not exceed the actual costs to the agency. Agency costs may include purchase price, interest, lease administration charges, maintenance, etc.

If the vehicle was purchased with Weatherization Program (state or federal) funds, the agency may not charge lease costs of the vehicle to the Weatherization Program. It may be used by the Weatherization Program but not paid for a second time with Weatherization Program (state or federal) funds.

If the vehicle was **not** purchased with Weatherization Program funds, the agency may charge lease costs of the vehicle to the Weatherization Program.

To document the rationale for leased vehicles, keep the following information on file and available for review:

1. Vehicle Specifications:
 - a. Age of vehicle (if used)
 - b. Mileage (if used)
 - c. Vehicle type
 - d. Body style
 - e. Size (½ ton, 1 ton, etc.)
 - f. Engine size

- g. Accessories/options
 - h. Description of vehicle's general condition (if used)
 - i. Early lease termination clause
 - j. Lease/purchase contract conditions
2. Competitive bids from other sources for lease of similar types of vehicles for the same time period.
3. An explanation of how the lease amount was computed, the methodology used, and the amount of lease termination costs.
4. Justification, including detail of total lease costs compared to purchase costs.
5. Leases with maintenance clauses may not be compared to those without them.

6.10 Price Increases

Price increases to a contract, including contract renewals, are limited to fully documented cost increases to the contractor which are demonstrated to be industry wide as verified by official announcement on the manufacturer's letterhead. Price increases are valid only when accepted by the agency 30 days before application, in writing and documented in the original procurement file. This applies to contracts resulting from both simplified and sealed bid procurements.

An allowable price increase applies only to materials costs, not to unit installation costs (labor).

6.11 Financial Audit Request for Proposal

For the procurement of financial audit services, a Request for Proposal (RFP) shall be utilized, and the following requirements apply:

1. Requests for Proposals (RFP) shall be publicized, or an optional audit firm solicitation list is available from the Division to meet the publicizing requirement. This list includes financial audit firms who have experience auditing Wisconsin Weatherization Programs. Contact the [HE+ Help Desk](#) to request the solicitation list. Any response to publicized requests for proposals shall be honored to the maximum extent practical,
2. Proposals shall be solicited from an adequate number of qualified Financial Audit firms and Invitation to Propose letters shall be sent out one month prior to RFP release date,
3. RFP should contain language identifying the type of audit experience required,
4. There shall be a method for conducting technical evaluations of the proposals received and for selecting the awardee, and
5. All evaluation factors and their relative importance shall be identified in the Request for Proposals.
6. Awards will be made to the responsible firm whose proposal is most advantageous to the program, with price and other factors considered.
7. Also see the Wisconsin State Procurement Manual, PRO-306 for further guidance on RFP procedures and requirements.

6.12 Specifications

An agency shall define and provide the specifications for goods or services to be acquired for each simplified and sealed bid procurement. To meet this requirement, an agency shall identify the applicable Wisconsin Weatherization Field Guide requirements and Weatherization Manual standards and policies and follow the Wisconsin Weatherization Materials and Specifications in [Appendix C](#). The specifications and procurement templates are available in editable formats on the [HE+ TTA website](#) under Weatherization | Procurement.

Installation of materials shall follow required health and safety protocols and shall be of professional quality in order to ensure the effectiveness of the measure. The agency shall require materials and installation standards meet the standards set forth in the Weatherization Manual, annual contract requirements, or [10 CFR Part 440](#), Appendix A, whichever is more restrictive. Agencies shall ensure that bidders have access to these standards by providing the standards as part of the simplified or sealed bid package. A bidder's products and services may exceed standards.

Agencies shall comply with the following requirements for specifications:

1. Specifications presented to potential bidders shall define the product or end result of the contract, and the time in which contract performance is to be completed.
2. Develop specifications to preclude restrictive provisions and encourage bidder competition.
3. Develop specifications to permit the lowest responsible bid to be the principal basis of award.
4. Use performance criteria that will not restrict competition or limit the number of sources bidding.
5. Use generic specifications with no trade or brand names.
6. The procurement specifications shall not exceed materials and installation standards and service requirements, as stated in the Wisconsin Weatherization Program Manual and Field Guide, without prior written approval from the Division.
7. Properly identify scope of work (items to be included in the bid) and material/equipment specifications to achieve equitable cost comparison and expected building outcomes. When the complexity of the project requires design, include the design parameters.

6.13 Affirmative Action/Contract Compliance

Affirmative Action/Contract Compliance (AA/CC) requirements identified in [s.16.765, Wis. Stats.](#), and Department of Administration, Administrative Code, [Chapter 50](#), apply to agency procurements as follows:

1. When a purchase for services for which the agency is under contract with the Division to provide are subcontracted and the resulting contract is estimated to be over \$50,000, the agency shall ensure that AA/CC requirements are met as described in this section. Such services include auditing, inspection, and installation of materials and commodities. Financial audit services are not subject to AA/CC requirements (see [Section 5.3.6 Financial Audit](#)).
2. Procurement of commodities (e.g., materials, equipment, or major mechanicals) for

installation by agency staff is not subject to the AA/CC requirement.

3. Procurement of refrigerators/freezers, including installation/removal by the vendor, is a commodity and is not subject to the AA/CC requirement.
4. AA/CC provisions shall be included as part of Sealed RFB and RFP procurements. AA/CC does not apply as a result of cumulative expenditures awarded through separate contracts.
5. Contractors with fewer than 50 employees are exempt from having an AA Plan but must submit an exemption request to the agency.
6. The agency shall review and approve AA plans. Plans or exemption requests shall be processed within fifteen (15) working days of receipt.
7. Once a plan is approved, the agency shall provide the contractor with the required notice (Compliance Law Poster) that sets forth the provisions of the State of Wisconsin nondiscrimination clause.
8. The AA/CC requirements do not apply to a contractor's lower-tier subcontractors (these requirements only transfer down one tier from the agency).

Procurement file documentation shall include, at a minimum:

1. Approved Affirmative Action Plan or Exemption Request for each services contractor.
2. Information related to approval or denial of plan or exemption request.
3. Other items as directed by the Division.

6.13.1 Affirmative Steps

In outreach and design of the bid package, an agency shall follow the Affirmative Steps requirements identified in [2 CFR 200.321](#) to ensure that small and minority firms, women's business enterprises, and disabled veteran-owned business enterprises have the opportunity to participate in the bid. These steps shall include:

1. Including qualified small and minority firms, women's business enterprises and disabled veteran-owned business enterprises on solicitation lists whenever they are potential resources.
2. Dividing total requirements and establishing delivery schedules, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority firms, women's business enterprises, and disabled veteran-owned business enterprises.
3. Using the services and assistance of the Small Business Administration and the Minority Business Development agency of the U.S. Department of Commerce.
4. Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed above.

Affirmative Steps Definitions:

1. "Small business" means a business which has had less than \$1.5 million in gross annual sales in the most recent calendar or fiscal year ([Wis. Stats. s. 16.75\(4\)\(c\)](#)).
2. "Women's business enterprise" (WBE) means a business that is at least 51 percent owned, controlled, and actively managed by a woman or women (Wis. Adm. Code

Admin 83.12(53)).

3. “Minority business enterprise” (MBE) is a business certified by the Department of Administration under Wis. Stats. s. 16.287. “Minority” means any of the following: Black American, Hispanic American, American Indian, Eskimo, Aleut, native Hawaiian, American Asian-Indian, and an American of Asian-Pacific origin (Wis. Adm. Code Admin 84.02(29)).
4. “Disabled Veteran-owned Business Enterprise” (DVB) is a business certified by the Department of Administration as at least 51% owned, controlled, and actively managed by disabled veteran group members.

6.13.2 Documentation of Affirmative Steps

Documentation shall show that the agency followed the Affirmative Steps for each Sealed RFB. At a minimum, such documentation shall include a copy of the solicitation list developed for each procurement and a printout of the search results for certified MBE, WBE, and DVB businesses from the DOA Wisconsin Supplier Diversity Program, [Business Search](#). The search shall be based on ‘products/services’ and ‘county’.

6.13.3 Supplier Diversity Preference

1. Qualified bids from certified MBE or DVB may be provided up to a five percent (5%) bid preference, in accordance with [Wis. Stats. s. 16.75\(3m\)](#).
2. To apply this requirement, take the lowest bid and add 5%; if a certified MBE or DVB bid price is within that amount, the MBE/DVB is awarded the bid.
3. For example, a low bid = \$1,000; $\$1,000 \times 1.05 = \$1,050$. If the MBE/DVB firm submits a bid of \$1,050 or less, they are awarded the bid.
4. For more guidance see the Wisconsin State Procurement Manual, PRO-606 and the DOA Supplier Diversity Program website.

6.14 Ineligible Vendor Listings

Prior to entering a contract with a winning bidder, the agency shall verify the contractor is not listed on the following:

1. [Wisconsin Office of Contract Compliance Vendor Directory](#) lists vendors that remain ineligible based on their failure to satisfy [s.16.765, Wis. Stats.](#) This list only applies to services contracts over \$50,000 (see also Section 6.13 above).
2. Certification for Collection of Sales and Use Tax Vendor Directory lists vendors determined to be ineligible by the Wisconsin Department of Revenue for non-compliance with tax law listed in s.77.66, Wis. Stats.
3. Office of Federal Contract Compliance Programs Debarred Companies

Instructions for conducting the ineligible vendor verifications are available in the [HE+ TTA website](#) under Weatherization | Procurement See also Appendix A: Wisconsin WAP Terms and Conditions, Section 14.0 Applicable Law and Compliance.

6.15 Bonding

A payment bond is required for every Weatherization and HE+ Program services contract exceeding \$149,999 annually and where wholesaler or subcontractor partnerships are utilized to deliver services ([2 CFR 200.325](#); [PRO-607](#)). Each payment bond shall apply to a single contract. The Division may grant a waiver to the payment bond requirement if a potential bidder provides proof of a contractor bond for construction work performed in the state of Wisconsin. The agency shall submit a waiver request to the [HE+ Help Desk](#), including proof of bonding documentation.

Agencies, at their discretion, may require payment bonds for Weatherization and HE+ Program services contracts up to \$149,999. Program funds may be used to reimburse a contractor for payment bond premium costs as described below. If the agency chooses not to require a bond for contracts up to \$149,999, the agency shall complete weatherization contract Attachment I prior to entering into an agreement with the contractor.

The bonding or insurance company issuing the payment bond shall be authorized to do business in Wisconsin ([PRO-607](#)). Agencies shall verify company status using the [National Association of Insurance Commissioners Search](#) or the [U.S. Department of the Treasury's Listing of Certified Companies](#). For additional guidance see the Insurance Company Search and National Association of Surety Bond Producers (NASBP) documents on the [HE+ TTA website](#) under Weatherization | Procurement. A copy of the current payment bond shall be kept in the procurement file. Payment bond premium costs may be reimbursed and invoiced to Program Support or Operations. If an agency chooses to invoice the premium cost to Program Support, the use of EAP or DOE funds is not allowed for weatherization invoicing. Agencies will, at their discretion, determine how to reimburse the premium cost. The invoicing method must be determined prior to publishing the bid package and the RFB template shall be updated accordingly. The use of bid or performance bonds is not allowed. An exception to this requirement may be provided if an agency submits written justification and receives written Division approval prior to finalizing the contract agreement.

6.16 Warranty Requirements

An agency shall warranty workmanship, materials, and products on **all work** for at least one year, in addition to the manufacturer's standard warranties on all items. This one-year warranty shall commence on the date of the final inspection.

Subcontracted work procured through a bid process requires a one-year warranty which commences on the date of satisfactory completion of the work. This warranty period is separate from the one-year warranty required of Agencies.

To avoid excess costs associated with replacing failed light bulbs, light bulbs that fail within the warranty period shall be exchanged in a cost-effective manner, such as customers taking failed bulbs into the agency office for exchange.

6.17 Vendor and Contractor Payments

Agencies shall make timely payments to vendors and contractors as follows:

1. There shall be work orders/purchase orders authorizing work to proceed. Variances from the original cost sheet shall be documented.
2. The agency shall normally pay properly submitted vendor invoices within thirty (30) days of receipt, provided goods and/or services have been delivered, installed (if required), and accepted as specified. Variances from the original work order/purchase order shall be documented.
3. A good faith dispute, or an improper invoice, creates an exception to prompt payment only when the vendor is notified in writing of the reason for the dispute or improper invoice.
 - a. After a dispute is settled, or improper invoice is resolved, the agency shall have 30 days to pay the invoice.

6.18 Contract Management

A system for contract management and administration shall be maintained to ensure contractor conformance with the terms, conditions, and specifications of the contract, and to ensure adequate and timely follow-up of all services and purchases. Agencies shall evaluate contractor performance and document, as appropriate, whether contractors have met the terms, conditions, and specifications of the contract.

1. Contractors/vendors shall be provided with the **right to cure** except if the contractor/vendor breaches or defaults an obligation under their contract as follows:
 - a. Fails to perform any material obligation required under the contract such as:
 - i. Files a petition in bankruptcy, becomes insolvent, or otherwise takes action to dissolve as a legal entity,
 - ii. Does not allow a final judgment to be satisfied, or a lien to be disputed, after a legally imposed 30-day notice, or
 - iii. Makes an assignment for the benefit of creditors.
 - b. Fails to follow the sales and use tax certification requirements of [Wis. Stats. s. 77.66](#),
 - c. Incurs a delinquent Wisconsin tax liability,
 - d. Fails to submit a nondiscrimination or affirmative action plan as required,
 - e. Fails to follow the nondiscrimination or affirmative action requirements of [Wis. Stats. s. 111 Subchapter II](#) (Wisconsin's Fair Employment Law),
 - f. Becomes a federally debarred contractor,
 - g. Is excluded from federal procurement and non-procurement contracts,
 - h. Fails to maintain and keep in force all required insurance, bonds, permits, and licenses as provided in the contract,
 - i. Fails to maintain the confidentiality of the State's information considered Confidential Information, proprietary, or containing Personally Identifiable Information, or
 - j. Contractor performance threatens the health or safety of a State or agency employee, or an agency's customer.
2. An agency shall document their contractor performance management process as part of the requirement for a documented Quality Control System (see [2.1.6 Quality Control](#)

[System](#)).

3. If an agency intends to terminate a contract due to performance issues, the agency shall notify the [HE+ Help Desk](#) within 30 days after the decision to terminate. The notification shall include the date the contract was or is proposed to be terminated and a brief description of the reason for termination.

6.19 Property Improvements through Contractors

An agency contracting under the Weatherization Program for any improvement of a property, in which the address for the improvement is identified to the contractor, shall inform the contractor of the following:

1. The only recourse for payment is the weatherization agency. By agreeing to perform weatherization work, the contractor agrees to the following terms and agrees to pass along the following requirements to their suppliers and any subcontractors:
 - a. The contractor agrees they will not, under any circumstances, seek payment from the owner or occupant of the premises improved.
 - b. The contractor shall not file, suffer, or permit any lien or other encumbrance of record as a claim against any site of a weatherization project in recognition that the only recourse for payment is from the weatherization agency.
 - c. An optional form is available on the [HE+ TTA website](#) under Weatherization | Procurement for informing subcontractors and material suppliers of the lien waiver policies related to weatherization services.
 - d. Any lien notice action by a contractor, its subcontractors or material suppliers, against a property owner may be considered non-performance by the terms and conditions of their contract, and the contractor, subcontractors and suppliers may be removed from the statewide weatherization agency bidder's list for a period of 2-5 years.
2. By engaging in a contract with the weatherization agency, the contractor agrees that if they do not pay for materials and labor completed through their weatherization contract, the weatherization agency has the option to use payments owed to the contractor to pay such subcontractors and suppliers.

6.20 Contract Sharing

Contract sharing is an allowable activity under the State of Wisconsin Procurement Manual referred to as "piggybacking". When applied to the Weatherization Program, contract sharing allows a weatherization agency to use an existing open contract established by another weatherization agency. Contract sharing will not exist beyond the final contract date of the originating weatherization agency contract.

Agencies may request approval to utilize a commodity and/or services contract competitively bid by another agency. The requesting agency is the weatherization agency that seeks to share an open contract that was competitively bid and awarded by another weatherization agency. The originating agency is the weatherization agency that originally bid and awarded the open contract subject to the request. An open contract is a continuing contract for a specific period of

time which is current (that is, operating within the designated contract period including renewal options).

A weatherization agency may use a contract established by another weatherization agency if the use of such contract is agreeable to both weatherization Agencies and the vendor. It is the responsibility of the requesting agency to complete Procedures 1 through 3 below.

1. The requesting AGENCY shall in all cases first make awards from its own list of current and responsive bidders prior to seeking the commodities/services of an originating agency's vendor.
2. The requesting agency shall review the originating agency's contract and determine that the following conditions are met:
 - a. The originating procurement must have been competitive (several bidders, generic specifications, etc.).
 - b. The contract must be an open contract and must be current. Current contracts are contracts established with prices that have remained competitive since award.
 - c. The commodities or services to be purchased shall be the same as those provided in the original contract. The terms and conditions provided in the original contract shall be accepted by the requesting agency.
 - d. The prices provided to the requesting agency shall be the same or better than those provided in the original contract.
 - e. The requesting agency shall obtain written authorization from the originating agency and vendor indicating each agrees with the proposed piggybacking and that production capacity for the originating agency will not be diminished.
3. The requesting agency shall provide the following information to the Division for approval via the [HE+ Help Desk](#):
 - a. Completed Contract Sharing Request (available on the [HE+ TTA website](#) under Weatherization | Procurement, including required attachments,
 - b. Written authorization from the originating agency, and
 - c. Written authorization from the vendor.
4. The Division will review the request to determine that all conditions above are met. If approved, the Division will respond to the requesting agency with written authorization to contract with the vendor.

6.21 Staff Sharing

Staff sharing is a cooperative agreement between two Agencies to share the services performed by an agency employee. Only the actual costs directly related to the installation of the weatherization measure are allowable and shall be used as a credit to reimburse the agency for services provided.

If a staff sharing agreement is used in lieu of a simplified bid or RFB, prior to entering into a staff sharing agreement the requesting agency shall submit a cost benefit analysis to the [HE+ Help Desk](#), including: the measure cost under the proposed staff sharing agreement, the cost of any



comparable bids or price estimates, and any additional information that influenced the staff sharing decision.

Following approval from the Division, the Agencies shall sign a written agreement describing the services to be shared and responsibilities of each agency. The Division has provided an optional MOU template on the [HE+ TTA website](#).

Chapter 7.0 | Equipment and Materials Management

7.1 Property

Title to property is vested in the acquiring agency. The Division and federal granting agencies hold a reversionary interest in property purchased with Weatherization Program funds.

Agencies shall maintain asset accounts for all consumable and non-consumable property. Agencies shall have a system to control losses, damages, or theft of agency property.

Purchase or lease of property shall be based on demonstrated agency need. All equipment and vehicles shall be purchased entirely with PB funds, funds resulting from an approved disposition, or an approved disposition applied as a trade-in. Disposition of property shall be in accordance with the rules of the funding source. The Division reserves the right to transfer equipment from one agency to another if the equipment is found to be surplus.

7.2 Compensation for Use of Property

7.2.1 Compensation for Use of agency-owned Property

In accordance with [2 CFR 200](#), the Division will allow the expensing to the Weatherization Program of agency-owned property (such as buildings, capital improvements, equipment, or software) dedicated to implementation of the program if:

- The expenses have been capitalized in accordance with GAAP;
- Property was purchased with non-federal funds;
- The cost of space used, the allocation of taxes, utilities, maintenance, security, and other expenses, and the total costs are reasonable and do not exceed the cost of comparable property or available alternatives; and
- Total expenses for a given property do not exceed those resulting from an arms-length purchase, or from a long-term lease through an arms-length contract, for comparable property of similar size, age, condition, lease terms, etc.

Depreciate assets by establishing the period of useful service for each asset, taking into consideration the type of construction, the nature of the equipment, and other factors influencing the asset's useful life. (That is, the Use Allowance Method for charging the use of agency-owned property to grants has been eliminated.)

Support charges for depreciation through adequate property records (including depreciation records for each accounting period).

In addition to depreciation, the agency may calculate and charge actual maintenance costs, taxes, insurance, and interest into property expenses.

7.2.2 Compensation for Rented Property

The Division will allow expensing to the Weatherization Program any rented or leased space, property, or equipment that is necessary for program operations, provided that the costs are reasonable, given:

- Program requirements,
- Current market conditions,
- Other alternatives available, and
- Arms-length long-term lease rates for comparable property of similar size, building condition, age, lease terms, etc.

7.2.3 Property and Facilities Management

Agencies shall assess reasonable program needs and adjust the inventory of excess or idle facilities and idle capacity on a regular basis. Costs to rearrange or alter facilities in the ordinary and normal course of business are allowable and are considered indirect/administrative costs. Costs incurred for special rearrangements or alterations specifically to facilitate a change in program requirements may be allowable as direct costs, provided that the Division issues prior approval. Costs to rearrange or alter facilities solely to accommodate other agency programs or needs are allowable only with prior approval from the Division. Increased property costs incurred solely to accommodate other agency needs are allowable only with prior approval from the Division.

7.3 Recordkeeping

7.3.1 Vehicles, Equipment, and Tools

The agency shall take a physical count of vehicles and non-consumable equipment and tools at least annually. The count shall be reconciled to the written records and the agency shall document shortages in writing at the time of reconciliation.

The Division requires the following records be kept for all vehicles, non-consumable equipment, and tools being used by the Weatherization Program with a total purchase price of \$5,000 or more per unit:

1. Description including model, year, serial or vehicle identification number, etc.,
2. Date of purchase,
3. Total purchase price, including any trade-in applied,
4. Source of funds used for purchase,
5. Location, use, and condition of property,
6. Individual to whom property is assigned,
7. Records of maintenance completed, and
8. Disposition date, method, and amount received.

All equipment requiring calibration shall be maintained and calibrated according to manufacturer's recommendations.

7.3.2 Inventory Asset Accounts

The agency shall take a physical count of materials and supplies inventory each month. The agency shall maintain asset accounts for all consumable materials. There shall be an accurate costing system, and systems for storage, handling and protection against damages and theft.

There shall be a monthly reconciliation of the physical inventory to the perpetual records and inventory asset account. The Division recommends a “first in, first out” system, and the agency shall rotate stock and use older materials first.

An agency shall maintain an inventory record. This record shall include:

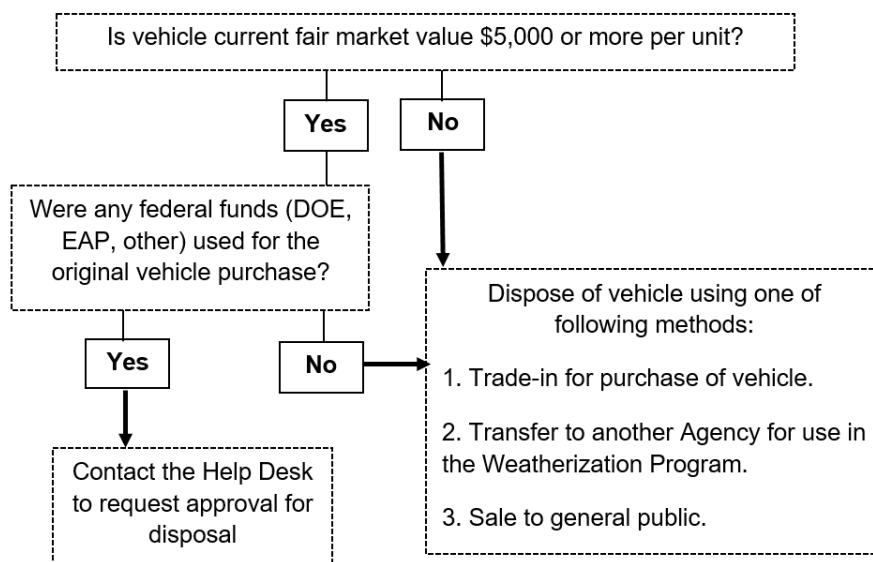
1. Location of inventory (if multiple storage locations),
2. Quantity of materials received and disbursed,
3. Description of materials,
4. Unit prices of materials,
5. Job number,
6. Date of disbursement, return, and receipt,
7. Crew person signing materials in or out, and
8. Purchase Order number for all receipts.

7.4 Disposal

7.4.1 Vehicle Disposal

The chart below provides guidance for determining the method to use when disposing of vehicles and non-consumable tools and equipment. Acceptable methods for determining current fair market value include, but are not limited to, the following: using an existing agency depreciation policy, blue book value or used retail value, or obtaining a dealer or vendor quote.

Vehicles with current fair market value of less than \$5,000 may be disposed of using a system ensuring free and open competition without prior notification to other Agencies. Proceeds shall be used to purchase other weatherization materials or equipment, or as program income to weatherize additional units (see [1.0 - "program income"](#)).





If federal funds were used for the initial vehicle purchase **and** the current fair market value is \$5,000 or more per vehicle, then the agency shall request permission from the Division to dispose of the vehicle(s). Written disposal requests shall include the following:

1. Explanation of why the vehicle can no longer be used in the Weatherization Program,
2. Description of the vehicle including model, year, identification number, odometer mileage, etc.,
3. Date of purchase,
4. Contract number when purchased,
5. Purchase value, including any trade-in applied,
6. Source of funds used for purchase (PB, DOE, LIHEAP, ARRA, or EXXON) and percentages, if multiple funding sources were used,
7. Estimated current fair market value,
8. Condition of vehicle. If vehicle is in unsafe operating condition, or inoperable, supply an estimate of repair costs required to return the vehicle to operating condition, and
9. Copy of purchase approval letter, if applicable.

A Vehicle and Equipment Disposal template is available on the [Home Energy Plus Training & Technical Assistance \(HE+ TTA\) website](#) under Weatherization | Procurement. Use of this template is optional.

Proceeds from such disposals shall be handled based on the requirements of the funding source. The Division will provide guidance regarding allowable use of the proceeds.

7.4.2 Equipment and Tools Disposal

For disposal of non-consumable tools and equipment with current fair market value of less than \$5,000 per unit, the agency shall notify other Agencies that the equipment is available for use in the Weatherization Program. Acceptable methods for determining current fair market value include, but are not limited to, using an existing agency depreciation policy, used retail value, or obtaining a vendor quote.

If the equipment is defective, it does not need to be offered to other Agencies.

If another agency expresses interest, the equipment may be transferred to that agency for the purpose of their use in the Weatherization Program. If no agency expresses an interest, then the equipment may be disposed of using a system ensuring free and open competition.

Proceeds shall be used to purchase other weatherization materials or equipment.

The agency shall request permission from the Division to dispose of non-consumable tools and equipment that were originally purchased with federal funds (DOE, LIHEAP) **and** have a current fair market value of \$5,000 or more. Written disposal requests shall include the following:

1. Explanation of why the equipment can no longer be used in the Weatherization Program,
2. Description of the equipment including model, year, serial or identification number, etc.,
3. Date of purchase,
4. Contract number when purchased,

5. Purchase value,
6. Source of funds used for purchase (DOE, LIHEAP, EXXON, ARRA, or PB) and percentages, if multiple funding sources were used,
7. Estimated current fair market value,
8. Condition and age of equipment. If equipment is defective, in unsafe operating condition, or inoperable, supply an estimate of repair costs required to return the equipment to operating condition, and
9. Copy of purchase approval letter, if applicable.

7.4.3 Inventory Disposal

The agency shall contact the original vendor to request return of the unusable materials. If the items cannot be returned, the agency may dispose of the inventory. If the cumulative value of the inventory to be disposed of in a program year exceeds 0.25 percent of the total program year operations, health and safety, and baseload operations budget, the agency shall submit a written request to the Division to dispose of inventory including:

1. Description of item(s) to be disposed, including:
 - a. unit price,
 - b. quantity of items,
 - c. original vendor, and,
 - d. funding source used to purchase items.
2. Disposal methods to be used (e.g., auction, public notice, or sealed bids). It is essential that the method chosen allows for open and free competition and that the general public has a chance to purchase the items.
3. Cost of selling the items, not to exceed 10 percent of the value of items being disposed.
4. Plans for the use of any funds recovered (e.g., to be returned to the funding source, to be used to purchase other weatherization materials).

The agency shall notify all other Agencies that the inventory is available for use in the Weatherization Program. If an agency expresses interest in the item(s), the inventory may be transferred to that agency for use in the Weatherization Program.

If no agency expresses an interest, then the inventory may be disposed of using any system ensuring free and open competition.

In the event of an agency downsizing, any charge to be made against the contract to cover losses incurred in liquidating inventory shall be approved in writing by the Division.

7.5 Consumable Materials and Tools

Consumable materials and tools are those that are not inventoried individually, are difficult to measure on a per-unit basis, and for which the typical minimum purchase quantity may be used in more than one building. Examples of consumable materials meeting this description are nails and fasteners, paint thinner, glazing push points, and other similar materials. Consumable tools may include blades and driver bits.

An agency may use a cost allocation system for consumable materials and shall develop a consistent procedure to handle such consumable materials. When tools are assigned to a crew, an agency does not need to inventory consumable tools that are usable for only one or two jobs.

7.6 Information Technology (IT) Hardware and Software

Agencies are responsible for all costs of hardware, software, and internet access required for Weatherization Program delivery. Agencies shall procure all IT hardware, software, and services in accordance with all applicable federal and state guidelines and laws and shall make full specifications and disclosure of such products and services available to the Division upon request.

Agencies shall track and maintain all IT hardware, software, and services that are purchased with Wisconsin Home Energy Plus program funds. All data handling will be in compliance with Section [2.3 Handling Sensitive Data](#).

Weatherization crews shall electronically document building test results and site conditions using the Wisconsin Diagnostic Workbook, available on the [HE+ TTA website](#).

This workbook was developed for the State of Wisconsin and shall not be shared outside of the Weatherization Program and its specific contractors. The workbook shall not be modified except as authorized by the State of Wisconsin or its contractors. Agencies shall maintain the workbook with the most current updates.

Chapter 8.0 | Energy Audits

8.1 Field Data Collection Form

The Division requires the use of the approved Energy Auditor Field Data Collection Form by energy auditors to collect building-specific information necessary to determine the cost-effective measures, needed repairs, and health and safety items to be installed in each weatherization participant's home. The form is to be used as an electronic form in the field. The form can be downloaded from the [Home Energy Plus Training & Technical Assistance \(HE+ TTA\) website](#) under Technical Assistance. The completed form shall be uploaded to the HE+ System/WisWAP in the building file.

8.2 Required Equipment

The Division requires that Agencies and/or their contractors use professional equipment as part of their assessment of buildings. Direct access to computers is required to model jobs with electronic energy audits and to document diagnostic field tests. The following lists of required equipment represent the minimum required for equipment. Other equipment may be necessary to deliver weatherization services effectively and efficiently.

8.2.1 Minimal Required Equipment for Personal Safety

1. Calibrated personal carbon monoxide (CO) detector capable of measuring CO levels in ambient air, with an audible alarm with adjustable setpoints, a digital display of 1-999 ppm, and a resolution of 1 ppm. The ambient CO monitor is required for Energy Auditors and final inspectors. Auditors and inspectors shall monitor the CO level of the occupied spaces on each floor, including utility rooms. Field Technicians and subcontractors conducting combustion safety testing must have access to a monitor.
2. PPE (personal protective equipment) for respiratory, vision, hearing, skin, feet and head protection.

8.2.2 Minimal Required Equipment for Instrumented Air Leakage Measurements

1. Calibrated blower door, Minneapolis Model 3 or equivalent, capable of creating a pressure differential between sections of a building and outdoors.
2. Calibrated digital gauge, DG-700, DG-1000 or equivalent, capable of measuring pressure differentials and calculating air leakage in CFM50 (cubic feet per minute at 50 pascals). Refer to ANSI/BPI-1200-S-2017 for additional equipment requirements.
3. Smoke generating testing equipment.

8.2.3 Minimal Required Heating System Analysis Equipment

1. Calibrated combustion analyzer capable of measuring O₂, CO₂, CO, SSE, stack temperature, and net temperature rise. Must be equipped with an internal or external nitric oxide (NO_x) filter. Refer to ANSI/BPI-1200-S-2017 for additional equipment requirements.
2. Smoke test kit capable of measuring relative soot level in flue gases.
3. Calibrated digital gauges capable of measuring draft in either Pa (pascals) or IWC (inches of water column), gas pressure in IWC, and oil pump pressure in psi (pounds per

square inch).

4. Calibrated thermometers capable of measuring temperature of air in forced-air distribution and measuring temperature of water in hydronic distribution.
5. Calibrated air handler flow meter, TEC TrueFlow or equivalent, capable of measuring air flow in forced-air system.
6. Timing device capable of measuring seconds for clocking gas meters.

8.2.4 Minimal Required Combustion Safety Testing Equipment

1. Calibrated carbon monoxide or combustion analyzer capable of measuring CO “as measured”, and “air free”.
2. Calibrated combustible gas detector capable of identifying gas leaks, with adjustable tick rate and alarm when exceeding 10% of LEL (lower explosive limit) and must be classified as UL 913 Intrinsically Safe.
3. Gas leak detection fluid to confirm leaks identified with electronic detector.
4. Timing device capable of measuring minutes to check for appliance spillage.
5. Mirror or smoke to determine appliance spillage.
6. Borescope.
7. Ladders.

8.2.5 Minimal Computer Equipment and Software

1. PC, Laptop, or Tablet with Windows 7 or higher operating system
2. Office 365 to include Word, Excel, and Access
3. Modern internet browser (Chrome, IEdge, Firefox)
4. Email capability, Outlook or equivalent
5. Surface Pro X Business or equivalent (consumer version not allowed)
6. Office 365 to include Word, Excel and Access LTE compatible
7. Camera
8. Ability to use GIF, JPEG, JPG, and PDF files
9. Storage 512GB or larger
10. Memory 16GB or larger
11. Tablet accessories, some of which may be sold as a “bundle” for better pricing:
 - Stylus pen
 - Keyboard
 - Case (no specific type required, agency discretion)
 - Docking station

8.3 Required Building Assessment General

The Division requires that all agency and contracted auditors complete an assessment of all buildings that may be weatherized through the program.

8.3.1 Required Diagnostic Testing (all housing types with ductwork outside the thermal boundary).

1. Overall building air leakage rate in CFM₅₀ (As-Is and Final tests). Contact the [HE+ Help Desk](#) for guidance if unable to complete an “As-Is” blower door test at audit because of concerns regarding damaged/deteriorated possible asbestos-containing material (PACM).
2. ZPD (zone pressure diagnostics) for attached garages.
3. CAZ (combustion appliance zone) depressurization to determine greatest depressurization achievable.
4. Pressure pan forced-air distribution leakage testing (mobile home).
5. Room by room pressurization testing (mobile home).

8.3.2 Required Combustion Safety Testing (excludes MHML)

1. Detection of fuel leaks, primarily for gas and propane, but also oil.
2. Spillage testing under greatest depressurization at required time limit.
3. CO testing of combustion appliances including kitchen stoves.
4. Continuous monitoring of ambient CO.

8.3.3 Required Heating System Testing (excludes MHML)

1. Combustion Efficiency and CO.
2. Spillage testing under greatest depressurization and natural conditions at required time limit.
3. Fuel pressure (gas and oil).
4. Temperature rise.
5. If temperature rise results fall outside of manufacturer’s recommendations (pmi), additional testing may be completed. These tests may include Static Pressure and Air Flow measurements.
6. Smoke test (oil only).
7. BTU input.

8.3.4 Exhaust Fan and Ventilation Testing

1. Air flow of all exhaust fans.
2. Air flow of dryers vented to the outdoors.
3. Air flow of existing balanced mechanical ventilation, energy-recovery ventilator (ERV) or heat-recovery ventilator (HRV).

8.3.5 Required Documentation of Testing

1. Results of required testing shall be documented in the Diagnostic Workbook on the Auditor worksheet for the appropriate building type.
2. Testing not included in the Diagnostic Workbook shall be documented on the FDCF (Field Data Collection Form).

8.3.6 Shell Measure Assessment

1. All shell components of a building shall be accurately measured and recorded on the FDCF.
2. Insulation levels in all attics, walls, floors, or foundations that define the thermal boundary shall be determined and recorded on the FDCF.
3. Repairs necessary to protect energy conservation measures shall be identified and recorded on the FDCF.
4. Windows and doors shall be evaluated for general condition and recorded on FDCF.
5. A minimum inspection sample of at least 25 percent is required for all buildings with 5 or more units. The inspection sample shall include units from each floor and each building exterior wall orientation (i.e., direction) and shall be representative of each type of unit in the building. All common areas shall be inspected and addressed in the energy audit.

8.4 Electronic Audits and Measures Lists General

The State of Wisconsin utilizes the NEAT (National Energy Auditing Tool) for all 1 to 4-unit and 5 to 24-multi-unit dwellings, and MHEA (Manufactured Home Energy Audit) for mobile homes heated with bulk fuels or electricity. The Mobile Home Measures List (MHML) is utilized for mobile homes heated with natural gas. The audits and measures list are used to determine the recommended measures to be completed on weatherized buildings. NEAT and MHEA audits shall be performed according to the instructions in the Weatherization Assistant Guide found on the [HE+ TTA website](#).

8.4.1 Mobile Home Measures List (MHML)

The Division has developed protocols to use when auditing mobile homes that are heated with a natural gas appliance. Further details on how to use the MHML are available on the [HE+ TTA website](#) under Weatherization | Resources.

8.4.2 Weatherization Assistant Audits

At the beginning of each program year, the Division issues a “setup library” database for each agency to use within Weatherization Assistant energy audit software for analyzing the cost-effectiveness of planned weatherization work. Those default setup libraries are reviewed and adjusted annually. Default values of key analysis parameters, fuel costs, and fuel price indices are determined and updated in the setup library. A fuel price modifier for the Social Cost of Carbon (SCC) will be included for the four most common fuel types of natural gas, liquefied petroleum (LP) gas, fuel oil and electricity. The inclusion of the SCC modifiers will effectively increase measure and cumulative SIRs for weatherization units. Measures in the library are enabled according to Division policies and are updated with projected agency unit costs. Agencies shall use the audit software and database version designated annually by the Division and posted on the [HE+ TTA website](#).

It is each agency’s responsibility to review and update entries in the supply library for water heaters and refrigerators that are used by program contractors or suppliers. If bid prices change during the program year, the supply libraries shall be customized to reflect the agency’s current

replacement equipment models and costs. Agencies may opt to use the additional tabs in the supply library to document material costs and contractor costs for other work.

A single Weatherization Assistant audit is completed for each building. It should fully describe all details for the entire building that are necessary for an accurate energy audit. In accordance with [2.2.3 Customer Files](#), the Weatherization Assistant file associated with the building shall include the list of recommended measures and itemized cost measures actually installed in the building. When actual fuel consumption is utilized to select measures, the “Adjusted” recommended measures list shall be used.

Agencies shall maintain the final electronic version of each completed energy audit. The electronic copy of the energy audit shall, at a minimum, be maintained within the database in which it was created. Energy audits shall be uploaded to the HE+ System/WisWAP building file readily available to the Division.

Some weatherization measures are identified in Weatherization Assistant audits but are not included in the calculations to establish savings-to-investment ratio (SIR) metrics. In order to generate a Recommended Measures report that is reflective of all the measures and costs, these additional measures shall be selected from the user-defined options in the Itemized Cost tab. Building unit audits must have a cumulative SIR of 1.0 or greater before weatherization work may proceed if using DOE funds. Building unit audits must have a measure and an overall cumulative SIR of 0.80 if using Public Benefits or LIHEAP funds. Measure Skipping of cost-justified major measures is not permitted at any time.

8.4.2.1 General Rules for Data Entry into Weatherization Assistant Audits

1. Create the audit in accordance with policies and guidance as provided in the Weatherization Assistant Guide on the [HE+ TTA website](#) under Weatherization | Manuals & Guides.
2. Model all possible energy savings measures, especially shell insulation measures.
3. Include all planned repairs and Health & Safety measures in the audit.
4. Use the Itemized Cost tab to enter information for measures where energy savings or costs are not included in the cost-effectiveness analysis. Some common examples are:
 - Programmable thermostats
 - Lighting efficiency improvements
 - Domestic hot water measures (faucet aerators, shower heads, etc.)
 - Freezer replacement, including removal incentives
 - Refrigerator removal incentives
 - Installing, sealing and/or insulating forced-air distribution
 - Miscellaneous heating system work, including heating system clean and tunes
 - Exhaust ventilation
 - Slab-on-grade exterior foundation insulation
 - All ZR coded repair measures shall be entered in the Itemized Cost Tab and included in the cumulative SIR. ZZ coded repair measures are to be entered in

the Itemized Cost Tab, but not to be included in the cumulative SIR. Repairs are only allowed when necessary for the effective performance or preservation of energy conservation measures or materials. Repair measure costs shall be justified by written and photo documentation in the customer file upload.

- The cumulative SIR including repair expenses shall be greater than 1.0 in order to complete the planned repairs if using DOE funds. Buildings that cannot be addressed with the repair ZR or ZZ codes shall be deferred for weatherization. If an agency uses DOE funding for a repair, DOE funding must be used for an ECM. DOE funding cannot be used for a repair only on a job.
 - ZZ coded repair costs shall be separated from energy conservation and health and safety measure costs when reporting the completed measure in HE+ System/WisWAP using PB, LIHEAP or DOE Weatherization Readiness funding. There is a limit of \$6,000 per unit in 1 to 4 unit buildings, owner-occupied home for ZZ coded repairs without prior approval from the Division.
5. Health and safety measures shall be identified in the Itemized Cost tab. Health and safety costs are not included in the cumulative SIR. Single-family houses and mobile homes where completed energy audits show total estimated health and safety costs of \$5,000 or greater shall be reviewed and approved by the Program Manager, or designee. The documentation of reviewed items shall be contained as a note in the HE+ System/WisWAP building file.
- If health and safety costs end up exceeding \$5,000 in single-family homes and mobile homes because of issues that arise during weatherization, the Program Manager, or designee, shall review and approve the revised job. There shall be documentation in the customer file of the conditions which caused the additional costs, and the reason they were not previously identified. The documentation of reviewed items shall be contained as a note in the HE+ System/WisWAP building file.
6. Model all water heater replacements first as an ECM on the baseload tab. If the water heater measure is not selected (the water heater is not a cost-effective ECM), but replacement is still necessary, run the model again, with the water heater included as a Health and Safety measure in the Itemized Cost tab. Beginning October 1, 2022 with the creation of the Program Services for water heater replacements, the agency may consider a Weatherization Referral.
7. Heating system modifications (repair, distribution, replacement, or additions) shall be modeled as follows:
- When modifications to a heating system are required for the proper installation of a replacement heating system, include those costs with the cost of the replacement heating system measure and model the complete system in the Heating tab.
 - When modifications to the heating system are required for the proper operation of the existing or replacement heating system, identify the measure and cost separately in the Itemized Cost tab. The cost shall be included in the cumulative SIR, but not in the SIR evaluating the cost of the heating system replacement measure. Report the repair costs separately in HE+ System/WisWAP. ZZ coded repairs are not to be included in the SIR.

8. A furnace replacement may occasionally require installation of a new/compatible a-coil. Approval from the HE+ Help Desk is required prior to replacing the a-coil.
9. Include information about existing air conditioners in Weatherization Assistant to model electricity savings that may result from shell and insulation measures.
10. When the estimated cost of a measure, based on a contractor's bid or the agency's labor and materials for that job, differs from the agency's default cost by more than +/- 20 percent, a cost shall be included in the Additional Cost field in the measure's tab.
 - When the estimated cost of a measure is less than the agency's default cost, enter a negative number in the Additional Cost field in the measure's tab.

NEAT/MHEA Modeling Guidance: For additional modeling guidance see the Weatherization Assistant Guide found on the [HE+ TTA website](#) under Weatherization | Manuals & Guides.

8.4.2.2 Modeling Buildings Using Fuel Consumption

The agency shall collect and use actual fuel consumption data provided by the WHEAP Referral or by the customer for all buildings where natural gas or electricity is the primary heating fuel. Note that a completed HE+ application includes a release allowing fuel vendors to supply a customer's energy use information for weatherization purposes. All vendors participating in WHEAP have agreed to provide billing information.

Utility usage data for a full year is preferred. Data for a minimum of 4 months that includes the most recent heating season is acceptable. When fuel records cannot be obtained for the heating season of the previous year for all heating systems in the building, actual fuel consumption data is not required to model 1 to 4-unit buildings.

Customers sometimes attempt to significantly reduce energy expenses with the following practices:

- Closing off at least 50 percent of the rooms to only heat part of the building.
- Maintaining the home at a temperature below 65 degrees for more than 12 hours per day during the heating season.

In cases where the customer is attempting to significantly reduce energy expenses in this manner, the Division strongly recommends entering the actual fuel use data available into the audit, then comparing the difference in predicted consumption (20% is the accepted difference) and available fuel use data, to validate the use of "default" audit values (instead of "adjusted" values). The circumstances justifying the use of the default audit results shall be documented in the customer file.

The date-appropriate Therm Calculator shall be used for 1 to 4-unit buildings and mobile homes. The Therm Calculator is used to weather-normalize the known/actual consumption for average heating degree days. It will also assist energy auditors in estimating the heating fuel consumption when multiple fuels are used and/or when a full 12 months of usage data is not available. The calculator is available on the [HE+ TTA website](#) under Weatherization | Calculators.

For multifamily buildings, the 5 to 24-Unit Building Workbook shall be used in conjunction with the NEAT audit. Actual fuel consumption data is required. Use the workbook to weather-normalize the consumption for average heating degree days. The workbook may also be used to estimate space heating usage for units that do not have consumption data available. Multifamily 5 to 24-unit buildings with a shared/master meter for space heating shall have the fuel consumption records for the preceding 12 months submitted by the building owner as a part of the certification process.

Buildings with individual mechanical systems in each unit shall have the actual consumption records for each unit for the year. Tenants not certified as HE+ eligible (free riders) will need to provide fuel consumption records to the building owner or the agency. If fuel records are unavailable, free riders will need to sign a release to allow access to their utility records.

8.3.2.3 End-State Planning

The primary goal of the Weatherization Assistance Program is energy cost reduction, and the inclusion of health and safety improvements to the units occupied by low-income persons served shall be limited to such improvements that are related to the energy efficiency work completed.

End-state planning is required for all weatherization jobs and shall be conducted prior to proceeding with weatherization work. The Diagnostic Workbook contains a modeling worksheet that assists in predicting air sealing effectiveness and likely post-weatherization ventilation requirements. End-state planning involves conducting tests and analyzing the characteristics unique to each dwelling in order to:

- a. Select and implement the appropriate measures and accurately estimate costs.
- b. Estimate the post-weatherization building CFM₅₀ infiltration rate.
- c. Estimate the post-weatherization natural ventilation rate per occupant.
- d. Identify the potential need for post-weatherization local exhaust ventilation and/or whole building mechanical ventilation.
- e. Estimate the post-weatherization greatest depressurization.
- f. Identify potential post-weatherization combustion safety issues.
- g. Make critical decisions regarding deferral or prevention and resolution of potential combustion safety issues.
- h. Provide information to plan and manage the job to avoid unexpected delays.

8.4.2.4 In-progress Changes in Measures

Occasionally, valuable energy conservation measures are identified during the job process. Prior to installing an ECM that was not identified or included as part of the original audit, the identified measure details must be entered in the audit and evaluated for cost-effectiveness. If the measure meets the minimum SIR of 1.0, the ECM may be installed if using DOE funds, or a minimum of 0.80 SIR for PB and LIHEAP funds. Measures that may be involved include, but are not limited to:

- Refrigerator replacement
- Freezer replacement

- Attic insulation
- Wall insulation
- Floor insulation
- Foundation insulation
- Box sill insulation

It occasionally becomes necessary to add a water heater or heating system replacement measure after work has begun. Before proceeding, the audit shall be updated with the equipment replacement(s) modeled, and the measure and cumulative cost-effectiveness shall be re-calculated. If the job SIR is 1.0 for DOE funded jobs, work may still proceed, or SIR is 0.80 for PB or LIHEAP funds. Enter the replacement in the Itemized Cost tab as a Health and Safety measure (not included in the cumulative SIR). If required per Section 5.3.4 Health and Safety, the Program Manager, or designee, shall review the job and determine if the measure is necessary and the job's costs are reasonable. Review documentation shall be uploaded to the building file, or a note entered what was reviewed. Referral of heating systems and water heaters to Program Services is an option if the household has a current year application that proves income eligibility.

8.4.3 Modeling Mobile Homes with MHEA

The MHEA audit is visually similar to the NEAT audit, but there are differences in how data is entered and how the audit models measures. Special areas of concern are identified in [8.10.2.1](#). Mobile homes that have multiple additions and/or a basement may still be classified as a mobile home if the HVAC system is set up as a standard mobile home installation. When a combustion appliance zone is located in the basement, it may be more appropriate to treat the mobile home as a site-built structure. The determination should be made at the energy audit. The proposed measures may assist in the decision of which software should be used. Use Table 8.1 below to help guide that decision.

Table 8.1: Guidance for Determining Computerized Audit Software

| | Which software to use? | |
|---|--|---|
| | MHEA | NEAT |
| Building characteristics to consider when deciding which software is appropriate for the building | Heating system and water heater located on main floor | Heating system and water heater are or will be located in basement or crawl space |
| | | Ducts and/or plumbing in basement or crawl space |
| | Non-conditioned basement or crawl space | Intentionally (or unintentionally) conditioned basement |
| | Multiple additions that are similar and could be accurately modeled as one | Multiple additions with different wall characteristics |
| | When belly insulation will be maintained as the thermal barrier | When box sill or foundation insulation is an option |

8.4.4 Modeling 5 to 24-Unit Buildings with Weatherization Assistant

Buildings with 5 to 24 units are modeled using the NEAT audit. In all cases, the entire building exterior shell will be modeled as one heated space. The units are all modeled together for cumulative measures and average conditions. In special cases, (condos and townhouses) NEAT modeling may be separate audits for each unit. This is contingent on the building design. As noted above, regardless of the audit strategy, actual data from a representative sample of 25 percent of a building’s units is required. Buildings with master metered fuel for heating require a contribution.

Additional Wisconsin policy requirements are:

1. The 5-24 Setup Library is adjusted to show all measures that have an SIR > 0.5, to show measures that might be completed if the owner is willing to buy down the cost. Owner buy downs are not allowed in buildings with fewer than five units.
2. Model the full cost of all measures in the initial audit, even if the owner may be paying part of the cost. Calculations regarding buy downs and actual agency costs for measures will be completed and documented in the 5-24 Unit Workbook.
3. Use the 5-24 Unit Workbook to generate savings information for multiple measures. The workbook is available on the [HE+ TTA website](#) under Weatherization | Workbooks. The savings information and costs shall be incorporated into NEAT’s Itemized Cost section to evaluate multiple measures.
4. Available actual fuel records shall be entered on the Energy Consumption worksheet in the 5-24 Unit Workbook. The estimated total building consumption must be entered in the Utility Bills tab of the NEAT audit. NOTE: Use the Electric Usage worksheet when the building is heated with electricity.
5. Single measures or measures not addressed in the 5-24 Unit Workbook shall be

modeled in the appropriate tab in the NEAT. Most often this will be itemized costs.

6. If there are no buy down measures for the owner to consider, proceed to upload the audit into the HE+ system.
7. If there are buy down measures, communicate with the building owner to get their agreement to provide a contribution and approval to proceed with any or all buy down measures.
 - a. If the building owner does not agree to provide a contribution to buy down measures, upload the original audit to HE+. After the audit is uploaded, edit the job to mark the buy down measures as not installed and a comment that the building owner did not agree to a contribution to install.
 - b. If the building owner agrees to provide a contribution to buy down any measures, for each accepted measure enter the estimated contribution as a negative (-) additional cost in the NEAT audit and a comment about contribution. Run the revised audit to ensure that all accepted buy down measures have a 0.8 SIR. Upload the revised audit to HE+ and edit the estimated cost of the accepted buy down measures to reflect the full cost. Remember to enter the building owner's contribution as a reduction to the final actual cost prior to invoicing. Be sure to also edit the job to mark the buy down measures not accepted as not installed and a comment that the building owner did not agree to a contribution to install.
8. The HE+ system will not allow a funding source to be selected if the SIR is < 0.8 in the uploaded audit.

8.5 Computerized Audits for Buildings of 25 or More Units

Weatherization of buildings with 25 or more units is suspended until further guidance is issued.

8.6 Audit Requirements and Measure Specifications

1. All work will be completed in a cost-effective and professional manner.
2. All materials will be installed to manufacturer specifications. For more specific information on installation procedures and guidance see the Wisconsin Weatherization Field Guide.
3. All debris shall be removed from the job site and disposed of properly.
4. All work will follow applicable codes and regulations of the authorities having jurisdiction.
5. Contractors providing services must be licensed and/or registered to provide those services if required by the authority having jurisdiction.
6. Building permits and any related costs are the responsibility of the agency.
7. The Division will be the final authority for any questions regarding specifications and measures.
8. A description of maintenance and operation requirements of completed measures shall be provided to occupants.
9. Agencies shall make a reasonable effort to install products that meet ENERGY STAR® standards, whenever feasible. See materials specifications and procurement standards available on the HE+ TTA website under Weatherization | Procurement.
10. All materials used shall meet the requirements outlined in Chapter 6 Procurement.

11. All removed or replaced appliances and materials including, but not limited to, furnaces, water heaters, refrigerators, and freezers shall become property of the agency for recycling and proper disposal in accordance with state and federal regulations.

8.6.1 Attic and Knee Wall Areas General

Model all ceiling/attic spaces for insulation. For enclosed cavities, model the maximum capacity that the space can accommodate. Add the amount of insulation that the energy audit specified. Determine the effective R-value of existing insulation by assessing the gaps in the insulation coverage. Use the following information to guide effective R-value estimates.

1. Good - One inch of insulation in good condition with unbroken coverage will have an R-value between 2.5 and 3.75 (contingent on the type of product).
2. Fair - One inch of insulation in fair condition (small gaps significant compressed areas) will have an R-value between 1.75 and 2.6 (approximate 30 percent loss in R-value).
3. Poor - One inch of insulation in poor condition (many substantial gaps and compressed areas amounting to 50 percent if area is uninsulated areas amounting to 5 percent) will have an R-value between 1.0 and 1.5 (approximate 60 percent loss in R-value).

When attic insulation is not being installed but attic prep work needs to be addressed, model the work in the Itemized Cost tab as “Attic Prep-No Insulation” and check “Include in SIR.” Report the work in HE+ System/WisWAP using the related measure, “Attic Prep-No Insulation.” Any insulation “blow over” necessary to restore existing functional insulation levels shall be part of the attic prep cost. Post an insulation certificate in the building upon completion.

8.6.1.1 1 to 4-Unit and Multifamily Attic and Knee Wall Areas Specifications

1. Complete air sealing of key junctures and bypasses before adding insulation. Insulate access hatches to the R-value of the attic insulation or maximum structurally allowable, whichever is lower. Box around attic entry to allow for repeated access.
2. Insulate the vertical and sloped areas to the maximum structurally allowable.
3. Vent all exhaust fans to the exterior. Seal and insulate all ducting for exhaust fans, to a minimum of R-8.
 - a. Ducts with existing insulation do not have to be re-insulated. Ensure insulation is secure and provides continuous coverage.
4. Prior to insulation, prepare the attic by installing barriers around fan housing, chimneys, access points, and recessed lighting. If live knob-and-tube wiring cannot be eliminated from the attic, install a barrier to maintain a 3-inch air space around wires.
5. Identify all electrical junction boxes and live knob-and-tube barriers with flags. A cover is to be installed to all open junction boxes.
6. If heating system distribution runs through the attic, seal all seams and insulate to an R-8 prior to installing any insulation over the distribution ducts.
7. Install attic ventilation based on applicable code requirements or if there is a potential moisture source that cannot be isolated or controlled by air sealing.

8.6.1.2 Mobile Home Attic Specifications

1. Complete attic preparations including building barriers around fan housing and recessed

lighting fixtures, and sealing chimney, key junctures, and other obvious bypasses.

2. Vent all exhaust fans to the exterior. Insulate exhaust fan ducts when feasible to R-8.
3. Model all ceiling/attic spaces for insulation. For enclosed cavities, model the maximum capacity that the space can accommodate. Add the amount of insulation that the energy audit specified.

8.6.2 Sidewall Insulation General

Model all uninsulated exterior walls of heated spaces to the maximum structurally allowable. Model related repair costs separately in the Itemized Cost tab. Model each sidewall where voids are 10 percent or more of the sidewall area. Install insulation to the R-value allowed by the NEAT audit, using dense-pack insulation techniques for loose-fill insulation. See the Wisconsin Weatherization Field Guide for more details on dense-pack techniques.

8.6.2.1 1 to 4-Unit and Multifamily Sidewall Insulation Specifications

1. Lift or remove the exterior layer of siding to drill through sheathing and any sub-layers of siding.
 - a. If siding cannot be removed, there shall be documentation in the customer file of the conditions that limited the removal of the siding.
2. Transite (slate) siding shall be removed intact only by persons with appropriate Department of Health Services (DHS) asbestos certification unless the siding has been tested and does not contain asbestos (see Chapter 9 for complete asbestos policy).
3. Sidewall insulation shall be installed following Lead-Safe Weatherization (LSW) procedures, under the supervision of a Lead-Safe Renovator when applicable (see Chapter 9 for complete lead policy). Any person who completes this work shall have been trained in LSW procedures.
4. Consider using blown fiberglass in buildings with brick façade.

8.6.2.2 Mobile Home Sidewall Insulation Specifications

1. Inspect exterior siding and the interior wall materials to determine if insulating will create any structural problems.
2. Insulate walls with complete coverage and uniform density throughout the accessible wall cavity.

8.6.3 Foundation/Floor Insulation General

Model foundation walls or floors that define the heating envelope, including the exterior walls of unintentionally conditioned crawl spaces, box sills, and slab-on-grade assemblies, for insulation with an energy audit. Add the amount of insulation that the energy audit specified.

8.6.3.1 1 to 4-Unit Foundation/Floor Insulation Specification

1. Complete air sealing prior to insulating, unless spray foam is being used for both purposes.
2. Model uninsulated box sill areas for installation of faced fiberglass batts or two-part foam.

3. Model floors for insulation where they define the heating envelope to the maximum R-value structurally allowable.
 - a. Install a minimum 6-mil vapor retarder over exposed earth floors, unless it presents a tripping or slipping hazard. Walk boards may be installed for access to mechanical systems. If not completed, the project is not eligible for DOE funding.
4. Model accessible crawl space walls for insulation in unintentionally conditioned areas. Choose from the options listed in the audit for modeling purposes. The audit will not compare between insulation type, so multiple runs of the audit may be required. Add the type and amount of insulation that the energy audit specified.
 - a. Note: two-part foam insulation may be used to insulate crawl spaces only when the area may be isolated from the interior of the building by a thermal barrier, such as half-inch drywall or plywood, from the interior of the building. For more information see Wisconsin Uniform Dwelling Code (UDC) [SPS 321.11](#).
 - b. Install a minimum 6-mil vapor retarder over exposed earth floors. If not completed, the project is not eligible for DOE funding.
 - c. A laminated sign (minimum size of 8 1/2" by 11") shall be posted inside of the crawl space access. The sign shall include contact information of the installer and shall caution those entering the crawl space not to damage the air barrier, ground moisture barrier, insulation, or mechanical components specific to the crawl space. It shall prohibit storage of hazardous and flammable materials and shall instruct those entering to contact the agency if damage occurs to any materials in the crawl space. An optional "Crawl Space Sign Template" is available on the [HE+ TTA website](#) under Weatherization | Forms.
5. Model exterior insulation of all accessible slab-on-grade foundations, inaccessible heated crawl space foundations, and conditioned basements having an average above-grade exposure of 30" or more on the exterior surface of the exterior wall.
 - a. If the model indicates a measure SIR of 1.0 or greater for DOE funds or 0.80 SIR if using PB or LIHEAP funds, insulate exposed foundations with extruded R-5 foam board, with a durable weather resistant coating, to a minimum of 6" below grade.

8.6.3.2 Mobile Home Foundation/Floor Insulation Specifications

1. Prior to insulating the belly: Seal duct work and repair holes in the belly.
 - a. A 6-mil vapor barrier may be installed over exposed earth, based on site conditions.
 - b. Belly repair shall be modeled as a repair measure in the Itemized Cost tab.
2. Insulate floors to the maximum the structure allows.
3. If installing blown fiberglass: Install at a density of 1.25 to 1.75 pounds per cubic foot.
4. Do not dense pack or over-fill area.
5. Install a minimum of 2" of insulation between water pipes and the belly barrier and below ducts.

8.6.3.3 Multifamily Foundation/Floor Insulation Specifications

1. Where the heating envelope is defined, insulate floors to the maximum R-value the structure allows.
2. Insulate the accessible areas of slab-on-grade foundations to a minimum of R-5, and to a maximum of 6" below grade. Use extruded foam board with a durable weather resistant coating.
3. Seal and insulate accessible crawl space walls to a minimum of R-12 and to a maximum of R-19. Typical applications include fiberglass insulation, two-part foam, or rigid insulation.
 - a. Install a vapor retarder over exposed earth in limited-access crawl spaces.
 - b. Do not install a vapor retarder in any traffic area.
4. Seal and insulate box sill areas using faced fiberglass, rigid board, or two-part foam up to a maximum of R-19. The box sill area shall be air sealed prior to insulating.
5. Do not install insulation if it will cause or worsen an existing moisture problem.

8.6.4 Windows

All windows modeled for replacement shall be in the primary heating envelope. To consider a window for replacement, it shall meet both of the following conditions:

1. The window(s) shall be located in the primary heating envelope.
2. The window(s) shall have rotted or deteriorated frames or sashes.

Photographs are required for **each** window to be replaced. The photograph shall document specifically why the window was replaced, e.g., rotted frame or rotted sash, rotted frame and rotted sash with deteriorated paint film. The photo(s) shall be uploaded to the HE+ System/WisWAP building file (see [Appendix E](#) and [2.2.3 Customer Files](#)).

The work shall be done in a lead-safe manner under the supervision of a certified Lead-Safe Renovator (see [Chapter 9](#) for complete lead policy). Replace a window as an energy conservation measure if the measure meets a minimum 1.0 SIR for DOE funded jobs or 0.80 SIR for PB and LIHEAP funded jobs when tested with the NEAT/MHEA audit.

Window replacement is categorized as:

1. An Energy Conservation Measure when the measure is modeled as a shell measure and meets a minimum 0.80 SIR using PB or LIHEAP funds.
2. A Repair Measure when windows do not have a measure SIR of 0.80 or better. Enter the measure into the Itemized Cost tab and the cumulative SIR for the building is a minimum 1.0 SIR 0.80 SIR if using PB or LIHEAP funds with the ZR code. Check "Include in SIR."

Basement windows may or may not be located in the primary heating envelope depending on the conditioning of the foundation. When a basement is an unheated (non-conditioned) area, the windows are not in the primary heating envelope and may not be replaced. Basement windows may only be installed as a repair measure. Basement windows are exempt from the general requirement that windows meet ENERGY STAR® standards.

8.6.4.1 1 to 4-Unit and Multifamily Windows and Specifications

1. Cloudiness inside existing insulated glass (IG) units because of seal leakage does not constitute “failure” of the window or of the IG unit.
2. Re-weatherstripping of existing windows is allowed as an air sealing measure.
3. A window with a cracked or broken pane of glass, but where degradation of the frame and or sash is not occurring, will have only the glass repaired or replaced as an air sealing measure.
4. Window replacement in pre-1978 buildings shall be completed using lead-safe work practices, under the supervision of a certified Lead-Safe Renovator. For more information see Chapter 9 Lead-Safe Weatherization and Minimum Standards for Lead-Safe Weatherization (LSW).
5. Window replacements in buildings that are 50 years old or older are subject to historic review by the Wisconsin Historical Society if the building work incorporates any DOE or LIHEAP funding.

8.6.4.2 Mobile Home Windows Specifications

Insider storms on windows with primary single pane glass and no storm may be installed as a repair measure if MHEA doesn't select the measure as an ECM, provided the building has a minimum cumulative SIR of 1.0. Replace damaged insider storm windows on windows with primary single pane glass as a repair and if the cumulative SIR is 1.0 or greater. Repair or replace storm window glass when the glass is cracked or broken, but there is no degradation of the storm windows frame.

8.6.5 Air Sealing General

Use a blower door to guide air sealing work. Seal probable heat bypasses and key junctures. Repair or replace glass as needed. Whenever feasible, based on site-specific conditions, use diagnostic tools such as depressurization, infrared scanners, and smoke testing equipment to determine the appropriate sealing locations in the building, specific units, and common areas. Provide sealing work that will improve the thermal boundary of the building and address the tenant comfort zone. Complete air sealing to all building types based upon specific Wisconsin protocols. See the Wisconsin Weatherization Field Guide for more guidance on air sealing.

All air sealing work, depressurization testing, and spillage tests shall be documented in the Diagnostic Workbook. If zone pressure diagnostics are completed, document the results on the appropriate tab in the Diagnostic Workbook.

8.6.5.1 1 to 4-Unit Air Sealing Specifications

1. Seal all major attic bypasses, the box sill area if air leakage is identified, and key junctures as guided by the blower door. Replace missing or broken window glass and gross holes in the building envelope. Seal chases that may be open to the outside of the thermal boundary. Examples of these heat bypasses are open interior walls, garbage chutes, plumbing and heating chases, etc. These measures are classified as Major Air Sealing. Complete Major Air Sealing work prior to installing any other shell measures. Air sealing can be completed whether or not blower door testing is performed.

2. As a general rule for sealing "all major attic bypasses", conditioned air leaking into attics should be no greater than 10 percent of the total CFM50 of the final blower door test.
3. Conduct zone pressure diagnostic testing on homes with an attached garage, and in other homes as appropriate.
4. When a blower door test cannot be completed, perform Major and Minor Air Sealing. Minor Air Sealing targets drafts and aims to improve occupant comfort and is limited to one hour.
5. If recommended by the Diagnostic Workbook, Agencies may use depressurization tests to guide forced-air distribution system work, air sealing, and the maximum exhaust ventilation. Take steps to address depressurization that exceeds the guidelines.

8.6.5.2 Mobile Home Air Sealing Specifications

1. Seal all major attic bypasses. Replace missing or broken window glass and gross holes in the building envelope. Seal chases that may be open to the outside of the thermal boundary. Air sealing measures are completed on the building prior to installing any other shell measures. Air sealing shall be completed whether or not blower door testing is performed.
2. As a general rule for sealing "all major attic bypasses", conditioned air leaking into attics should be no greater than 10 percent of the total CFM50 of the final blower door test.
3. Conduct building depressurization tests in all units.
4. When a blower door test cannot be completed, perform Major and Minor Air Sealing. Minor Air Sealing targets drafts and aims to improve occupant comfort and is limited to one hour.
5. Use depressurization tests utilizing the Diagnostic Workbook to guide forced-air distribution system work, air sealing, and the maximum exhaust ventilation. Take steps to address depressurization that exceeds the guidelines.

8.6.5.3 Multifamily Air Sealing Specifications

1. Prior to insulating, air seal as follows:
 - a. Use the Multifamily Building Air Sealing Checklist to check and air seal typical air leakage locations including, but not limited to, heat bypasses between party walls and between the building and buffer zones, and building's key junctures.
 - b. Whenever feasible, use depressurization, infrared scanners, and smoke testing equipment as diagnostic tools to guide air sealing of attic bypasses, the box sill area, and key junctures.
 - c. Replace missing or broken window glass and seal gross holes in the building envelope.
2. After insulating, provide sealing work that will improve conditions in the tenant's comfort zone.
3. All air sealing shall be completed using materials with the proper fire rating.
4. Where appropriate, follow the basic air sealing procedures in the Wisconsin Weatherization Field Guide.

8.7 Mechanical Systems Measures

8.7.1 Heating System Replacement General

8.7.1.1 Modeling Replacement Heating Systems

Not all heating systems will be replaced. Follow the protocol below to determine if the system will be replaced.

Replacement heating systems modeled in the NEAT Heating System tab with a minimum SIR of 1.0 are considered energy conservation measures (ECMs) for DOE funded jobs, or 0.80 SIR for PB and LIHEAP jobs. Fuel switching is allowed when the replacement meets a minimum 1.0 measure SIR, and the job meets a minimum 1.0 cumulative SIR for DOE funds or 0.80 SIR for PB and LIHEAP funded jobs. Model all heating systems as an ECM first, unless otherwise indicated. A secondary heating system may be left in place only when it is properly modeled, meets the SIR requirements, and is operating safely. See the Weatherization Assistant Guide, section 6.0.8 on the [HE+ TTA website](#) under Weatherization | Manuals & Guides for further details on modeling secondary heating systems.

If the heating system replacement has an SIR of less than 1.0 for DOE jobs, or 0.80 for PB or LIHEAP jobs, model the replacement in the Itemized Cost tab as a Health and Safety replacement for each job or refer to the HE+ Program Services (Furnace) as a WX-REF if the customer has a current year eligible application.

8.7.1.2 Heating System Replacement

All heating system replacements shall meet the minimum specifications in the Wisconsin Weatherization Materials and Specifications and applicable procurement templates available on the [HE+ TTA website](#) under Weatherization | Procurement.

A Heating Systems Checklist shall be completed on every heating system installation, clean and tune or repair job by the technician performing the work. Heating System Checklists, inspection forms, and efficiency and safety test results on all heating systems (existing or replacement) shall be maintained in the customer file and uploaded to the HE+ System/WisWAP Building file.

1. Natural Gas and LP Forced-Air Furnaces:
 - a. Inspect and test all furnaces for safety and efficiency.
 - b. Model all furnaces for replacement as an ECM by selecting “Evaluate All”.
 - c. For unsafe furnaces that have a measure SIR of less than 1.0 if using DOE funds, or 0.80 SIR if using PB or LIHEAP funds.
 - i. Replace the heating system if the job has a cumulative SIR of 1.0 for DOE funded jobs or 0.80 SIR for PB or LIHEAP funded jobs or greater when modeled with the Health and Safety replacement.
2. Oil Forced-Air Furnaces:
 - a. Inspect and test oil furnaces for safety and efficiency.
 - b. Model all furnaces for replacement as an ECM by selecting “Evaluate All”.
 - i. With agreement from the building owner, model fuel switching to gas for oil furnaces that are candidates for replacement. Proceed with the fuel switch if

the measure SIR is 1.0 or greater if using DOE funds, or 0.80 if using PB or LIHEAP funds.

- ii. Oil tanks placed out of service by the weatherization agency in conjunction with a heating system fuel switch shall be sealed off or removed in accordance with Wisconsin Administrative Code ATCP 93. When performed with a fuel switch, report oil tank capping and removal in HE+ System/WisWAP measure ZRHS035 Fuel Switching.
 - iii. Existing oil tanks placed out of service prior to the weatherization energy audit may be sealed or removed in accordance with ATCP 93 only if a documented health and safety reason exists at the time of the energy audit. When sealed or removed for health and safety reasons and not in conjunction with a fuel switch, report all oil tank costs in HE+ System/WisWAP measure XHAQ035 Other Remediation (see [Appendix D](#)).
 - iv. In properties other than 1 and 2-unit buildings, the contractor performing tank cleaning and tank removal shall be certified in accordance with SPS Chapter 305.
- c. Unsafe furnaces that have a measure SIR of less than 1.0 may be replaced only if the job has a cumulative SIR of 1.0 or greater when using DOE funds or 0.8 when using PB or LIHEAP funds, when modeled as a Health and Safety replacement.

3. Boilers:

- a. Inspect and test boilers for safety and efficiency.
- b. Model all boilers for ECM replacement by selecting “Evaluate All”. Model only a high-efficiency gas boiler.
 - i. With agreement from the building owner, model fuel switching oil to gas.
- c. Unsafe boilers that have a measure SIR of less than 1.0 may be replaced only if the job has a cumulative SIR of 1.0 or greater when using DOE funds or 0.80 when using PB or LIHEAP funds, when modeled as a Health and Safety replacement.

4. Vented Space Heaters (non-wood):

- a. Inspect and test all space heaters for safety and efficiency.
- b. Model all space heaters for replacement as an ECM by selecting “Evaluate All”.
- c. Unsafe space heaters that have a measure SIR of less than 1.0 may be replaced only if the job has a cumulative SIR of 1.0 or greater when using DOE funds or 0.80 when using PB or LIHEAP funds, when modeled as a Health and Safety replacement.
- d. Direct-vented wall space heaters shall be sealed combustion.
 - i. With agreement from the building owner, model fuel switching oil to gas and convert room heaters to direct vent wall heaters, where feasible. Proceed with the fuel switch if the measure SIR is 1.0 or greater when using DOE funds or 0.80 when using PB or LIHEAP funds.
- e. Oil space heater replacement shall be approved on a case-by-case basis. Submit information for review to the [HE+ Help Desk](#).

- i. Include the Building ID# of the job, the reason for replacement, the reason why no heater fuel conversion is planned, and the manufacturer's specifications for the replacement unit, including the AFUE.
5. Other Space Heaters:
 - a. Stand-Alone Electric: Repair, replacement, and installation are not allowable costs.
 - b. Un-Vented Space Heaters: A home with an unvented space heater in the living space/inside the pressure boundary shall be deferred unless the space heater is to be removed as part of the required weatherization work, or the homeowner has the unit removed as part of the deferral.
6. Electric Conversion: Replace furnaces or baseboard heaters when there is an SIR of 0.80 for both the measure and the job, using PB or LIHEAP funds, or an SIR of > 1.0 if using DOE funds.
 - a. Modify the heating system type in the Heating tab to reflect planned replacement of the system and include the AFUE of the new system.
 - b. Use the Electric Fuel Switch Calculator Worksheet to determine the energy savings to be entered into the NEAT audit.
 - c. To determine the SIR for the measure and the job, enter the conversion information generated by the calculator into the NEAT Itemized Cost tab.
 - i. The required information includes the correct HE+ System/WisWAP measure line identification, the savings as predicted by the calculator, the fuel type saved, and the lifetime and the cost of the conversion.
 - ii. Proceed with the replacement system if the measure and the job have an SIR of 0.80 or better, or an SIR of > 1.0 if using DOE funds.
 - d. The Electric Fuel Switch Calculator Worksheet is available on the [HE+ TTA website](#). The completed worksheet results shall be printed and retained in the customer file.
 - e. Existing baseboard heaters may be left in place. Unless not feasible (for example, units serving a space with no other heating supply), disconnect the baseboard heaters to prevent continued use of the units.
7. Electric Heat to Cold-Climate Air-Source Heat Pump (ccASHP):
 - a. Model conversion to ccASHP by selecting "Evaluate Replacement with Heat Pump". Include only the percentage of heat that will be supplied by the new system.
 - b. The audit will model and combine savings for both heating and cooling when the building has existing cooling systems present.
 - c. System may be a mini-split or fully ducted. All costs must be included.
 - d. The percentage of the heating load being replaced should reflect when the replacement ccASHP may not provide adequate heat at lower temperatures
 - e. In case where there is no cooling system, customer is provided information about the potential increase in energy costs when the ccASHP is used for cooling.
 - iii. The annual combined heating and cooling annual operational costs shall be calculated with base electric price without the added SCC modifier to ensure

a household's energy burden does not increase when there was no existing cooling equipment in the building.

- f. Prior approval from the [HE+ Help Desk](#) is required prior to installing a ccASHP.
8. Wood (as primary system): Contact the [HE+ Help Desk](#) if switching from wood to natural gas or LP to obtain instructions on how to calculate energy savings. Wood-to-wood replacements shall be performed as a Health and Safety measure. Do not model as an ECM.
9. Non-electric secondary heating systems may be replaced if the system is a safety hazard and cannot be eliminated with the replacement of a primary system with prior approval from the [HE+ Help Desk](#).

8.7.1.3 Fuel Switching

Heating system replacements shall maintain the existing fuel type unless:

1. Natural gas or LP gas is available, and the fuel switch replacement measure has a minimum SIR of 1.0 for DOE funded jobs or 0.80 SIR for PB or LIHEAP funded jobs when tested with the NEAT audit as an energy conservation measure, or
2. The existing system is electric and the conversion models with an SIR of 0.80 SIR for PB or LIHEAP funded jobs when the projected savings are calculated using the Electric Heat Conversion Worksheet and entered into the NEAT Itemized Cost tab, or
3. There are systems using different fuels exhausting into the same chimney. If fuel switching is an option due to one of the conditions above, the agency may convert heating systems or water heaters with the customer's consent.
4. The annual combined heating and cooling annual operational costs shall be calculated with base fuel prices without the added SCC modifier to ensure a household's energy burden does not increase. This will be most important when a ccASHP is installed where there is no existing cooling equipment in the building.

Additional installation charges apply for winter installs of natural gas laterals. Agencies are encouraged to coordinate projects as to not incur additional charges for winter rates when practical.

1. If particular job circumstances dictate that winter rates cannot be avoided, the minimum cumulative job SIR to proceed with the fuel switch must be 1.5 or greater.
2. If job circumstances dictate that winter rates cannot be avoided and the cumulative job SIR is greater than 1.0 and less than 1.5, submit the .wdz file and other relevant information to the [HE+ Help Desk](#) for review. Prior approval by the Division is required.

All costs associated with fuel conversion shall be included with the heating system replacement measure when modeling the primary heating system for replacement with Weatherization Assistant. See the Weatherization Assistant Guide [HE+ TTA website](#) under Weatherization | Manuals & Guides for additional information on modeling fuel switches using NEAT and MHEA.

In HE+ System/WisWAP, report the heating system bid costs to the appropriate HE+ System/WisWAP heating system measure. Additional costs of fuel switching such as exterior lateral installation and oil tank treatments shall be included in measure ZRHS035 – Fuel Switching. If performing an LP to natural gas fuel conversion only (no replacement), report all

costs using HE+ System/WisWAP measure ZRHS035 – Fuel Switching. Include the total linear feet of exterior natural gas lateral installed and the type of fossil fuel switch (Oil to LP; Oil to NG; LP to NG) in the comments, when applicable.

The maximum allowable expenditure for measure ZRHS035 is \$1,500. If the fuel switching costs are estimated to exceed \$1,500 the agency shall contact the [HE+ Help Desk](#) and receive approval from the Division prior to proceeding with the fuel switch.

See the Fuel Switch Policy on the [HE+ TTA website](#) under Weatherization | Resources for additional guidance. Agencies shall notify the [HE+ Help Desk](#) and receive prior approval before proceeding with large-scale fuel switch projects (e.g., entire mobile home parks, neighborhoods, or communities).

8.7.1.4 1 to 4-Unit Heating System Replacement and Mobile Home Specifications

All replacement heating systems except for space heaters and wood space heaters shall meet the minimum Wisconsin Weatherization Program efficiency standards and the [AHRI Directory of Certified Product Performance](#) standards. Replacement wood space heaters shall be AHRI listed appliances. Wood heater installation shall conform to the requirements of NFPA 211.

1. Use the existing distribution system and gas supply line whenever safe and feasible.
2. Properly remove and dispose of existing unit. In electric conversions, the Division recommends disconnecting existing electric baseboard units at the service panel and leaving them in place.
3. New installations require a dedicated electrical circuit rated or fused to match the amperage of the new system's requirements for overcurrent protection.
4. Provide an owner's manual with a heating system replacement on or near the heating system. The manual shall be attached in a durable device that allows for repeated customer access.
5. Properly size replacement heating system units using an accurate analysis through REScheck™, ACCA Manual J, or an ACCA approved industry-accepted sizing procedure.
 - a. Review and document the sizing calculations for accuracy based on building parameters, R-values, U-value, oversizing factor used, and information listed in the WA measures list.
 - b. When sizing boiler systems, consider the capacity of the existing terminal devices and whether or not domestic hot water will be heated with the boiler. If the load is too high or too low for the house, make the necessary adjustments to the distribution system.
6. Space heaters (non-wood) require:
 - a. An air circulating fan (not applicable to electric baseboard).
 - b. A properly grounded duplex receptacle for electrical service.
 - c. A fire-rated floor protector if required per manufacturer's instructions (pmi), sized to the width and length of the space heater.
7. Install a condensate pump where needed to reach an appropriate drain. Condensate pipes generally may drain to 1) laundry standpipe; 2) a new standpipe or an indirect or

local waste pipe; or 3) a floor drain when the pipe can be properly secured and does not pose a hazard to the occupants. All installations require an air break. Condensate lines cannot be drilled directly into any drainpipe or drain to grade or to a sump pit. For the more information see Wisconsin Uniform Dwelling Code (WI UDC) SPS 323.156. Local jurisdictions may vary on acceptable options.

8. Condensate pumps may be installed using an existing (non-GFCI) receptacle accessible without an extension cord, a new GFCI receptacle, or directly wired in accordance with pump and furnace manufacturer's recommendations and the requirement of the code authority having jurisdiction.
9. Gas pipe will be installed, supported, and electrically bonded (if required) in accordance with NFPA 54 and the WI Uniform Dwelling Code. Follow the manufacturer's specifications for installation. For more information see NFPA 54 and WI SPS 316.250.
10. When improperly bonded CSST is present in the building at audit and no fuel system work will be completed as part of the weatherization job, the agency may bond the existing CSST properly, per NFPA 54 (sec 7.13.2), 2015 IFGC (sec 310.1.1), and NFPA 70 (NEC).
11. The CSST shall be properly bonded when any work is being completed on a gas combustion appliance (heating system, water heater).
12. Verify that flue-gas oxygen, temperature, draft, and carbon monoxide levels are within the manufacturer's specifications. Adjust as necessary.
13. Ensure that all remaining naturally vented combustion appliances are drafting properly.
14. Seal openings in chimneys where naturally vented combustion appliances are eliminated. A written notice on the chimney where sealed stating that the chimney is no longer functional is recommended.
15. Remove furnace humidifiers (with owner's permission) and seal water line whenever possible.
16. Ensure existing programmable thermostats are compatible with the furnace. Configure two-stage systems so that stages are controlled by the thermostat (building temperature), not the furnace (cycle time).
17. If the existing thermostat can't control multiple furnace stages based on air temperature, install a two-stage (or multi-stage) programmable thermostat compatible with the furnace.
18. Only if existing wiring cannot support the multi-stage thermostat, run new wiring.
19. Only if necessary, move the thermostat to another interior wall location that offers a straight wiring run. Leave the existing thermostat in place, and label it as having been disabled.

8.7.1.5 Multifamily Heating System Replacement Specification

Building owners may opt to replace existing heating systems that do not meet a minimum 1.0 SIR test as a part of their contribution toward the weatherization of the building. Miscellaneous heating system repair measures that are required for the heating system to function properly shall be modeled separately in the Itemized Cost tab. The owner's contribution shall be equal to or exceed the buy-down amount to generate an SIR equal to or greater than 1.0. Note: as stated in the General Policy and Specifications, the buy-down of measures shall not result in

other cost-effective measures being dropped from the improvement package. All measures that were cost effective after the initial energy audit is conducted shall remain on the list of measures to be completed at the property.

Replacement heating systems shall meet ENERGY STAR® standards whenever possible. Replacement heating systems that are not addressed in these specifications are subject to review and approval by the Division. All replacement heating systems shall meet the requirements of the Wisconsin Commercial Building Code, SPS 364 and the International Mechanical Code, as referenced by SPS 364 or any other commissioning requirements of the authority having jurisdiction.

- Gas Heating Systems - Natural Draft: Model all gas-fired heating systems for replacement. Inspect fan-assisted systems for potential safety issues and model for replacement if safety issues cannot be repaired.
- Gas Heating Systems - Sealed Combustion: Inspect systems for potential safety issues and model for replacement if safety issues cannot be repaired.
- Oil Heating Systems: Model for replacement if the existing system is 10 years or older in age. Inspect systems less than 10 years old for potential safety issues and model for replacement if safety issues cannot be repaired.
- Space Heaters: Model for replacement if the existing space heater is 10 years or older in age. If necessary, use the 5 to 24-Unit Workbook to generate savings information for multiple space heaters, incorporating the savings information and costs into NEAT's Itemized Cost Tab. Include all the costs associated with the fuel switch in the replacement costs. Inspect systems less than 10 years old for potential safety issues and model for replacement if safety issues cannot be repaired.
- Electric Furnace Conversion: Model for replacement with gas furnace with the energy audit or the Electric Heating System Conversion Calculator. Include all costs associated with the fuel switch in the replacement costs. Inspect all units that will not be replaced for potential energy conservation measures and safety issues.

All replacement heating systems, except wood burning units, shall meet the minimum Wisconsin Weatherization Program efficiency standards and the [AHRI Directory of Certified Product Performance](#) standards. The type of efficiency standard varies based on the fuel type and the heating system type (commercial versus residential).

1. Use existing distribution system and gas supply line.
2. Properly remove and dispose of existing unit. In electric conversions, the Division recommends disconnecting the existing baseboard units at the service panel and leaving them in place.
3. Provide an owner's manual with heating system replacements. Ensure that the owner or building manager receives training regarding effective operation, and procedures for start-up, operation, maintenance, and seasonal shut-down.
4. Install properly sized and commissioned units following the requirements of the Wisconsin Commercial Building Code or the authority having jurisdiction.
5. Install a condensate pump where needed to reach an appropriate drain. Condensate pipes generally may drain to 1) a laundry standpipe; 2) a new standpipe or an indirect or local waste pipe; or 3) a floor with a floor drain when the pipe can be properly secured

and does not pose a hazard to the occupants. All installations require an air break. Condensate lines cannot be drilled directly into any drainpipe. For the more information see the Wisconsin Plumbing Code SPS 382.33. Condensate pumps may be installed using existing receptacles, new GFCI receptacles, or directly wired per manufacturer's recommendations.

6. When required, an approved gas pipe type will be installed, supported, and electrically bonded in accordance with NFPA 54. Follow the manufacturer's specifications for installation. For more information see NFPA 54/International Fuel Gas Code Chapter 4.
 - a. When CSST is present in the building and not correctly bonded, the agency may bond the gas piping system even if no work is being done on the gas piping system.
 - b. The CSST shall be properly bonded when any work is being completed on a combustion appliance (heating system, water heater).
7. Seal openings in chimneys where atmospheric vented appliances are eliminated. When sealed, a written notice on the chimney stating that the chimney is no longer functional is recommended.
8. The installer shall guarantee materials and labor for heating system replacement for a period of one year, starting from the date of satisfactory installation.

8.7.2 Other Heating Systems Work General

Order a clean and tune measure for natural gas and LP heating systems that will not be replaced, only when diagnostic tests indicate that efficiency can be improved, or excessive CO production can be reduced to safe levels. Perform a clean and tune on all primary oil heating systems that will not be replaced.

Evaluate and test distribution systems. Seal major return and supply leaks. Seal and insulate ducts in unheated areas. Model system repair costs separately in the Itemized Cost tab. Programmable thermostats may be installed when the existing thermostat must be replaced, and the occupant is willing and able to program the replacement thermostat. Programmable thermostats are not recommended for boilers.

8.7.2.1 1 to 4-Unit, Mobile Home, and Multifamily Other Heating Systems Work Specifications

1. Clean and tune primary oil furnaces or oil boilers that will not be replaced. Secondary systems may receive a clean and tune as determined by the auditor when the work is likely to improve efficiency or reduce CO production to acceptable levels.
2. When improperly bonded CSST is present in the building at audit and no fuel system work will be completed as part of the weatherization job, the agency may properly bond the existing CSST to comply with NFPA 54 (sec 7.13.2), 2015 IFGC (sec 310.1.1), and NFPA 70 (NEC).
3. When performing a clean and tune, upgrading a shared electrical circuit to a dedicated circuit is not required. However, if the circuit is rated for higher amperage than is required by the heating system, provide a properly sized fuse or breaker at the appliance or at the service panel.

4. For sealed combustion heating systems installed as a one-pipe (exhaust only) system, convert the appliance to a two-pipe (intake and exhaust) system. Comply with manufacturer's instructions and NFPA 54 for location of intake pipe.
5. Inspect and test forced-air heating systems for temperature rise, air flow, and for Health and Safety problems.
6. Seal all gross holes, and seal distribution leakage as directed by the greatest depressurization achievable test recommendations in the Diagnostic Workbook when naturally drafting appliances are present in the building and when negative indoor air quality conditions exist in the basement CAZ. (Note: see the Wisconsin Weatherization Field Guide for additional guidance).
7. Take corrective action if a building CAZ is excessively depressurized or is otherwise negatively impacting natural draft appliances.
8. Measure the heating system's temperature rise to confirm that it meets manufacturer's specifications. (Note: see the Wisconsin Weatherization Field Guide for additional guidance).
9. Seal and insulate ductwork in unheated areas with a minimum of R-8 foil-faced insulation. When the ducts are exposed to the exterior a minimum of R-12 insulation shall be installed. Ducts may be insulated with two-part foam products that meet the federal specification for duct insulation.
10. Install dampers and ensure a proper temperature rise reading where ductwork is added.
11. Adjust fan speed levels as necessary to ensure customer comfort and to verify that the temperature rise for the heating system meets manufacturer specifications for new furnace installations. If adjusting fan speed levels does not bring temperature rise levels within manufacturer's specifications, consider performing ductwork modifications. When feasible, install cold air returns to second floor rooms as needed (especially where electric space heaters are used to condition the second floor). See the Wisconsin Weatherization Field Guide for modification specifications.
12. In rooms other than kitchens and bathrooms with limited or no return air, consider adding a return duct, undercutting the door, or installing a transfer grille or jumper-duct to improve the return air flow, with the owner's permission and when feasible.
13. Return grilles are not allowed in the combustion appliance zone and shall not be installed in non-conditioned areas or unintentionally conditioned areas.
14. Consult with customers about the removal of existing supply grilles on the plenum. A new supply register may be installed to replace plenum grilles at a location where conditioning is needed (e.g., a laundry area or work bench).
15. Boiler distribution systems shall be inspected for proper operation.
 - a. Flush the existing distribution system according to manufacturer's instructions. If instructions are not available, flush until water runs clear and free of sediment. For zoned systems, flush each zone separately.
 - b. Bleed air from the entire system.
 - c. Install an automatic fill valve and back-flow preventer if they are not present.
 - d. On compression (bladder style) expansion tanks, install an air-excluding device if not present. Systems with standard (non-compression) style expansion tanks should not have automatic air-excluding devices installed.

- e. Install a compression tank or fill the existing expansion tank and the system to the correct level.
 - f. Ensure all safety systems are operational. If a low-water cutoff and pressure relief valve are not present or not functioning properly, install compatible controls.
 - g. Where feasible, install electric vent dampers on atmospherically vented boilers.
 - h. Where feasible, install thermostatically controlled radiator valves on the major radiators.
 - i. Install outdoor reset and boiler controls, if feasible.
 - j. Inspect radiators. Repair or replace as necessary.
 - k. Install automatic and manual air bleed valves to eliminate air from each high point in the distribution system if they are not present and functioning properly.
 - l. Inspect supply and return lines and connections and repair leaks.
 - m. Insulate supply and return piping outside conditioned spaces with foam or fiberglass pipe insulation.
 - n. Model for extending new piping and radiators to conditioned areas like additions and finished basements that are currently heated by space heaters if feasible.
 - o. Insulate pipes in the circulating loop between the boiler and an indirect domestic water heater.
16. Outdoor reset controls
- a. High efficiency boiler: Install an outdoor air temperature sensor and boiler controls to improve efficiency. Include outdoor reset for all boilers and warm weather shutdown, unless it affects domestic hot water.
 - b. Non-high efficiency boiler: Consider implementing the requirement identified in 15a above.
17. Consider installing programmable thermostats with forced-air systems. Relocate thermostats to interior walls and instruct occupants regarding the operation of a setback thermostat. Programmable thermostats are the only allowable replacement thermostats that can be reported as an energy conservation measure. A reasonable effort shall be made to upgrade existing thermostats to a programmable thermostat that meets the household's needs. Properly recycle any thermostat that has been replaced. Many locations have designated collection facilities for household hazardous waste or conduct annual or occasional "clean sweeps." Contact the nearest DNR regional office for local options.
18. In the event the agency elects not to install a programmable replacement thermostat, a working thermostat shall not be replaced. If the current thermostat is non-functional, a conventional thermostat may be used but the cost shall be treated as a Repair Measure since energy savings are not associated with a non-programmable thermostat. Report thermostats separately from heating system replacement costs. Properly recycle any thermostat that has been replaced.
19. Replace oil filters.
20. For forced-air units that receive a clean and tune or replacement, provide the occupant with one of the following MERV 6 or higher filters:
21. One deep pleated (3" depth or more) disposable furnace filter, or

22. Six 1"-2" disposable filters (one installed; five replacements), or
23. One permanent cleanable filter.
24. Special filters for air cleaning may only be installed as a Health and Safety measure, based on building occupant medical conditions.
25. All forced-air systems shall have a filter cover. Magnetic filter covers are allowable only if they provide an adequate seal to the ductwork to prevent air leakage.
26. For all heating system work, including replacements, a tag shall be prominently affixed to the heating unit identifying the date of installation and who the customer should call for service. The tag information shall include the name, address, and telephone number of the service organization.

8.7.3 Water Heater Replacement General

Model water heater conversion or replacement as an energy conservation measure with the audit based on the criteria listed in the specifications. All replacement water heaters shall meet the minimum Wisconsin Weatherization Material Specifications, as specified in Appendix C below. The specifications are available on the [HE+ TTA website](#) under Weatherization | Procurement.

8.7.3.1 1 to 4-Unit and Mobile Home Water Heater Replacement Specifications

Heat Pump Conversions: Model water heater conversion from electric to heat pump, LP to heat pump, or oil to heat pump as an energy conservation measure when the following conditions are met:

1. The customer agrees to the conversion and is willing to complete required maintenance.
2. If the existing electric water heater is load controlled (time of use), the agency shall contact the [HE+ Help Desk](#) for approval prior to proceeding.

Fuel switch water heater conversions: Model water heater conversion from electric to gas, LP to natural gas, or oil to gas as an energy conservation measure when the following conditions are met:

1. Gas is available.
2. The customer agrees to the conversion.
3. If the existing electric water heater is load controlled (time of use), the agency shall contact the [HE+ Help Desk](#) for approval prior to proceeding with a fuel switch.
4. Replace the water heater if selected by the audit as an ECM. The replacement water heater shall be power vented and CSST properly bonded.

Replacement without fuel switching. Model electric to electric or gas to gas water heater replacement as an energy conservation measure with the audit if the existing water heater is over-sized for the household or the water heater needs to be replaced as a Health and Safety measure. Replace the water heater if the measure is selected by the audit as an ECM. See the Weatherization Assistant Guide Chapter 4 on the [HE+ TTA website](#) under Weatherization | Manuals & Guides for modeling guidance.

If the unit is a mobile home, the replacement water heater shall be rated for mobile home use and meet the following efficiency standards as listed in the latest editions of the [AHRI Directory of Product Performance](#).

Indirect water heaters may be installed when the building has, or will have, a high efficiency boiler and the water heater is selected as an energy conservation measure with the audit (a minimum 1.0 SIR for DOE funded jobs, or 0.80 SIR for PB and LIHEAP funded jobs). See the Weatherization Assistant Guide Chapter 4 on the [HE+ TTA website](#) under Weatherization | Manuals & Guides for additional details on modeling the indirect water heater.

1. When an existing indirect water heater must be replaced because of health and safety conditions, model the replacement as indicated above.
2. Removal and disposal of the old water heater is required.
3. Follow manufacturer's instructions when installing indirect water heaters.

The sizing of replacement water heaters shall consider the number of people in the household and the peak daily demand.

Replacement based on Health and Safety: If the water heater is not operating safely, model the replacement as an itemized cost, and report it as a Health and Safety replacement. Note: Replacement water heaters of the same type, with higher EUEF are allowed when a leaking water heater is replaced as a Health and Safety measure and there is an adequate draft and combustion appliance zone (CAZ) depressurization test values.

Affix a tag to the water heater identifying the date of installation and who the customer should call for service. The tag shall be prominently displayed and include the service provider's name, address, and telephone number.

8.7.3.2 Multifamily Water Heater Replacement Specifications

When needed to model multiple water heater replacements, use the 5 to 24-Unit Workbook to generate savings information. Incorporate the savings information and costs into NEAT's Itemized Cost Tab. Building owners may opt to replace existing domestic hot water heating systems that do not meet a minimum 0.80 SIR test as a part of their contribution toward the weatherization of the building. The owner's contribution shall be equal to or exceed the buy-down amount needed to reach an SIR of 0.80. The replacement system shall be properly sized. All work will follow the Wisconsin Commercial Building Code, any commissioning requirements that apply, or other codes and regulations by the authority having jurisdiction.

Gas to gas replacements or system conversion: Replace the water heating system if the replacement has a minimum 0.80 SIR when modeled with the energy audit. The replacement water heater shall be one of the following:

- a. Power vented and have a minimum .70 uniform energy factor (UEF). An indirect water heater working with a high-efficiency boiler system.
- b. A heat pump water heater with an UEF of 3.3 or greater.
- c. One of the units listed above with a solar component. Solar water heaters shall be modeled in the NEAT itemized Cost tab.

Fuel switch water heater conversions: Fuel switching water heating systems from electric to gas or LP to natural gas is allowed when the total cost for fuel switching the system is modeled with the energy audit, the measure meets a minimum 0.80 SIR, and the building owner agrees to the conversion.

Building owners may opt to replace (at their cost) existing water heating systems that do not meet a Weatherization Program measure SIR of 0.80 or better, with the actual cost counted as part of their contribution toward the weatherization of the building. The replacement system shall be properly sized and represent an increase in efficiency of at least 5 percent over the existing water heating system. The replacement shall be completed prior to the final inspection of the weatherization measures.

Electric to electric: Model the existing water heater system for replacement if the system is not properly sized, if the water heater needs to be replaced based on safety concerns, or if there is the potential to maximize energy efficiency. Replace the water heating system if the replacement has a minimum 0.80 SIR when modeled with the energy audit. The replacement water heater shall meet one of the following standards:

1. An electric storage water heater with a minimum .95 EF or .93 UEF.
2. A heat pump water heater with an EF of 2.0 or greater.
3. One of the units listed above with a solar component. For solar water heaters, contact the [HE+ Help Desk](#) for assistance in calculating the savings costs.

All replacement water heater(s) shall be sized properly for their intended use.

Removal and proper disposal of the old water heater is required.

Affix a tag to the water heater identifying the date of installation and who the customer should call for service. The tag shall be prominently displayed and include the service provider's name, address, and telephone number.

8.7.4 Cooling Replacement General

Not all cooling systems will be replaced. Follow the protocol below to determine if the system will be replaced.

Model central air conditioners or room air conditioners as an energy conservation measure with the audit based on the criteria listed in the specifications. All replacement systems shall meet the minimum Wisconsin Weatherization Material Specifications, as specified in Appendix C below. The specifications are available on the [HE+ TTA website](#) under Weatherization | Procurement.

8.7.4.1 Modeling Replacement Cooling Systems

Central or room air conditioners:

- a. Model replacement in the energy audit to determine approximate estimated savings based on default efficiency and cost entered in Setup Library.

- b. Enter pre and post cooling loads from audit results, pre and post efficiencies, and percent of cooling load supplied in cooling system replacement worksheet to calculate trued-up estimated savings.
- c. Un-check modeling of the replacement in the cooling tab and enter trued-up savings as an itemized cost record in the audit with actual costs.
- d. Prior approval from the [HE+ Help Desk](#) is required before proceeding with the installation of cooling systems.
- e. Room air conditioners with replacement of electric baseboard heat

NEAT combines savings for both heating and cooling savings when the baseboard heat is modeled for replacement with a ccASHP. Contact the [HE+ Help Desk](#) for further guidance when considering replacing both electric heat and cooling.

8.8 Baseload Measures

8.8.1 Lighting

Replace the most frequently used incandescent light bulbs with LEDs. Existing CFLs shall not be replaced with LEDs. LED bulbs do not operate in all styles of dimmable fixtures. Agencies shall install LED bulbs in dimmable fixtures at their discretion. Replace all halogen torchieres with LED torchieres and remove and dispose of old torchieres. Replacements shall be appropriate for the intended use and shall be installed and inspected prior to completion of the unit.

All lighting shall meet ENERGY STAR® standards. Agencies may use <https://www.energystar.gov/productfinder/> to check for availability of ENERGY STAR® certified lightbulbs, and use non-certified lightbulbs when ENERGY STAR® is not available, documenting this in the customer file.

8.8.1.1 1 to 4-Unit and Mobile Home Lighting Specifications

1. See the Weatherization Assistant Guide Section 4.5 on the [HE+ TTA website](#) under Weatherization | Manuals & Guides for modeling instructions.
2. LED dedicated replacement fixtures may be used, if appropriate.
3. Increase lighting efficiencies in common areas of 2 to 4-unit buildings.

8.8.1.2 Multifamily Lighting Specifications

Convert incandescent lighting to more efficient fluorescent, LED, or induction lighting as a single improvement package or measure as identified in the specifications. Replace exit lighting with LED replacements. When needed, use the 5 to 24-Unit Workbook to generate the savings for lighting packages, incorporating the savings information and costs into NEAT's Itemized Cost Tab. Individual lighting may be modeled with Weatherization Assistant.

1. Package lighting ECMs for the common area of the building in the following locations and conditions:
 - a. Exterior lighting that operates from dusk until dawn or longer.
 - b. Lighting in corridors and common areas, with occupancy sensors where feasible.
 - c. Model tenant lighting that is used most frequently for the longest duration.

2. The use of induction lighting to replace exterior mercury vapor or high-pressure sodium lighting is allowed.

8.8.2 Domestic Water Heater Measures

Install showerheads and flow restrictors. Reduce water heater temperature to 120 degrees, where feasible. **Do not** model domestic hot water measures with Weatherization Assistant. Identify measures in the Itemized Cost tab and **do not** check “Include in SIR.”

8.8.2.1 1 to 4-Unit and Mobile Domestic Water Heater Measures Specifications

1. Install 1.5 gallons per minute (GPM) or less showerheads and faucet aerators on every fixture.
2. Reduce water heater temperature to 120 degrees.
3. Insulate 6’ of hot and cold-water pipes from water heater if the water heater is located in a water heater closet with only an outdoor access in a mobile home.
4. Insulate all pipes on the circulating loop between the boiler and a sidearm water heater.

8.8.2.2 Multifamily Domestic Hot Water Heater Measures Specifications

1. Install 1.5 GPM or less showerheads and faucet aerators on every fixture.
2. For central boiler water heaters, insulate all accessible pipes within the boiler room, including the pipes in the circulating loop between the boiler and the water heater.
 - a. For hot water systems, install one and a half-inch fiberglass insulation on all pipes less than or equal to one and a half inches and two inches of fiberglass insulation on all pipes greater than one and a half inches in diameter.
 - b. For steam systems, install one and a half-inch fiberglass insulation on all pipes less than or equal to one and a half inches and three inches of fiberglass insulation on all pipes greater than one and a half inches in diameter.
3. Reduce water heater temperature to 120 degrees.
4. Where a recirculating pump is present, install an aquastat control on the return end of the loop to shut off the pump when the line is hot. Set the aquastat to turn on the pump when the line temperature drops to 110 degrees. Set the control to provide a deadband of 5 degrees or more.

8.8.3 Refrigerator Replacement and Removal

Model the refrigerator for replacement. The replacement unit shall meet Wisconsin Weatherization Program specifications. Replacement refrigerators are limited to one per household and shall be a top freezer automatic defrost model with no through-the-door ice or water and no automatic ice maker. The unit being replaced shall be the least energy efficient one. A removal incentive may be offered for additional units not being replaced based on the specifications below.

Bottom-freezer and side-by-side refrigerator units shall be considered on a case-by-case basis for households with accessibility considerations. Model the unit with the energy audit. If the audit generates an SIR of 1.0 or greater for DOE funded jobs or 0.80 SIR for PB or LIHEAP funded jobs, document the reasons for installation of the specialty unit in the customer file. If the

replacement does not have an SIR of 1.0 or greater and the agency has determined an installation is warranted, the agency shall submit a waiver request to the [HE+ Help Desk](#) and receive approval prior to installation of the specialty unit.

8.8.3.1 1 to 4-Unit, Mobile Home, and Multifamily Refrigerator Replacement and Removal Specifications

1. Follow the guidelines in Table 8.2 to size the replacement refrigerator.

Table 8.2: Refrigerator Sizing

| Existing Size | Modeled Size* | Example Exceptions |
|---------------------|---------------------|---|
| 14.5 – 19.4 cu. ft. | 17.5 – 19.4 cu. ft. | Large households, dimensions of opening |
| 19.5 – 21.4 cu. ft. | 19.5 – 21.4 cu. ft. | |

**When exceptions apply, model the appropriate size for the household. Use 16 cu. ft. refrigerator models rather than 15 cu. ft. whenever feasible.*

2. Offer a \$100 incentive for removal of additional functioning units manufactured prior to 2003 or units with R12 refrigerant listed on the label.
 - a. Incentives to remove a unit may be paid for a maximum of two refrigerators per household.
 - b. Units must be plugged in at the time of the audit and in use continuously for a majority of the year to be eligible.
3. Additional units that do not qualify for an incentive may be removed with customer approval. Report disposal costs in HE+ System/WisWAP with a comment about the additional unit disposal.
4. De-manufacture and properly dispose of all refrigerators removed.

8.8.4 Freezer Replacement and Removal

Functioning freezers equal to or greater than 7 cubic feet may be modeled for replacement. The replacement unit shall meet the Wisconsin Weatherization Program specifications in and be a manual defrost freezer of comparable or smaller size than the existing freezer. Replacement freezers are limited to one per household. Existing chest type freezers may be replaced with chest type freezers and existing upright freezers may be replaced with a chest freezer. A removal incentive may be offered for additional units not being replaced based on the specifications below.

8.8.4.1 1- to 4-Unit, Mobile Home, and Multifamily Freezer Replacement and Removal Specifications

1. Document existing freezer information in the customer file and as required in the HE+ System/WisWAP.
2. Both chest and upright freezers may be considered for replacement. Model freezers in NEAT using values obtained from the Freezer Replacement Calculator to determine if the freezer has an SIR of 0.80 SIR for PB or LIHEAP funded jobs. Freezers are not eligible for DOE funding. Maintain a copy of the completed Freezer Replacement Calculator in the customer file.

3. Replacement freezers shall be approximately equal to or less than the size of the existing freezers. In situations where downsizing is not feasible, consider the size of the family and the way they use the freezer in selecting a replacement freezer.
4. Offer a maximum \$100 incentive for removal of additional functioning units that are not being replaced, are ≥ 7 cubic foot or larger, and were manufactured prior to 2003 or have R12 refrigerant listed on the label.
 - a. Incentives to remove a unit may be paid for a maximum of two freezers per household.
5. Additional existing units that do not qualify for an incentive may be removed with customer approval. Report disposal costs in the HE+ System/WisWAP with a comment about the additional unit disposal.
6. Consolidation: When two freezers are present, with the owner's permission, model the combined total consumption for the two units with a single replacement unit of comparable volume up to 19 cubic feet.
7. De-manufacture and properly dispose of all freezers removed.

8.8.5 Clothes Washer Replacement and Removal

Functioning clothes washers that are not high efficiency may be modeled in the FDCF for replacement with a high efficiency ENERGY STAR® clothes washer. The replacement unit shall meet the Wisconsin Weatherization Program specifications. Replacement clothes washers are limited to one per household. Clothes washer replacement is an allowable measure for 1 to 4 units and mobile homes (VCW005). Clothes washers are not an eligible DOE measure.

8.8.5.1 Required Technical Specifications

Replacements shall meet current ENERGY STAR® standards.

| Clothes washer type | Integrated Modified Energy Factor (IMEF) | Integrated Water Factor (IWF) |
|---------------------|--|-------------------------------|
| Front load | ≥ 2.76 | ≤ 3.2 |
| Top load | ≥ 2.06 | ≤ 4.3 |

8.8.5.2 Required Feature Specifications

1. Rated size: ≥ 4.2 cubic feet and ≤ 6 cubic feet
2. Rated for residential (not commercial) use
3. Either top load or front load type
4. Color: White only
5. Unit includes all basic cycles: Normal, Delicates, Rinse only, Drain
6. Unit include settings to select either low or high spin rate
7. Metal-braided supply hoses
8. Minimum one-year warranty. See RFB section 6.5.
9. If a drain pan is needed (see Install Specification #3), it is to be installed. It will be an added invoice item. See the Cost Sheet to provide a Unit Cast of this item.

8.8.5.3 Installation Specifications

Installation specifications are included in the Weatherization Field Guide.

8.9 Health and Safety Measures

Health and Safety measures are defined as the cost of materials and labor necessary to eliminate or reduce hazards existing prior to, or potentially resulting from, the installation of weatherization materials. Resolution of Health and Safety hazards using Weatherization Program funds shall be done in conjunction with the installed ECM. Products meeting ENERGY STAR® standards shall be used unless otherwise indicated.

NEAT/MHEA Modeling Guidance: Select Health and Safety measures from the drop-down list using the Itemized Cost tab. Do not check "Include in SIR" box.

8.9.1 Combustion Safety Testing

Safety testing is required in all buildings that have combustion appliances present which excludes any building that only uses electricity as an energy source. Required testing consists of three parts, determination of greatest depressurization achievable (GDA) in a CAZ, a spillage assessment and CO measurement. The type of appliance and fuel type are used to determine which of the 3 safety tests are required. Testing procedures are detailed in the Wisconsin Weatherization Field Guide.

GDA for the CAZ, CO measurement and spillage assessment are conducted on all natural draft appliances equipped with a barometric draft control or Category I appliances equipped with a draft hood or connected to a natural draft venting system. The evaluation shall also include CO measurement on gas ovens, direct-vent, Category III and Category IV gas combustion equipment. GDA for the CAZ is also required for wood burning appliances.

8.9.1.1 CAZ Depressurization Guidelines

Depressurization guidelines are used to assess the safe operation of natural draft wood burning appliances or other appliances that cannot be tested for spillage. When the GDA is greater than the CAZ Depressurization Guideline of 5 Pa, corrective actions shall be taken when it is determined that spillage may occur. Possible corrective actions are to reduce depressurization by; sealing forced-air distribution, limiting exhaust appliance flow rates or providing make-up air.

8.9.1.2 Multifamily Considerations

1. In buildings with central heating systems, isolate the mechanical room (CAZ) from the rest of the building.
 - a. Provide properly sized combustion air as needed.
 - b. Seal forced-air distribution leaks in the CAZ.
 - c. Complete combustion safety testing based on appliances and fuel type.
2. In buildings with individual heating systems in each unit and/or common areas, identify the CAZ in each unit or area.
 - a. Ensure that there is adequate combustion air for each appliance.

- b. Complete combustion safety testing based on appliance and fuel type.
3. In buildings that incorporate an enclosed garage, determine the control methodology for managing combustion by-products.
 - a. Ensure that the mechanical exhaust ventilation is controlled effectively, operates properly, and is properly sized.
 - b. Where needed, install a carbon monoxide monitoring system that activates the garage ventilation equipment.
 - c. Where feasible, use diagnostic testing to ensure that there are no air pathways between the garage and occupied areas.
4. All air sealing shall be completed using materials with the proper fire rating. See [Appendix C](#) regarding weatherization materials for more information.
5. Install carbon monoxide alarms in all units that have gas appliances.

8.9.2 Mechanical Ventilation

Install properly sized mechanical ventilation when needed to ensure indoor air quality. Unless superseded by local codes, use the appropriate ASHRAE 62.2-2016 standard to calculate the requirements for continuous ventilation beyond the local exhaust ventilation requirements.

If a customer refuses ventilation required by ASHRAE 62.2-2016, the agency shall use discretion when proceeding with weatherization and may defer the building if there is a documented health and safety concern. If weatherization proceeds without the required ventilation, DOE funds shall not be used. All measures in the building must be invoiced to PB or EAP only.

Follow the Diagnostic Workbook guidance regarding whole building ventilation. See the Wisconsin Weatherization Field Guide for detailed ventilation specifications.

8.9.2.1 1 to 4-Unit and Mobile Home Mechanical Ventilation Specifications

The installation of any mechanical ventilation is not required in buildings requiring 0 CFM.

Whole building mechanical ventilation is not required in buildings with a calculated 20 CFM natural ventilation per occupant or greater or when the minimum calculated flow rate is less than 15 CFM. DOE funds shall not be used for buildings when whole building ventilation is not installed due to 20 CFM natural ventilation rule.

Whole building ventilation shall be installed either continuously or on an intermittent rate that meets the minimum required flow rate. Exhaust only whole building ventilation installed in full bathrooms and/or kitchens additionally shall meet local exhaust requirements.

Local exhaust is not required to be installed when the flow rate of installed whole building ventilation includes the alternate local exhaust compliance flow rates.

Local exhaust is required to be installed when not included with the installation of whole building ventilation and the calculated ventilation is at least 1 CFM and building has no local exhaust present. In buildings with existing local exhaust, provide the customer with education on proper

use of local exhaust. When the measured existing local exhaust is 20 CFM or less, consider installing additional local exhaust.

Agencies may install local exhaust ventilation in any buildings where there is documented evidence of moisture or indoor air problems. Measured flow rates of installed local ventilation must meet the minimum rates listed in ASHRAE 62.2-2016.

Ventilation controllers shall have a labeled on/off control option for customers. This may be accomplished by installing a controller with an on/off switch or a separate switch. Customers shall be provided with information on the current controller settings, ventilation needs, and spot moisture control. This information is included in the Customer Guidebook.

8.9.2.2 Multifamily Mechanical Ventilation Specifications

1. Whole building ventilation systems shall be properly commissioned when required by the local authority having jurisdiction.
2. Ensure that each unit has functional local exhaust ventilation for the main bathroom. This local exhaust ventilation shall operate at a minimum of 50 CFM under customer operation. Install local exhaust ventilation to meet 50 CFM requirement when existing does not. Provide the customer with education on the proper use of local exhaust.
3. Install continuous mechanical ventilation as required by ASHRAE 62.2-2016 or WI Commercial Building Code SPS 364 (Table 364.0403), as applicable. Install ventilation only in units requiring more than 25 CFM of continuous ventilation. When using the ASHRAE standard, the Diagnostic Workbook may be used to calculate whole building and individual unit ventilation requirements.
4. Install (or restore existing) whole building supply ventilation in any building where there is documented evidence of indoor air problems.
 - a. Base whole-building or individual unit ventilation requirements on the number of bedrooms plus one or the number of occupants, whichever is greater (ASHRAE 62.2), or the persons or CFM per square feet.
 - b. Document the exception conditions that justify the installation of the ventilation.
 - c. Utilize a controller which allows for an adjustment to the fan CFM based on changes to the household size. Ventilation controls shall give a labeled on/off option for customers. The building owner or maintenance staff shall be supplied with the equipment manufacturer's information and instructions for the adjustment of fan CFM.
5. In buildings that incorporate a garage, determine the control methodology for managing combustion by-products. If present, ensure that the exhaust ventilation is properly operating and properly sized. See Commercial Building Code [SPS 364.0403](#) for the minimum sizing requirements.

8.9.3 Replacing Wood Heaters General

All replacement wood space heaters shall be listed appliances. All wood heaters shall meet applicable local codes and EPA requirements. All installations shall conform to NFPA 211. All other applicable requirements shall be followed when replacing a wood stove.

8.9.3.1 1 to 4-Unit and Mobile Home Replacing Wood Heaters Specifications

1. All installations shall comply with manufacturer's specifications.
2. All wood heating units shall be certified to meet EPA emission standards or local standards, whichever is most restrictive.
3. Installed units are certified and labeled by:
 - a. National Fire Protection Association under 211; or
 - b. International Conference of Building Officials; or
 - c. Other equivalent listing organization.
4. Visually inspect chimney for safe operation in accordance with NFPA 211.
5. Install a stack thermometer where appropriate on all wood space heater installations. Follow the manufacturer's recommendation for proper installation.
6. Follow the manufacturer's recommendations for providing outdoor combustion air.
7. All customers shall receive in-home operation instructions to include proper wood-burning practices, proper maintenance and safety recommendations including the need for fire extinguishers.

It is important that customers understand the potential impact of exhaust ventilation on wood heater operation.

8.9.4 Other Health and Safety Measures General

Examples of other Health and Safety measures include:

1. Asbestos treatments, as necessary. The cost of asbestos work shall be modeled as an itemized cost and included in the SIR using the electronic energy audit or calculator required for the building type. See the Weatherization Assistant Guide on the [HE+ TTA website](#) under Weatherization | Manuals & Guides.
2. When not present or when existing smoke detectors are non-functional, install a smoke detector in the basement and on each floor in the thermal envelope. Install alarms in the vicinity of the sleeping area(s). Install smoke alarms in accordance with the manufacturer's instructions (SWS 2.0101.2c). See Wisconsin Weatherization Field Guide Chapter 5.
3. When not present or when existing carbon monoxide alarms are non-functional, install a carbon monoxide alarm on each floor and in the vicinity of sleeping area(s). If the sleeping areas cannot be monitored with one detector more than one detector shall be installed. See Wisconsin Weatherization Field Guide Chapter 5.
4. Sump pump covers are required to be installed and sealed when not present to reduce radon from entering the home, when applicable. When existing sump pump covers are not sealed, they must be sealed. See Wisconsin Weatherization Field Guide Chapter 5.

8.10 Repairs

Repairs are measures necessary for the effective performance or preservation of energy conservation measure materials. All repair measures ≤\$1000 shall be modeled using ZR measure codes in the Weatherization Assistant Itemized Cost tab and included in the SIR (see Weatherization Assistant Guide 4.5 Itemized Costs on the [HE+ TTA website](#) under

Weatherization | Manuals & Guides). Report the repair costs under the appropriate Repair category in HE+ System/WisWAP (see [Appendix D](#)). If the repairs reduce the cumulative SIR to below 1.0 for DOE funded jobs or 0.80 SIR for PB or LIHEAP funded jobs, the building cannot be weatherized without the repairs, the building shall be deferred and may be considered to proceed with the use of Weatherization Readiness Funds. Examples of repairs include minor repair of leaking roofs, major pressure boundary repairs, repair of electrical systems, or repair of hot and cold water leaks.

8.10.1 Weatherization Readiness Funded Repairs: ZZ Repair Codes

All repair measures >\$1000 shall be modeled using ZZ measure codes in the Weatherization Assistant Itemized Cost tab and NOT included in the SIR (see Weatherization Assistant Guide 4.5 Itemized Costs on the [HE+ TTA website](#) under Weatherization | Manuals & Guides). Report the repair costs under the appropriate Repair category in HE+ System/WisWAP (see [Appendix D](#)). Weatherization Readiness funded repairs can reduce the number of homes that remain in deferral status by allowing the use of the agency DOE Weatherization Readiness Fund (WRF), LIHEAP or Public Benefit Operations allocation to address deferral reasons so that energy conservation measures can be installed. Agencies are not required to use any portion of their LIHEAP or Public Benefits funding to address deferral reasons but are encouraged to do so. DOE WRF, LIHEAP and Public Benefits Repair funds shall be used only to complete measures that could not be completed using other funding sources and will bring the deferred unit back into production. Measures installed using these funds shall correct the issue(s) of deferral and allow weatherization services to proceed. Agencies shall evaluate the energy savings potential in the use of these funds. **Weatherization Readiness repairs using the ZZ repair code are limited to one to four units and does not apply to mobile homes.** DOE WRF shall be used for units with DOE formula grant funds or with the Bipartisan Infrastructure Law (BIL) grant funds.

These funds shall not be used for housing rehabilitation, restoration, remodeling, building additions, accessibility improvements, or enlarging the pressure boundary. Each agency will fund Weatherization Readiness Repair measures from their existing LIHEAP or Public Benefits Operations budget allocation for the current contract or the DOE Weatherization Readiness Fund. These funds shall be used in conjunction with a weatherization job. These funds will not address all reasons for deferral and buildings may still need to be deferred if they exceed the scope and policy of the Weatherization Readiness Repairs. A DOE ECM is required to use the DOE WRF.

Agencies should balance their DOE, LIHEAP and Public Benefits Operations budget between Repair work and their regular weatherization activities. Agencies are encouraged to establish a target percentage of funds allocated to Weatherization Readiness Repairs in comparison to weatherization measures at the beginning of each contract. Agencies should review deferral rates, reasons for deferral, cost estimates of repairs, and production levels to establish a target percentage to address repairs.

If the energy audit and diagnostic tests cannot be completed until repair work is completed, the agency shall contact the [HE+ Help Desk](#) for guidance. There still will be situations where it will be necessary to defer weatherization activities.

If a job has been deferred because repairs cause the SIR to drop below 1.0 for DOE-funded jobs or 0.80 SIR for PB- or LIHEAP-funded jobs, rerun the model with Weatherization Readiness Repair measures (code ZZ is not included in the SIR) to complete the repairs. Jobs that have an $SIR \geq 1$ can proceed with DOE funding and use Weatherization Readiness funds. Jobs with $SIR \geq 0.8$ can proceed using LIHEAP and PB funding only, DOE Weatherization Readiness funds must have at least one cost effective measure. Any repairs exceeding \$6,000 per funding source will need prior approval from the Division. Please submit the request to the [HE+ Help Desk](#). Include the following information in the HE+ System/WisWAP as part of the electronic file and supporting information uploaded with the building file:

- Documentation of deferral reason,
- Photos of deferral reason,
- Cost estimates for necessary repairs,
- NEAT WA .mdb file,
- Diagnostic Workbook

8.10.2 Eligibility and Process for Weatherization Readiness Repair Measures

All households must be determined to be Home Energy Plus eligible for program year 2023-2024 prior to the time of work being completed. Agencies may review their deferral lists and consider homes that have been deferred in the past if the household has an eligible application for the current year. Program income-eligibility (new HE+ WHEAP application) may need to be verified again, depending on the last date of eligibility (Stage 1). A new HE+ WHEAP application and energy audit may need to be conducted if the Stage 2, one-year window has lapsed.

1. Use of Weatherization Readiness Repair funds to address reasons for deferral is limited to one to four units and is not allowed for mobile homes.
2. Repairs may include, but are not limited to, electrical upgrades, replacement of knob-and-tube wiring, plumbing repair, removal of pests or clutter, correcting moisture or standing water issues (including installation of gutters/downspouts), roof patch, tuck under garages, wall/ceiling repair or pressure boundary repair.
3. Reporting and tracking will be completed using Weatherization Assistant and the HE+ System/WisWAP. Repairs will be entered into Weatherization Assistant using the special ZZ repair code.
4. All repair and weatherization work shall be completed within the Stage 2 window.
5. Agencies shall follow the same customer eligibility requirements, reporting, Standard Work Specifications, contractual obligations, insurance, lead and asbestos safe work and required certifications for workers, and operational directives, including procurement standards that are in place for the Wisconsin WAP.
6. All work performed shall meet any local building codes and obtain any municipality required permits as applicable. Materials and appliances shall be installed to meet Product Manufacturer Instructions (pmi).
7. HE+ System/WisWAP documentation shall include before and after photos, list of work and measures completed, job estimates (bids) and actual expense bills (invoices) for labor/materials/permits.
8. Weatherization Readiness Repair funds may be used to address unforeseen repairs on

in-progress jobs. The agency shall rerun the WA audit and enter itemized costs for those selected repairs with the ZZ code category. The audit will then be imported into HE+ System/WisWAP.

9. A deferral notification letter is not required to be sent to the customer if any Readiness funds are planned to be used for the repairs. Readiness repairs and weatherization shall be completion within the same contract year.
10. Work orders and the customer work agreement shall detail work specifications for any repair measures completed using the Weatherization Readiness ZZ code.
11. Agency weatherization staff may complete the repairs, unless a licensed professional is required by code. Agencies that do not have a licensed professional shall procure for those services as required by code.
12. Historic Review may be necessary when using DOE WRF funds for DOE jobs if the repair entails ground disturbance. The definition of ground disturbance is any work or activity that disturbs the ground. Excavating, digging, leveling, trenching, plowing, etc. are all ground disturbance activities. See Appendix A of the Divisions Programmatic Agreement with DOE and Wisconsin Historic Preservation Office regarding Historic Review.
13. Agencies are advised that removal of household debris/clutter, while permitted, is at the discretion of the agency. A general description is required to provide documentation as to what is to be removed and a time estimate for removal (i.e., 6'x8' room full of magazines and clothing, and will take two persons one hour), with a sign-off from the customer acknowledging their agreement with what is to be removed. Removal of personable belongings shall be included as part of the work agreement and work order. A signed disclaimer from the customer shall be obtained prior to off-site removal of such items.

Process:

Weatherization Readiness Funds can only be used on homes receiving weatherization services following the deferral correction:

1. Normally, deferrals are identified at the time of the assessment when someone goes to the home. For a new client that is being assessed for Weatherization services, if there are serious issues identified that are beyond the scope of eligible conservation and H&S recommendations utilizing the funds available, this home would be categorized as Deferred until the deficiency is corrected. These clients have been identified following the normal prioritization and wait list process so this should continue to be followed.
2. Subgrantees that have a wait list of deferred homes in the service area, should consider immediately the potential for Weatherization Readiness funds to get them in the queue for weatherization services. Clients should be contacted and scheduled for assessment at the earliest opportunity.
3. The subgrantee shall create a scope, contract for services, or engage with a crew to do the work so that the building would then be eligible for weatherization work. Readiness work needs to be identified by Weatherization Readiness Fund repair measure (ZZ Repair codes) in the client file.
4. When the Readiness work is complete, the client shall sign off on a list of the measures installed and then should be scheduled as soon as possible for weatherization services.

5. Client files for each job are expected to contain the intake, measure, cost, and inspection information for Readiness.
6. Corrections installed using these readiness repair funds shall correct the issue(s) of deferral and allow weatherization services to proceed. Agencies shall evaluate the energy savings potential in the use of these funds.
7. Repairs using the DOE WRF ZZ repair code are limited to one to four units and does not apply to mobile homes.
8. WRF funds shall not be used for housing rehabilitation, restoration, remodeling, building additions, accessibility improvements, or enlarging the pressure boundary. These funds will not address all reasons for deferral and buildings may still need to be deferred if they exceed the scope and policy of the funding.

8.10.2 Door Replacement

Model door replacements in NEAT. Primary exterior doors may be replaced **only** as a repair measure. Replace doors as a repair measure when there is a deteriorated door that cannot be repaired. Photographs shall be taken to document specifically why the door was replaced.

8.10.2.1 1 to 4-Unit, Mobile Home, and Multifamily Door Replacement Specifications

1. Premanufactured replacement doors shall be a minimum of R-5.
 - a. Field-fabricated basement doors may be insulated to a minimum of R-5.
2. Replacement of patio doors is not an allowable measure.
3. Door replacements in buildings that are 50 years old or older may be subject to historic review by the Wisconsin Historical Society if the building utilizes any federal funding (see [2.2.4 Historic Review](#)).
4. Doors may be replaced only if the door is in the primary heating envelope and has any of the following characteristics:
 - a. Rotting occurring on either the door jamb or the door plank;
 - b. Holes or cracks in the door jamb or door blank that cannot be repaired; or
 - c. Door repair is not feasible that will still allow the door to operate correctly.

All door replacement and/or repair shall be completed using Lead-Safe Weatherization procedures, under the supervision of a Lead-Safe Renovator. Any person who completes this work shall have been trained in Lead-Safe Weatherization procedures.

8.11 Work Order

A comprehensive work order shall be created that details all results from the completed energy audit to be included in the scope of work to be completed. The scope of work should include specifications such as R-value to be installed or efficiency of mechanical equipment to be installed. Crews and contractors shall be instructed to follow installation standards in the WI Weatherization Field Guide and/or the SWS, local while following local and national codes.

The funding source and type of work for reporting purposes shall follow guidance provided in Appendix D when reporting completed work.

8.11 Code Compliance

It is the policy of the Wisconsin Weatherization Program to minimize Health and Safety and Repair Costs and to use alternative (non-Weatherization Program) funding to address code compliance issues whenever feasible. Repairs and health and safety measures that are excessive in cost are cause for deferral. Occasionally a pre-existing code compliance issue is triggered by an energy conservation measure and paid for with Weatherization Program funds. Table 8.3 below provides citations for some commonly installed measures.

Table 8.3: Weatherization Measures and Associated State Building Codes

| HE+ System/WisWAP Measure Category | Code Citation | Notes |
|---|---|--|
| XHHW005 Water Heater Replacement | SPS 323.04/382.30(11)/384.20(5)(p) | Health and Safety Water Heater replacement |
| XHHW007 Water Heater Replacement | SPS 323.04/382.30(11)/384.20(5)(p) | Gas power vent from conventional gas (natural draft) |
| MWHC010 Water Heater Conversion | SPS 22.38(2),323.04/382.30(11)/384.20(5)(p) | Fuel Switch, electric to gas |
| MWHC035 Water Heater Conversion | SPS 323.04/382.30(11)/384.20(5)(p) | Indirect fired |
| MWHC05/XHHW020 Gas mobile home direct vent | SPS 323.04/382.30(11)/384.20(5)(p) | Replacement |
| MWHC025 Electric upgrade (MH) | SPS 323.04/382.30(11)/384.20(5)(p) | Mobil Home electric to electric water heater replacement |
| Flue Liners | SPS 321.30(7)(9) | Draft (orphaned water heaters) |
| Air Sealing | 322.37(3)(b) | Air sealing of Electrical Switches and Receptacles Boxes |
| Air Sealing | SPS 322.37(4)(c) | Non-IC rated lights in insulated ceilings |
| Knob and Tube Replacement | SPS 316.003(3)(4) | Attics and walls |
| Condensate pump drains | SPS 323.156 | Furnace replacement |
| Fuel Switch Oil to Gas | ATCP 93.315 | Fuel oil tank removed from service |
| Ventilation | SPS 321.05(2) | Ventilation Termination |

Chapter 9.0 | Health and Safety

9.1 General Policy

An agency shall identify existing Health and Safety (H&S) hazards during the energy audit, notify the property owner and occupants of these hazards, and, depending on their severity, treat the identified hazards prior to, or during, weatherization activities. Elimination of H&S hazards, if using Weatherization Program funds, shall be done in conjunction with the installation of energy conservation measures (ECMs). No H&S measures shall be performed in a home unless ECMs are also part of the scope of work (DOE funding for H&S includes DOE funding for ECMs). Do not include Health and Safety costs in the NEAT or MHEA audit. Health and Safety costs are limited to \$5,000 in single-family and mobile homes, unless the Program Manager, or designee, has reviewed the entire audit and approved the complete work order. A note shall be entered in the HE+ System/WisWAP Building file or a document uploaded that demonstrates review was completed noting what was reviewed, when and by whom.

All work performed shall conform to program requirements and all applicable codes and standards. An agency shall not install measures or complete work solely to correct code violations that do not present a health and safety hazard (as defined in weatherization policy) to the occupants or are not required to be addressed by local ordinance. Agencies may complete work solely to resolve a pre-existing code violation only if local ordinance would require the violation to be addressed by any contractor completing repairs or maintenance similar to the weatherization work performed.

Weatherization Program Notice (WPN) 22-7 provides U.S. Department of Energy Weatherization Assistance Program Grantees with minimum requirements for developing health and safety plans related to the implementation and installation of health and safety (H&S) measures.

Communicable Diseases (COVID-19)

Communicable diseases, also known as infectious diseases or transmissible diseases, are illnesses that result from the infection, presence, and growth of pathogenic (capable of causing disease) biologic agents in an individual human or other animal host. Infections may range in severity from asymptomatic (without symptoms) to severe and fatal.

- Each agency shall monitor the spread and transmission of COVID-19 metrics within their service territory and take appropriate actions to protect the health and safety of weatherization customers and staff. State-wide communicable disease surveillance and control activities in Wisconsin are coordinated by the Division of Public Health, Bureau of Communicable Diseases.
- The agency shall develop an Operations Plan following WAP Memorandum 067 Guidance that addresses work practices and PPE equipment necessary to reduce the risk of worker exposure in the workplace (office, shop, warehouse, customer homes, etc.).

9.1.1 Health and Safety Checklist

A Health and Safety Checklist shall be completed as described in Table 9.1 below. The weatherization Health and Safety Checklist includes three parts and is available on the [HE+](#)

[TTA website](#) under Weatherization | Forms. The Health and Safety Checklist shall be maintained per [2.2.3 Customer Files](#).

1. Health and Safety Existing Conditions

This includes the general areas inspected and documents the existing conditions at the time of the energy audit. If visual evidence of standing water, mold growth, or other moisture issues exists, the Moisture Audit shall also be completed.

2. Moisture Audit

The Moisture Audit documents areas where moisture and/or mold are present at the time of the energy audit. If visible mold growth is encountered, complete the Mold Areas checklist. See Section 9.3 Mold Guidelines for additional information.

3. Indoor Air Quality

This section is designed to provide customer education on mechanical ventilation and radon prior to the start of weatherization work. Additional information specific to the installed ventilation is provided after the completion of weatherization work in the Customer Guidebook.

4. Customer Signature

The customer signature is designed to achieve compliance with state and federal requirements to verify the unit occupant received related educational documents and understands the risks associated with any identified health and safety hazards.

Table 9.1: Health and Safety Checklist Requirements

| Housing Type | When Required | Notes | Signature Required By | Provide Signed Copy To |
|--------------------------------|---|---|-----------------------|-----------------------------------|
| Single Family Home | A checklist is required for each home weatherized or deferred due to a health and safety hazard. | All hazards shall be documented on a single form with hazard location in comments. | Occupant | Owner, if different from occupant |
| 2 to 4-Unit | A checklist is required for each unit in every building weatherized or deferred because of a health and safety hazard | All hazards shall be documented with hazard location, including common area hazards, in comments. | Occupant ¹ | Owner, if different from occupant |
| 5+ Unit Multi-family | A single checklist is required for each building when a hazard is identified by an agency representative. | All hazards shall be documented on a single form with location, including units, in comments. | Owner | Occupants ² |
| Manufactured Home ³ | When a hazard is identified by an agency representative. | All hazards shall be documented on a single form with hazard location in comments. | Occupant | Owner, if different from occupant |

¹ If unable to obtain occupant signature, document attempt on the checklist.

² The agency may require the property owner to provide notification to occupants.

³ Checklist is not required for Measure List Homes.

If conditions noted on the Health & Safety Checklist are severe, it may be necessary to defer weatherization services. See [3.6 Deferral of Weatherization Services](#) for more information.

9.1.2 Health and Safety Hazards

Potential or actual threats to Health and Safety vary by degree. Health and Safety hazards which are not an immediate threat to the occupants may be described as non-serious conditions. Health and Safety hazards that are an immediate threat to the occupants may be described as a serious condition.

1. **Non-serious** conditions may be addressed in part or in full at the discretion of the local agency. At a minimum, the occupants shall be informed of the concern and shall be provided with recommendations or information on how to address the concern. Examples of non-serious conditions may include minor electrical problems, maintenance problems, or a “potential” for indoor air problems.
2. **Serious** conditions shall either be addressed by the building owner prior to the weatherization work, including baseload jobs or by the agency as a part of the weatherization work. Elimination of Health and Safety hazards using Weatherization Program funds shall be done in conjunction with the installation of energy conservation measures. Some “serious conditions” may be hazards that can be tied to weatherization measures, such as heating system, chimney or water heater failure, carbon monoxide leaks, or other treatable indoor air quality problems.
3. **Other serious conditions** will exceed the scope of the Weatherization Program. Major structural failure, lead paint contamination, major electrical overload, or faulty sewer systems are examples of conditions that exceed the scope of the weatherization program. A reasonable effort shall be made to refer building owners to other sources, such as HOME and CDBG, which may help address the hazards. Weatherization services shall be coordinated with other funding sources, where possible. If the Health and Safety hazards cannot be eliminated, the building shall be deferred until the hazards can be addressed.

9.1.3 Worker Safety

Worker safety is the responsibility of the agency. In contracting with Agencies, the Division assumes agency compliance with all applicable federal, state, and local safety and health regulations. The agency is responsible for enforcing all work rules to ensure a safe working environment.

Safety Data Sheets (SDS) shall be available to workers in printed or digital format. The information contained in them shall be readily accessible from a work site and shall be kept up to date with products currently in use.

Weatherization field staff are required to take the OSHA 10-hour training. The Division recommends Production Supervisors and Crew Leaders take the OSHA 30-hour training. OSHA 30 may be substituted for OSHA 10; the trainings are not a progression (OSHA 10 is not a prerequisite). The OSHA training requirements do not apply to contractors.

The agency is responsible for ensuring their personnel are properly trained and certified when certification is required (e.g., Lead-Safe Renovator), including required respirator training and fit testing.

Health & Safety Training and Certification Report

The report provides a listing of agency staff that have completed program required health and safety trainings. The report also provides a listing of agency Asbestos and Lead Company certifications. The report is used by the Division to confirm Health and Safety training requirements during the annual Administrative Review. The agency shall report staff training and certifications in the database within 10 business days of receiving the training.

Contractors are responsible for their own safety plans and training their workers. Agencies shall verify their contractors have obtained required certifications (e.g., Lead-Safe Renovator).

Table 9.2 below outlines the required trainings for various agency field staff.

Table 9.2: Required Health and Safety Trainings for agency Employees

| Training | Auditor | Crew Leader | Crew Worker | Final Inspector (Complaint Inspector) | Hazardous Materials Coordinator |
|------------------------------------|-----------------------|-----------------------|-----------------------|---------------------------------------|---------------------------------|
| Lead Safe Renovator ¹ | Yes | Yes | Yes | Yes | Yes |
| Asbestos O&M and annual refresher | Yes | Yes | Yes | Yes | n/a |
| Asbestos Supervisor | Optional ² | Optional ² | Optional ² | Optional ² | Yes |
| Asbestos Inspector | Optional ² | Optional ² | Optional ² | Optional ² | Yes |
| Mold Awareness | Yes | Yes | Yes | Yes | Yes |
| OSHA 10-Hour | Yes | Yes | Yes | Yes | Yes |
| OSHA 30-Hour | Optional | Optional ² | Optional | Optional | Optional ² |
| Respirator Medical | Yes | Yes | Yes | Optional | Yes |
| Respirator Fit Test | Yes | Yes | Yes | Optional | Yes |
| Blood Lead Level Test ³ | Yes | Yes | Yes | Optional | Yes |

Notes:

¹ Most Agencies train all field staff to Renovator level.

² This training is optional for these staff but recommended by the Division.

³ Blood lead level test shall be performed annually for any staff that would come in contact with painted surfaces in a customer's home.

9.1.4 Occupant Pre-Existing Health Conditions

Agencies shall notify the customer that occupants with pre-existing health conditions may be adversely affected by installed weatherization materials or measures. If an occupant may be sensitive to certain weatherization materials or measures, the agency shall devise ways of installing materials to reduce exposure of the occupants so that weatherization work may be performed safely. Possible approaches may include temporary containment areas, HEPA-

filtered equipment, temporary removal or relocation of occupants that may be adversely affected, or alternative installation methods or materials that meet the specifications of the Weatherization Program.

An optional Release of Liability form is available for agency use on the [HE+ TTA website](#) under Weatherization | Forms. Use of this form can assist Agencies in meeting federal requirements to 1) inform customers of potential health risks, and 2) require customers to notify the weatherization agency of any occupant health issues that may be affected by weatherization activities.

9.1.5 Building Units Receiving HUD Funding

Local Agencies shall determine if a building unit referenced in an application for weatherization services is enrolled in a HUD-funded program and if the HUD-funded program requires meeting the standards of rule [24 CFR Part 35 \(Subpart R\)](#), issued under sections 1012 and 1013 of Title X, the Residential Lead-Based Paint Hazard Act of 1992.

Enrollment in a HUD-funded program for these purposes shall be defined as a building unit which has had HUD funds invested within the prior twelve months from the date of application for weatherization services or will have HUD funds invested before the completion of the weatherization project.

Building units receiving HUD funds shall meet the standards established in HUD's Lead-Based Paint Poisoning Prevention in Certain Residential Structures rule (referenced above).

Weatherization funds may *not* be used to meet the HUD standards. Energy conservation measures, which as a by-product meet some or all of the HUD standards, are permitted.

An agency shall make a reasonable effort to identify resources that would enable a unit that receives HUD funding to be completed under the Weatherization Program and meet the HUD standards.

9.2 Radon and Weatherization

Weatherization Program funds shall not be used to perform radon testing and mitigation. According to U.S. Department of Energy studies, certain allowable health and safety measures may reduce the risk of increasing radon levels in weatherized homes. These mandatory DOE measures include installing mechanical ventilation, covering exposed dirt floors, and covering and sealing sump pits. For general information on radon in Wisconsin see the [Wisconsin Department of Health Services Radon Information](#) website. Additional program information can be found in the Field Guide Health and Safety and Air Sealing sections and Standard Work Specifications.

9.3 Mold Guidelines

9.3.1 Background

Mold is a potential health and safety hazard that agency personnel and contractors may encounter when working in buildings. Improperly completed weatherization work may create or

exacerbate conditions conducive to the development of mold. An agency shall ensure that workers, occupants, and owners are made aware of existing mold hazards and/or conditions that may allow for mold to develop.

9.3.2 Notification and Inspection

To every extent possible, the source of any encountered mold shall be identified. Customers shall be notified of the discovery of mold, the potential conditions causing the mold, and possible remedies. The EPA pamphlet, "[A Brief Guide to Mold, Moisture, and Your Home](#)", shall be given to customers at the time of audit.

9.3.3 Training for Mold and Moisture

All agency field staff (crews, auditors, and inspectors) and all contracted auditors and inspectors shall receive Division-approved training in awareness and identification of the presence of mold, the likely causes of mold outbreaks, and appropriate methods to address mold issues.

9.3.4 Testing

Weatherization Program funds shall **not** be used for routine testing in every unit to determine the presence or strain of mold before weatherization work starts or after work is completed.

9.3.5 Treatment

The purpose of the Weatherization Program is to install energy conservation measures in eligible units. Program funds may be used to minimize and/or eliminate mold-causing conditions in conjunction with the installation of energy conservation measures. Identified mold areas that comprise in total less than 10 square feet are not required to be addressed as a part of weatherization work.

9.4 Lead and Asbestos Policy

Agencies shall follow all policy requirements of the authorizing jurisdictions when disturbing possible asbestos and lead materials. Table 9.3 provides a summary of the minimum requirements. See sections [9.5](#) and [9.6](#) for additional details.

Table 9.3: Lead and Asbestos Hazards - Summary of Policy Requirements

| Activity | Lead | | Asbestos | |
|---------------------------|---|-----------------------------|---|------------------------------|
| | Minor Repair & Maintenance <i>DHS 163.03(85m)</i> | Renovator <i>DHS 163.10</i> | Operations and Maintenance (O&M) | Regulated Abatement Activity |
| Customer Education | Health and Safety Checklist EPA Renovate Right Booklet Deferral Notification, when applicable | | Health and Safety Checklist Deferral Notification, when applicable | |
| Testing | Optional | Optional but recommended | Optional but strongly recommended | |

| Activity | Lead | | Asbestos | |
|--|---|---|---|---|
| | Minor Repair & Maintenance <i>DHS 163.03(85m)</i> | Renovator <i>DHS 163.10</i> | Operations and Maintenance (O&M) | Regulated Abatement Activity |
| Regulated Work Threshold | Less than or equal to 6 sq. ft. per room interior and 20 sq. ft. exterior No windows | More than 6 sq. ft. per room interior and 20 sq. ft. exterior All windows | No more than one waste bag (60" by 60" properly filled & sealed) | More than one waste bag (60" by 60" properly filled & sealed) |
| Required Worker Certifications | n/a | Lead-Safe Renovator Lead-Safe Company | n/a (O&M training required) | Worker Inspector Supervisor Asbestos Company |
| Required Work Practices | Dust control HEPA vacuum | Dust control HEPA vacuum Containment Visual inspection | Dust control HEPA shrouded tools HEPA vacuum Containment when disturbing presumed asbestos-containing material or tested material is greater than or equal 1% asbestos | |
| Photograph Requirements | n/a | At least three photos showing containment and warning sign, goose necked trash bag, and post-renovation cleaning card | At least two photos showing containment and warning sign, and goose-necked hazardous material bag | |
| Additional Required Documentation (see also 2.2.3 Customer Files) | n/a | HE+ Renovation Recordkeeping Checklist | n/a | Project log DHS Notification Occupant Plan |

9.5 Lead-Safe Work

9.5.1 General Policy

Lead-based paint is a potential health hazard that crews may encounter in housing constructed before 1978. Unless a building is certified as “lead-free” (as in [DHS 163.40](#)) or painted surfaces to be disturbed have tested free of lead, all weatherization activities conducted on buildings constructed prior to 1978 shall utilize techniques that contain dust and debris to protect workers and customers from lead paint hazards, such as:

- Using wet methods and tool shrouds to control and capture dust; etc.
- Never dry sweeping dust and debris from disturbed painted surfaces;
- Always using a properly operating and maintained HEPA vacuum; and,

- Always cleaning and inspecting work areas to ensure all dust and debris is removed.

Program funds may be used to minimize the potential hazard associated with disturbing painted surfaces through the course of installing energy conservation measures. Program funds shall **not** otherwise be used for the abatement, stabilization, or control of lead-based paint hazards that may exist in a unit. Program funds shall **not** be used for routine clearance testing after work is completed.

9.5.2 Regulatory Authority

U.S. Department of Energy (DOE) [Weatherization Program Notice 22-7](#) requires compliance with the U.S. Environmental Protection Agency (EPA) Lead Renovation, Repair and Painting (RRP) program. The State of Wisconsin is authorized by the EPA to administer its own RRP program, DHS Chapter 163. There are some areas where Wisconsin's rule is more restrictive than EPA's requirements. EPA regulations also allow cities to have more restrictive definitions for lead than the state. Weatherization work shall follow the most restrictive requirements of the authorities having jurisdiction.

The authorities having jurisdiction over working with lead in Wisconsin include:

- **Wisconsin Department of Health Services (DHS)** for certifications and lead-safe work activities.
- **Wisconsin Division of Energy, Housing and Community Resources (DEHCR)** for state and federal regulations in weatherization and housing programs.
- **U.S. Department of Energy (DOE)** for federal regulations related to the weatherization program.
- **OSHA and WI Department of Safety and Professional Services** regulations for worker safety.
- **Wisconsin Department of Natural Resources (DNR)** for regulation of waste disposal.
- **U.S. Department of Housing and Urban Development (HUD)** for lead-safe work activities in HUD-funded housing programs.
- **U.S. Environmental Protection Agency (EPA)** for lead-safe work activities in buildings on Tribal Lands.
- **Local Municipalities** for the definition of lead. As of January 2018, the cities of Eau Claire, Fond du Lac, Kenosha, Milwaukee, Racine, and Beloit have more restrictive (lower) definitions of lead-based paint than the EPA and State of Wisconsin. Local authorities are responsible for enforcing the more restrictive regulations. State regulations and requirements still apply. Testing results and clearance reports must reflect whether a surface coating is lead-based paint and if it is a hazard based on state regulations.

9.5.3 Customer Education

Documentation that the occupant and/or owner received the EPA pamphlet "[The Lead-Safe Certified Guide to Renovate Right](#)" shall be maintained for every building weatherized. When a potential lead hazard is identified by the energy auditor, the weatherization file shall contain a Health and Safety Checklist that documents the hazard and testing performed, if applicable (see

[9.1.1 Health and Safety Checklist](#)). If testing is performed and a positive test causes the building to be deferred, a written description of the test result shall be included in the Deferral Notification provided to the building owner. The agency shall provide any test results requested by the customer.

Agencies shall comply with DHS 163.14(10)(b) when regulated renovation activities are required in 5+ unit rental buildings.

9.5.4 Testing for Lead

Wisconsin Department of Health Services (DHS) approved lead test kits may be used when cost effective. Testing shall be limited to building components that will be disturbed. Note that the approved test kit must be used by a person with Certified Renovator credentials at minimum and requires the building owner's permission. See the [DHS website](#) for detailed test kit information and requirements. Agencies shall maintain documentation of all lead test results (see [2.2.3 Customer Files](#)).

The Division strongly encourages testing for lead when the test has the potential to reduce the amount of labor required to complete weatherization work. The following basic guidelines shall be considered in determining when to test for lead:

- Houses built from 1978 on may be assumed to be free of lead-based paint.
- In houses built prior to 1930, it is logical to assume the presence of lead-based paint.
- In houses built between 1930 and 1978, testing may not be warranted if the area to be disturbed is small.

9.5.5 Recordkeeping

Using the Wisconsin Weatherization Assistance Program Health and Safety Checklist, the weatherization agency shall identify the applicability of Lead-Safe Renovator requirements to ensure customer and worker safety. The weatherization agency is responsible for ensuring that contractors are notified in advance of lead-safe requirements (such as in the Request for Bid), are trained in and practice lead-safe work, and that Certified Renovators are present and complete a Renovation Recordkeeping Checklist when required.

When Lead Renovation requirements apply, a Wisconsin Weatherization Assistance Program Renovation Recordkeeping Checklist shall be completed and maintained in the customer file for review. The Renovation Recordkeeping Checklist is available on the [HE+ TTA website](#) under Weatherization | Forms. Documentation shall be maintained for a minimum of three years (see [2.2.5 Record Retention](#) and [DHS 163.13\(3\)\(c\)](#)).

9.5.6 Lead Renovation Requirements

Unless a building is certified as "lead-free" (DHS 163.40) or painted surfaces to be disturbed have tested free of lead, Lead Renovation requirements apply to all work where paint will be disturbed in pre-1978 buildings and when at least one of the following is true:

- More than six square feet of interior paint per room will be disturbed
- More than twenty square feet of exterior paint will be disturbed (total paint on building)

- Window(s) are removed, replaced, or repaired
- A prohibited work practice is used (see [DHS 163.14\(11\)\(h\)](#) and reference below).

Agencies shall comply with DHS 163.14(11)(h) requirements to minimize exposure of customers and workers to lead hazards. To meet these standards, crews and contractors shall follow the general principles of working clean and working wet. Best practices for working clean and working wet are covered in the joint EPA-HUD curriculum document [“Steps to Lead-Safe Renovation, Repair, and Painting.”](#)

9.5.6.1 Individual Certification Requirements

Weatherization Program Agencies shall have a Certified Lead-Safe Renovator assigned to every job where Lead-Safe Renovator requirements apply. The Certified Lead-Safe Renovator:

- Shall be present at the work site while warning signs are being posted, work area containment is being established, and work area cleaning is being performed.
- Shall ensure establishment of appropriate containment areas and use of lead-safe work practices during the renovation.
- Shall be readily available to workers throughout the lead-safe renovation process. Readily available means reachable by phone and able to return to the work site within thirty minutes of being contacted.
- Shall complete a Renovation Recordkeeping Checklist for the lead-safe work performed.
- Shall document lead-safe work with photographs to be retained in job file.
- Shall provide training on lead-safe work practices to uncertified workers, if such workers are left on-site performing work subject to the Certified Lead-Safe Renovator Requirements.
- Shall have a valid Lead-Safe Renovator certification card on-site.
- May provide pre-renovation education materials to customers.
- May conduct pre-renovation component testing using a DHS-recognized test kit.
- Shall conduct post-renovation cleaning verification.

9.5.6.2 Company Certification Requirement

Weatherization Program Agencies shall be certified as a Lead-Safe Company by DHS. The EPA refers to Lead-Safe Companies as “firms.” A Lead-Safe Company has at least one certified Lead-Safe Renovator on staff.

For each employed or contracted worker of a Lead-Safe Company **who is not a certified lead-safe renovator**, the Lead-Safe Company shall maintain documentation of the training provided, including the worker’s name, specific topics taught to the worker, the name and department certification number of the instructor for each topic, and the training date for each topic.

9.5.6.3 Lead-Safe Certification for Tribal Lands

Weatherization Program Agencies that perform work in buildings on Tribal Lands shall be certified as Lead-Safe Certified Renovation Firms by EPA. Agencies can become certified by applying with EPA online at www.epa.gov/lead/lead-renovationabatment-firm-certification-

[application-or-update](#). Individual Lead-Safe Renovator certifications for each employed or contracted worker are valid on Tribal Lands.

9.5.6.4 Customer Notification Requirements

For work in common areas of multi-unit buildings (two or more units), and any child-occupied housing, the agency shall either provide written notice to each affected household or post clearly visible informational signs that include:

- The general nature and locations of the planned renovation activities.
- The expected starting and ending dates.

If the scope, location, or expected starting and ending dates of the renovation activities change after the initial notification to occupants, the company performing the renovation activities shall provide further updated notification to the occupants by one of the above methods.

[DHS 163.14\(4\)](#) requires a signed and dated statement recording steps taken to notify customers of upcoming paint disturbing activities in these housing types. The Renovation Recordkeeping Checklist can be used to document how customer notification was completed.

Within ten business days after any renovation work, the agency shall provide a copy of each renovation document to the renovation contractor and to any occupants affected by the renovation work. This includes the completed Renovation Recordkeeping Checklist and a copy of the Work Agreement, which is provided to all customers prior to the start of any weatherization measures being installed (per the Customer Bill of Rights). All documents related to the renovation work shall be kept on file for three years.

9.5.6.5 Containment

Containment means physical measures taken to prevent any dust or debris from spreading beyond the work area to non-work areas. The level of containment shall be determined by the auditor/inspector or supervisor before work is assigned to a crew or contractor.

Every home and each weatherization measure are unique; therefore, the level and type of containment required will be based on the hazards present, the scope of work activities, and any customer health issues. Containment shall always be used when window repair or replacement will disturb a painted surface.

Containment may require the covering of all horizontal surfaces, constructing barrier walls, sealing doorways, covering HVAC registers with approved materials, and closing windows to prevent the spread of dust and debris. In addition, the following containment measures shall be followed:

- Crews and contractors shall take steps to protect occupants from lead-based paint hazards while the work is in progress by using appropriate containment measures.
- Occupants, especially young children or pregnant women may not enter the work site. Occupants are allowed to return only after the work is complete and the home has passed a visual inspection.
- Occupant's belongings shall be protected from lead contamination. This can be done by

removing them from the work area or covering them in protective bags and sealing to prevent dust from getting on the items.

- The work site shall be set up to prevent the spread of lead dust and debris.
- Warning signs shall be posted at entrances to the work site, at the main and secondary entrances to the building, and at exterior work sites. The signs shall be readable 20 feet from the edge of the worksite. Signs shall be in the occupant's primary language, when practical.
- If containment of the work area cannot be achieved with occupants in the unit (e.g., work will take several days and involves the kitchen, bathrooms, or bedrooms that cannot be sealed off from use), occupants shall temporarily move out of the unit, or the work shall be deferred until containment can be achieved.
- Ensure that containment does not interfere with occupant and worker egress in an emergency.
- Bag and gooseneck-seal all waste in heavy duty poly bags and safely dispose of all waste in accordance with federal, state, and local regulations.

The following prohibitions related to containment shall always be observed:

- NEVER allow occupants and pets access to the work area while work is in progress.
- NEVER open windows and doors allowing lead dust to migrate into other parts of the building or outside.
- NEVER allow furniture and other objects to remain in the weatherization work area while work is being performed unless they are covered and sealed in polyethylene sheeting or bags.

9.5.6.6 Prohibited Work Activities

The following work activities and methods are prohibited when performing lead-safe work in pre-1978 homes:

- Reusable cloth or fabric, such as a painter's drop cloth, as protective containment sheeting. Polyethylene and garden fabric (in some exterior cases) are the only acceptable protective containment sheeting and shall never be reused.
- Brooms and shop vacuums for cleanup. Wet cleaning and HEPA-designed vacuums are the only acceptable methods for cleanup.
- Conventional shop vacuums with HEPA filters – only HEPA-designed vacuums are acceptable.
- Dry scraping, sanding (unless needed around electrical outlets), grinding, or using abrasive blasting or planning.
- Open-flame torch or heat gun (above 1100°F) to remove paint or window glazing.
- High-pressure washers unless they contain a HEPA filter for exhaust control and water collection.
- Methylene chloride paint strippers.

9.5.6.7 Cleaning and Visual Inspection

Checking the quality of lead renovation worksite cleaning is a two-phase process:

1. Phase 1: Cleaning

This phase includes worker cleaning of any visible paint chips, dust, or debris using proper techniques. Proper techniques include:

- Clean high to low
- Clean two feet beyond containment
- HEPA vacuum
- Wash and rinse (use of a dusting mop with removal pad is acceptable).

2. Phase 2: Visual Inspection

In this phase, a visual inspection for remaining dust or debris shall be performed after work is complete. A Certified Lead-Safe Renovator shall conduct the visual inspection using the Post-Renovation Cleaning Verification Card and note the results on a Renovation Recordkeeping Checklist. There should be no evidence of settled dust following a clean-up effort. If dust is observed, the weatherization crew shall be required to repeat the cleaning process.

If work is done outside the house, the grounds around the building and all exterior horizontal surfaces shall also be examined visually to make certain that all dust and debris have been removed and that paint chips were not left behind.

9.5.7 Weatherization Worker Protection

At a minimum, workers shall follow these work procedures and safety precautions:

- Wear personal protective equipment specifically suited for the particular measure.
- Use National Institute for Occupational Safety and Health (NIOSH) approved respirators (covering at least half of the face) with HEPA filters.
- Use disposable overalls (with hood or a disposable painter's cap), gloves (cloth, plastic, or rubber as appropriate), goggles, and disposable shoe/boot covers.
- Keep dust to a minimum and confine dust and paint chips to the work area.
- Clean up work area during and after the work.
- Properly post a notification at all areas where lead-safe work is taking place.
- During weatherization work, wash your hands and face frequently, particularly when leaving the work area, and especially before leaving the area for the purpose of eating, drinking, or smoking.
- Before leaving the work area, remove your protective clothing and protective shoe/boot covers to avoid exposing others.
- Before leaving the work area and before returning tools and equipment to vehicles, clean all tools to avoid exposing others and creating a lead-hazard at the next weatherization job.
- Get annual medical exams to check blood lead levels. Only perform non-lead related work if your blood lead level becomes too high.

- Inform your employer if you develop any signs of lead poisoning.

9.6 Asbestos-Containing Materials (ACM)

9.6.1 Background

agency field staff and contractors whose work may lead to contact with known or suspect asbestos-containing materials (ACM), including vermiculite insulation, shall be protected from potential asbestos exposure and shall minimize disturbance of the material. Agencies shall provide employees with training and equipment to minimize worker and customer exposure to ACM and shall adhere to the regulations of all authorities having jurisdiction over ACM.

Program funds may be used to minimize the potential hazard associated with disturbing known or suspect ACM through the course of installing energy conservation measures. Program funds **shall not otherwise be used** for the removal of vermiculite, abatement, stabilization, or control of ACM hazards unrelated to diagnostic testing and installation of energy conservation measures. Program funds **shall not be used** for routine clearance testing of buildings after work is completed without prior approval from the Division.

When deferral is necessary due to asbestos and the building owner performs asbestos abatement to correct the deferral, prior to proceeding with weatherization the owner must provide written documentation showing that the building passed a clearance test following completion of work, and that the clearance test was performed by a contractor certified by the Department of Health Services ([WPN 22-7](#) and [DHS 159](#)). Follow the protocols below related to asbestos deferrals:

1. Provide a written Deferral Notification per [3.6.1 Deferral Notification Requirements](#).
 - a. The required template available on the HE+ System customer application shall be edited to address the specific deferral reason in the home.
 - b. The agency may assist the customer in locating a certified contractor. The clearance test shall not be performed by the weatherization agency.
2. Change the HE+ System/WisWAP unit status to deferred and enter deferral reason.
3. Verify the clearance test results.
 - a. Verify the contractor that performed the clearance test is certified by the [Department of Health Services](#) per DHS 159.
4. If the customer is not able to provide proof that the building passed a clearance test, contact the [HE+ Help Desk](#) for approval prior to proceeding with any work.
5. After clearance test is verified and all deferral reasons have been corrected, edit unit status in HE+ System/WisWAP and proceed with weatherization.

Agencies shall meet the following requirements related to asbestos:

1. Agencies shall have at least one person on staff who maintains [DHS certification](#) as Asbestos Supervisor and Asbestos Inspector. This person is referred to as the Hazardous Materials Coordinator.
2. All field workers who may encounter or disturb known or suspect ACM shall be trained in asbestos Operations and Maintenance (O&M) with annual refresher training at a minimum.

9.6.2 Regulatory Authority

Department of Energy policy requires state Weatherization Programs to comply with protocols regarding asbestos-containing materials (ACM) that may be disturbed during weatherization work. This policy does not supersede the regulations of other authorities having jurisdiction over ACM or worker safety in Wisconsin.

The authorities having jurisdiction over working with ACM in Wisconsin include:

- **Wisconsin Department of Health Services (DHS)** for regulated asbestos work activities ([DHS 159](#)).
- **Wisconsin Department of Natural Resources (DNR)** enforces regulations for waste disposal and transport. Note: An individual or business that transports less than 20 tons per year of solid waste (including asbestos) is exempt under section NR 502.06(2)(b) of Wisconsin Administrative Code from the requirement to have a solid waste transportation license.
Other asbestos transport and disposal requirements still apply.
- **OSHA and Wisconsin Department of Safety and Professional Services** issue regulations for worker safety in the private and public sectors, respectively.
- **Wisconsin Division of Energy, Housing and Community Resources (DEHCR)** maintains policies for Weatherization Assistance Program funded weatherization work completed in conjunction with asbestos abatement or standard Operations and Maintenance procedures.
- **Department of Energy** policies regulate use of all DOE funds used in the Weatherization Assistance Program.
- **Department of Housing and Urban Development** policies apply to all HUD housing.

9.6.3 Weatherization Requirements

9.6.3.1 General Policy

Weatherization Assistance Program customers and on-site workers shall be protected from asbestos exposure when ACM may be disturbed during the course of weatherization activities. On-site workers, including energy auditors, inspectors, supervisors, installers, and contractors that inspect or complete weatherization work shall minimize the disturbance of known or suspect ACM.

When work exceeds Operations and Maintenance (O&M) limits, and is determined to be cost effective, the work shall be performed by appropriately certified staff or contractors. Agencies and contractors shall comply with all applicable regulations and ensure that any asbestos related work is performed by individuals with the appropriate training and current certifications when required.

For attics containing vermiculite insulation, the determination of whether work will exceed O&M limits shall be made on a case-by-case basis. Removal of vermiculite insulation is not allowed.

The agency is responsible for determining how the requirements of this policy will be met, including designation of responsibilities within an agency, whether certified staff or contractors will be used for work that exceeds O&M, and how contractor and crew performance and worker safety requirements are monitored.

9.6.3.2 ACM and Weatherization

Agency Wx staff and contractors may encounter ACM in the following building components, materials, equipment, or circumstances:

- **Attic Insulation** – Some attic insulation materials including vermiculite insulation, when inspecting or insulating attics, air sealing attics, boxing mechanical penetrations through the attic floor, or extending exhaust ventilation through the attic to the roof.
- **Siding** – Transite (slate) siding, stucco when testing sidewalls for insulation or insulating sidewalls.
- **Heating Systems** – Insulation on boilers and forced-air systems (primarily on the distribution systems) which must be addressed to seal or modify the distribution system or replace the equipment.
- **Roofing** – Some roofing materials, when installing roof ventilation or performing minor roof repair.
- **Sidewalls** – Some sidewall insulation materials including vermiculite insulation, when testing sidewalls for insulation, insulating sidewalls, or installing windows and doors.
- **Drywall** – Some older drywall or plaster applications, when testing sidewalls for insulation or insulating sidewalls from the interior, installing doors and windows, or completing minor demolition work. Some new drywall products from foreign suppliers have been found to contain asbestos.
- **Miscellaneous Materials** – Including, but not limited to, flooring, textured paints, electrical wiring insulation, older construction mastics, caulk and putty, which may be cut, drilled, removed, or otherwise disturbed in the process of weatherizing a home.

All building components, except for metal, glass, wood, and fiberglass, shall either be assumed to contain asbestos or proven not to contain asbestos through bulk sampling by a certified Asbestos Inspector and analysis performed by an accredited laboratory. Vermiculite insulation is always assumed to contain asbestos as there is currently no EPA-approved testing method to demonstrate the presence or absence of asbestos in vermiculite insulation.

9.6.3.3 Training and Certification

Training and certification include both required and optional activities.

1. Training and Certification Requirements

Agencies shall meet the following requirements related to asbestos:

- Agencies shall have at least one person on staff who maintains DHS certification as Asbestos Supervisor and Asbestos Inspector. For the purposes of this policy, this person is referred to as the Hazardous Materials Coordinator.
- All field staff that may encounter or disturb known or suspect ACM shall be trained in asbestos Operations and Maintenance (O&M) with annual refresher training at a minimum.

2. Training and Certification Options

Work that exceeds O&M limits and is determined to be cost effective by an energy audit shall be performed by appropriately certified agency staff or contractors. All such “regulated asbestos activities” shall be performed by persons who are employed by a certified Asbestos Company. Disturbance of ACM beyond O&M limits, taking bulk samples of suspect ACM, and performing air sampling are designated “regulated asbestos activities.”

Removal of transite (slate) siding is limited by the amount of tiles that would fit in a single glove or disposal bag that is no larger than 60 inches by 60 inches properly filled and sealed. If more tiles are removed than what would fit in the disposal or glove bag, or if transported the bag would puncture it is considered an abatement activity that requires certification and notification to DHS. Slate siding exceeding O&M may be removed only by an Asbestos Supervisor, an Exterior Asbestos Supervisor, or an Asbestos Worker or Exterior Asbestos Worker while under the supervision of an Asbestos Supervisor or Exterior Asbestos Supervisor. Stucco may only be disturbed by an Asbestos Supervisor or Asbestos Worker. Exterior Asbestos Workers and Supervisors are not trained or allowed to disturb stucco.

Agencies may choose to use Training and Technical Assistance (T&TA) funding to:

- Train and certify employees in asbestos disciplines (outlined in [DHS 159](#)) including Asbestos Worker, Asbestos Supervisor, Asbestos Inspector, Exterior Asbestos Worker, and Exterior Asbestos Supervisor.
- Obtain and maintain certification as an Asbestos Company. When employees perform a DHS “regulated asbestos activity,” the employer shall be a DHS certified Asbestos Company.
- Provide air sealing and insulation training to a certified Asbestos Company to complete work on Wisconsin Weatherization Assistance Program eligible homes where disturbance of ACM will exceed O&M limits. Training, but not certification as a Company, or maintenance of certifications, may be provided to contractors meeting Program retention requirements.’

9.6.3.4 Limitations of Operations and Maintenance Work

Weatherization staff trained only in Operations and Maintenance shall limit their activities to working with known or suspect ACM that falls under O&M limits. This is defined as work that:

- Disturbs or incidentally removes no more suspect ACM than would fit in a single glove bag or disposal bag no larger than 60 inches by 60 inches, properly filled, sealed, and transported (i.e., integrity of bag is not compromised by volume or weight).
- Is non-repetitive.
- Is not a series of small jobs that, if performed sequentially, would require certification.
- Is conducted by an individual or individuals with documented proof of completing at least a 16-hour Operations and Maintenance training course and any required annual refresher trainings, as described in 40 CFR 763.92(a).

9.6.3.5 Competent Person

On all worksites with asbestos operations, OSHA requires that employers designate a “competent person” who can identify asbestos hazards in the workplace and has the authority to correct them. For O&M work, the competent person is someone who is O&M trained at a minimum.

For all work exceeding O&M limits, the competent person is a DHS certified Asbestos Supervisor. For work disturbing ACM on the exterior of a home, either a certified Asbestos Supervisor or a certified Exterior Asbestos Supervisor may be the designated competent person.

9.6.3.6 Identification of Suspect ACM

The agency shall inform the customer of the existence and location of any suspect ACM *that is friable or otherwise presents a hazard* by documenting it on the Health and Safety Checklist. Any suspect ACM *that will be disturbed* during the weatherization work shall be identified and documented on the Health and Safety Checklist as well as in the Work Agreement.

Whenever weatherization work involving known or suspect ACM may exceed O&M limits, the Hazardous Materials Coordinator shall be notified. The Hazardous Materials Coordinator shall make a determination if the work falls within or will exceed O&M limits. If the work exceeds O&M limits, the Hazardous Materials Coordinator shall ensure that the work is performed by persons and organizations with the required asbestos certifications (see [9.6.4.4 Hazardous Materials Coordinator Role](#)).

9.6.3.7 Testing for Asbestos

When weatherization work will involve disturbance of suspect ACM, agencies may elect to have the material tested. Testing is an allowable program cost and may be charged to support (if building is deferred) or health and safety operations using measure code XHAS030 (see [Appendix D](#)). Bulk sampling may only be performed by a certified Asbestos Inspector who is employed by a certified Asbestos Company, as this is a DHS “regulated asbestos activity.”

Testing for asbestos is an allowable cost. Analysis of bulk samples shall be performed by a National Voluntary Laboratory Accreditation Program (NVLAP) listed laboratory, using EPA approved test methods. There is no EPA recognized method to test vermiculite insulation for the presence or absence of asbestos, therefore vermiculite insulation shall always be assumed to contain asbestos.

If testing results determine that the material contains asbestos, as defined by DHS 159.04, agencies may consider proceeding with the asbestos work following the modeling guidelines outlined in Chapter 8 and the Weatherization Assistance Guide. The agency shall retain the results of testing in the customer file regardless of the outcome (see [2.2.3 Customer Files](#)). If a positive asbestos test results in a deferral of weatherization work, then the test result shall be communicated in writing in the Deferral Notification provided to the building owner. The agency shall provide any test results requested by the customer.

9.6.4 ACM Work Procedures

9.6.4.1 General Guidance

Employers are subject to OSHA regulations which require training, protective measures, and engineering controls for workers who may be exposed to asbestos on the job. Publication OSHA 3096 outlines these requirements; therefore, Agencies should review this document to become familiar with the applicable regulations. Note that Agencies are responsible for ensuring that contractors follow applicable requirements while on a job site performing work under a weatherization contract.

An agency's Implementation Plan shall identify how they meet exposure protection requirements. The plan shall also include a process to be implemented when suspect ACM is encountered after the start of the weatherization work. Photographs of asbestos containment measures shall be taken to demonstrate safe work practices are used and shall be retained in the customer file.

A summary of asbestos work classifications and related protective measures is found in the tables on pages 37-42 of the OSHA publication #3096, "[Asbestos Standard for the Construction Industry](#)". Agencies shall provide personal protective equipment to all employees that may encounter, or work with, suspect ACM. Equipment shall include:

- Respirators that are NIOSH approved for asbestos.
- Disposable protective clothing.
- HEPA vacuums for fiber containment and decontamination.

Power tools shall be HEPA shrouded whenever materials (other than wood, metal, glass, or fiberglass) are being cut, drilled, or similarly disturbed, **unless** the material has been tested for asbestos and the test result is 0% asbestos-containing material. This requirement is to protect the health and safety of workers and customers by controlling lead dust and suspect or confirmed ACM fiber emission.

Agencies shall follow all relevant OSHA regulations pertaining to the use of such equipment, including the required respirator fit testing and a medical surveillance program for employees, as applicable.

Personal air monitoring may be performed, following regulations outlined in OSHA #3096. Air sampling can only be performed by a certified Asbestos Supervisor employed by a certified Asbestos Company, as this is a DHS "regulated asbestos activity."

If air sampling is not performed to establish a Permissible Exposure Limit (PEL) or Negative Exposure Assessment, then employers shall assume worker exposure will exceed the PEL and workers shall use personal protective equipment. The equipment shall include HEPA filtered respirators with a Protection Factor (PF) sufficient to prevent exposure to any level of fiber concentration that may be present in the asbestos work area. Positive pressure Supplied Air or Powered Air Purifying Respirators (PAPR) have the highest PF followed by Full Face, then Half Mask negative pressure type respirators.

9.6.4.2 Energy Audit Procedures

Energy audit procedures are described in two steps:

1. Identifying and Documenting Suspect ACM

Energy auditors shall routinely look for suspect ACM during each energy audit. When suspect ACM is found, the auditor shall:

- a. Avoid or minimize disturbance of suspect ACM while performing an energy audit (see next section, Blower Door Testing).
- b. Document the location of suspect ACM *that is friable or otherwise presents a hazard* on the Health and Safety checklist.
- c. Document any suspect ACM *that will be disturbed* during weatherization work on the Health and Safety Checklist and on the Work Agreement.
- d. Inform the customer about suspect ACM verbally during the energy audit process whenever possible.
- e. Provide information about suspect ACM that would be disturbed during weatherization to the Hazardous Materials Coordinator (including the Building ID number, type of building material or component, and related measure or measures to be performed).
- f. Notify the Hazardous Materials Coordinator whenever disturbance of suspect ACM during weatherization work may exceed O&M limits.

2. Work Orders with Operations and Maintenance

All O&M work shall be referenced in the work order as part of the ECM. The following information, at minimum, shall be detailed and included with the work order:

- a. Only O&M trained workers may perform work that may disturb or remove known or suspect ACM.
- b. A description and the specific location(s) of known or suspect ACM that will be disturbed.
- c. A determination of whether blower door tests may be completed by installers, and whether tests should be performed depressurized or pressurized.
- d. Instructions to use the appropriate personal protective equipment.
- e. Instructions to minimize disturbance of the known or suspect ACM.
- f. Instructions to use appropriate safety procedures and to use containment barriers if needed.
- g. Instructions to perform proper clean-up and disposal of any waste generated.

9.6.4.3 Blower Door Testing

Blower door testing should be utilized to measure and identify air leakage to complete effective weatherization of all buildings (see [8.3.1 Required Diagnostic Testing](#)). If a building is being deferred due to a serious asbestos hazard, do not run a blower door test. Agencies shall contact the [HE+ Help Desk](#) for guidance if damaged/deteriorated PACM prevents completing an “As-Is” blower door test at audit.

Perform blower door tests based on the type of ACM present in the building, as follows:

- When no confirmed ACM is present within the pressure boundary (as confirmed by

testing) or only intact, stable PACM is present within the pressure boundary, the blower door test may be conducted in “depressurize” or “pressurize” mode.

- When vermiculite that may contain asbestos is present in an attic and/or walls, test only with the blower door in “pressurize” mode.
- When deteriorating or damaged PACM is present inside the pressure boundary and at risk of becoming airborne during blower door testing, eliminate or minimize the hazard prior to utilizing a blower door. If a blower door test cannot be completed at audit, the identified hazard should be addressed prior to starting weatherization, so that crews may complete effective blower door-guided air sealing work. When air sealing work is completed, a final blower door test is required to calculate the natural ventilation rate, so that the flow rate of installed mechanical ventilation is reduced to the minimum necessary.

9.6.4.4 Hazardous Materials Coordinator Role

Agencies shall have at least one person who maintains DHS certification as Asbestos Supervisor and Asbestos Inspector. For the purposes of this policy, this person is referred to as the Hazardous Materials Coordinator. This individual shall perform or maintain oversight of the completion of tasks and implementation of the policy in general related to this assigned role.

The assignment of responsibilities identified in this policy shall be outlined in the agency’s Implementation Plan.

The primary responsibilities of the Hazardous Materials Coordinator shall be:

- Establish whether suspect ACM may be addressed using O&M procedures during installation of various energy conservation measures (ECMs).
- Ensure that all field staff who may encounter or disturb ACM have received O&M training or have appropriate DHS asbestos certification.
- Establish a process for determining when work will exceed O&M limits.
- Identify control options based on an assessment of the hazards involved with each type of measure, taking into account potential site-specific factors.
- Ensure that whenever a contractor performs work in which suspect ACM may be disturbed (such as siding, plumbing, electrical, or HVAC), they have O&M training or required DHS certification and are performing the work appropriately.
- Ensure that consistent procedures are used for estimating costs of asbestos-related work for the purpose of modeling.
- Ensure that when “regulated asbestos activities” are performed, DHS notifications are submitted and that all other DHS requirements are being met.
- Ensure that records of asbestos abatement or management activities are maintained as required by [DHS 159.19\(7\)](#) and [OSHA 1926.1101\(n\)](#).

9.6.4.5 Work Procedures when Asbestos is Disturbed

1. General Procedures

All workers who may disturb known or suspect ACM while weatherizing homes shall have completed O&M training at a minimum and shall adhere to all appropriate asbestos work protocols. Only workers trained and certified as Asbestos Worker or Asbestos Supervisor (or Exterior Asbestos Worker or Supervisor) may conduct asbestos work that exceeds O&M limits.

The following procedures shall be followed when performing weatherization work related to known or suspect ACM:

- An indication of what type of blower door test may be completed by installers shall be included on the work order. If a special situation dictates that a blower door test cannot be completed, use an infrared scanner when conditions permit, to identify heat bypasses and key junctures that may require air sealing. Perform non-blower door guided major air sealing and minor air sealing.
 - Major air sealing work is limited to probable attic bypasses and key junctures and glass repair or replacement. Seal major air leaks first. Stop when the major air leaks have been sealed. Minor air sealing is miscellaneous sealing that will affect the customer's comfort and is limited to one labor hour.
- Utilize containment methods to limit the spread of ACM that is being disturbed.
- Use wet methods whenever possible when disturbing known or suspect ACM.
- Verify wall stability and seal all cracks and holes prior to installing sidewall insulation.
- When insulating over vermiculite insulation (suspect ACM) in an attic:
 - Seal ceiling and wall fixtures, openings, and penetrations to isolate vermiculite from the living area.
 - Minimize entry into and exit from the attic.
 - Utilize an exterior access to the attic when possible (such as a large gable end or roof vent) to limit movement of workers and equipment through the living area of the home.
 - Set up poly containment barriers to prevent migration of asbestos fibers into the living area.
 - Limit the movement of the existing vermiculite insulation when completing air sealing.
 - Utilize a HEPA vacuum with an extended hose to collect dust when disturbing vermiculite insulation.
 - For enclosed cavity attics, do not dense pack entire attic floor. Dense pack key junctures by drilling and using the bag method. HEPA vacuum attic floor prior to drilling and use HEPA vacuum to collect dust during drilling.
 - Utilize walk planks to minimize disturbance for air sealing and to blow insulation and leave the planks in attic.
 - Do not dense pack floor cavity junctures where knob-and-tube is present.

- In un-floored attics, blow attic insulation so that existing insulation disturbance is minimized.
- Install sign in attic near the entrance to alert owners and maintenance or emergency workers of the presence of potential ACM.
- Take photographs of the final insulation application and retain or reference in the customer file.
- Ensure work area is cleaned thoroughly to remove asbestos fibers that might remain.
- Decontaminate work tools, disposable protective suits, and the outside of respirators prior to leaving work area by use of a HEPA vacuum and disposable wet wipes.
- Do not remove respirator until disposable protective suit is fully removed and disposed.
- Dispose of protective suit and any tools that cannot be cleaned in a plastic containment bag sealed with duct tape.
- Label and dispose of any asbestos waste, in accordance with applicable regulations.

2. **Knob-and-Tube Wiring and Asbestos**

When knob-and-tube wiring work is performed which will disturb ACM, the following procedures shall be followed:

- Any contractors involved in the work shall have the appropriate asbestos credentials for the planned work.
- See General Procedures above and coordinate with weatherization crew so that work may be done simultaneously.
- Locate knob-and-tube wiring by removal of fixtures within the unit, or by sight in the attic whenever possible.
- Place locator through fixture box into the attic from inside the unit to minimize the need to move insulation to locate fixtures.
- Use proper containment.
- Leave abandoned knob-and-tube wiring in place. Do not remove knob-and-tube under floors of floored attics.
- Install junction boxes where wiring enters floor. Replace knob-and-tube wiring around perimeter of attic floor whenever possible.
- Seal all openings in fixture boxes from inside the unit and note location of sealed boxes for weatherization crews.

9.6.4.6 Final Inspection

At any weatherization job where ACM or suspect ACM has been disturbed, the final inspection shall be conducted according to the following guidelines:

- Review audit and completed work for compliance with asbestos O&M or abatement work procedures.
- Review photographs of any work area control methods used during asbestos work.

- Review photographs of the final insulation application to be retained in the customer file.
- Inspect typical heat bypasses and key junctures where possible to determine that proper comfort sealing was completed. If feasible, use an infrared scanner to inspect the completeness of the air and thermal barrier.
- All other aspects of the final inspection can be performed according to standard policies and practices (see [2.1.7 Final Inspections](#)).

9.7 Spray Polyurethane Foam

Spray Polyurethane Foam (SPF) is a frequently used weatherization product. Given SPF's chemical components and potential to cause adverse health effects, it is important for weatherization Agencies and workers to understand and practice safe use of SPF.

Based on EPA and OSHA guidelines, Agencies shall address the following issues related to the use of Spray Polyurethane Foam:

- Hazard Communication – It is important that anyone who works with SPF be made aware of the health risks associated with isocyanates, a chemical component of SPF, which include the potential for causing occupational asthma. Safe storage and handling procedures shall be used according to the manufacturer's instructions and Safety Data Sheet (SDS). Customers shall be notified when SPF is being used and notified of safety precautions to prevent exposure.
- Limit Access to Area – The work area shall be contained to prevent occupants, or others not equipped with personal protective equipment, from entering the area during or directly after product application, per the Safety Data Sheet. Warning signs shall be posted at entrances to the work area when occupants are present. The signs shall be readable and shall be in the occupants' primary language, when practical.
- Personal Protective Equipment – Anyone applying SPF, or occupying an area where SPF is being applied, shall use appropriate PPE. It is recommended that workers wear a supplied air respirator, gloves, and protective clothing to prevent breathing vapor or other direct exposure to SPF. Access to the work area shall be restricted to those wearing appropriate PPE.
- Ventilation – It is necessary to properly ventilate an area where SPF is being applied and to maintain ventilation until the SPF has fully cured. Consult the SDS for estimated curing time as a guide on how long ventilation should be continued. Various products may have different curing times. Use air exhaust techniques to move air out of areas where SPF is being applied.
- Flammability – SPF can be flammable and shall not be used in the vicinity of any open flame or operating combustion appliance that may increase the hazard of fire.
- Clean-up – The area where SPF is applied shall be cleaned thoroughly so that building occupants are not exposed to particulates or dust, especially when SPF has been trimmed or cut. Restrict access to the affected area until sufficient clean-up has been done.

9.8 Cooking Stoves

Gas ovens shall be tested for carbon monoxide levels. See the Weatherization Field Guide for testing requirements and guidance on providing instruction to customers regarding cleaning ranges to reduce carbon monoxide leaks. If a gas leak is detected, repair of gas leaks is an allowable measure. Weatherization funds shall not be used to repair or replace cooking stoves, ovens, or ranges with carbon monoxide emissions. If the unit is not repairable or the cost of the repair is excessive, the unit shall be deferred until the issue is resolved.

Appendix A | Summary of Changes

The table below shows significant program and policy changes for Fiscal Year 2023-2024. The effective date for all revisions is July 1, 2023. See the chapter and section for more details.

| Section | Topic | Revision |
|---------|-------------------------------------|--|
| 1 | Definitions and Acronyms | Additions of terms to aid staff understanding generated by the program manager workgroup. |
| 2.1.12 | Administrative Review | At a minimum, conference calls shall be attended by the agency Executive Director and Wx Program Director and/or Finance Director as appropriate. |
| 3.3 (4) | Building Eligibility | <p>Re-weatherization for units weatherized on or before 7/1/2007, customer must have eligible application, all funding sources (PB, LIHEAP, DOE)</p> <ul style="list-style-type: none"> Previously weatherized buildings may also be eligible for renewable energy technologies including solar and heat pump technology (including necessary collateral activities) utilizing Public Benefit funding, provided that the agency submits a scope of work (including a budget) and receives prior approval from the Division before proceeding. Building units must be served by a participating Public Benefits utility. |
| 3.6 | Deferral of Weatherization Services | <p>Weatherization Readiness Funds, DOE, PB, LIHEAP, New WPN 23-4 replaces WPN 22-6. Funds can be used on Formula and BIL jobs to address deferrals.</p> <p>Major measures declined by the owner shall result in deferral of the job, reference to WPN 23-6.</p> <p>Repairs (per measure type) greater than \$1,000 shall result in the deferral of a job. Deferral items shall be addressed using Weatherization Readiness Funds.</p> <p>Replace, repair, or install primary heating systems when existing primary heating systems are unsafe, inoperable, or nonexistent. No home may be left without a safe primary heating system after weatherization where climate conditions require heating (i.e., all climate zones except zone 1 as defined by ASHRAE). If unable to meet this requirement, deferral is required.</p> |
| 3.6.1 | Deferral Notification Requirements | A notification letter is not required to be sent to the customer when plans are to use repair or Weatherization Readiness Funds to address the reason(s) for deferral; however, the building shall be |

| Section | Topic | Revision |
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| | | placed in deferral status until weatherization work is able to begin and all repairs have been completed. |
| 3.9.1 | Owner Contributions | Documentation to substantiate the lower SIR (5-24 Unit Workbook worksheet that shows the calculations for any buydowns of measures) and owner’s contribution documentation shall be uploaded to the job in the HE+ System. Re-run audits so there is not a conflict between 0.5 SIR measures and HE+ measure constraints that require >0.8. Owner contribution documentation shall be uploaded to the building file. See 8.4.4. |
| 5.3.7 | Training and Technical Assistance (T&TA) | Comprehensive and Specific training: Agencies shall work to expend over 50% of the T&TA funds to comprehensive training for retrofit installers, crew leader, energy auditor and quality control inspector. Costs associated with in-state or out-of-state training when approved in the agency T&TA Workbook. Meal reimbursement rates shall conform to agency travel policies and shall not exceed rates established by the General Services Administration (GSA). Hotel rates shall not exceed the rate for the conference. Any travel expenses falling outside of the conference or the days immediately preceding and following are not reimbursable without a documented reason (i.e., Weather, flight delays). |
| 5.3.7.2 | Contractor Training | T&TA funds may be used to train contractors participating in the program. The use of T&TA funds to reimburse contractors is limited to T&TA that supports the four Home Energy Professionals occupations (i.e., Retrofit Installer Technician, Crew Leader, Energy Auditor, and QCI). The T&TA plan must describe contractor T&TA activities and part of the RFB. |
| 5.3.7.3 | Out-of-State Travel | Costs associated with in-state or out-of-state training when approved in the agency T&TA Workbook. Meal reimbursement rates shall conform to agency travel policies and shall not exceed rates established by the General Services Administration (GSA). Hotel rates shall not exceed the rate for the conference. Any travel expenses falling outside of the conference or the days immediately preceding and following are not reimbursable without a documented reason (i.e., Weather, flight delays). The policy shall be submitted with the T&TA Planning Work Plan. |

| Section | Topic | Revision |
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| 5.3.9 | Average Cost Per Unit (ACPU) | \$8,009 for DOE BIL funded jobs \$8,250 for DOE Formula funded jobs |
| 5.4.3 | Final Program Review (Close-out Report) | Close-out Report is included when the Close-out Invoice is generated through the HE+ System. Guidance will be issued with an Informational Transmittal. |
| 6.6 | Procurement Method and Contract Cost | Serial contracting is the practice of issuing a series of smaller purchase orders to one or more vendors for the same (or very similar) commodity or service to avoid completing the more structured bid process that would be required if the acquisitions were completed as a single procurement. |
| 8.2.5 | Minimal Computer Equipment and Software | Office 365 to include Word, Excel, and Access Modern internet browser (Chrome, Edge, Firefox) |
| 8.4.2 | Weatherization Assistant Audits | A fuel price modifier for the Social Cost of Carbon (SCC) will be included for the four most common fuel types of natural gas, LP gas, fuel oil, and electricity. The inclusion of the SCC modifiers will effectively increase measure and cumulative SIRs for weatherization units. |
| 8.4.2.1 | General Rules for Data Entry into Weatherization Assistant Audits | Model all possible energy savings measures, especially shell insulation measures. Include all planned repairs and Health & Safety measures in the audit. Prior approval from the HE+ Help Desk is required prior to replacing the a-coil. |
| 8.4.4 | Modeling 5 to 24-Unit Buildings with Weatherization Assistant | Revised modeling policy for 5-24 unit buildings. |
| 8.6.1.2 | Mobile Home Attic Specifications | Model all ceiling/attic spaces for insulation. For enclosed cavities, model the maximum capacity that the space can accommodate. Add the amount of insulation that the energy audit specified. |
| 8.6.3 | Foundation/Floor Insulation General | Add the amount of insulation that the energy audit specified. |
| 8.6.3.1 | 1 to 4-Unit Foundation/Floor Insulation Specification | Choose from the options listed in the audit for modeling purposes. The audit will not compare between insulation type, so multiple runs of the audit may be required. Add the type and amount of insulation that the energy audit specified. |

| Section | Topic | Revision |
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| 8.7.1.2 | Heating System Replacement | <p>Electric Heat to Cold-Climate Air-Source Heat Pump (ccASHP):</p> <ol style="list-style-type: none"> 1. Model conversion to ccASHP by selecting “Evaluate Replacement with Heat Pump”. Include only the percentage of heat that will be supplied by the new system. 2. The audit will model and combine savings for both heating and cooling when the building has existing cooling systems present. 3. System may be a mini-split or fully ducted. All costs must be included. 4. The percentage of the heating load being replaced should reflect when the replacement ccASHP may not provide adequate heat at lower temperatures. 5. In cases where there is no cooling system, customer is provided information about the potential increase in energy costs when the ccASHP is used for cooling. <ol style="list-style-type: none"> a. The annual combined heating and cooling annual operational costs shall be calculated with base electric price without the added SCC modifier to ensure a household’s energy burden does not increase when there was no existing cooling equipment in the building. 6. Prior approval from the HE+ Help Desk is required prior to installing a ccASHP. |
| 8.7.1.3 | Fuel Switching | <p>The annual combined heating and cooling annual operational costs shall be calculated with base fuel prices without the added SCC modifier to ensure a household’s energy burden does not increase. This will be most important when a ccASHP is installed where there is no existing cooling equipment in the building.</p> |
| 8.7.1.4 (10) 8.7.1.5 (6) (a) 8.7.2.1 (2) | CSST Gas Line Bonding (1-4 Units) (Multifamily) | <p>When CSST is already present in the building and not correctly bonded, bond the gas piping system to the electrical ground in accordance with NEC 250.94 and 250.104 when completing work on the fuel supply for the heating system or water heater.</p> <p>Bonding of CSST gas lines shall meet NFPA 54 standards.</p> <p>(1-4 Unit) When no work on a fuel system, the agency may bond the existing CSST gas line.</p> |

| Section | Topic | Revision |
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| | | <p>(Multifamily) When existing CSST gas line is present and not correctly bonded, the agency may bond the gas line if not working on the fuel system.</p> <p>(1-4 Unit, Mobile Home, and Multifamily) When no fuel system work will be completed, the agency may bond existing CSST gas line.</p> |
| 8.7.3.1 | 1 to 4-Unit and Mobile Home Water Heater Replacement Specifications | <p>Heat Pump Conversions: Model water heater conversion from electric to heat pump, LP to heat pump, or oil to heat pump as an energy conservation measure when the following conditions are met:</p> <ol style="list-style-type: none"> 1. The customer agrees to the conversion and is willing to complete required maintenance. 2. If the existing electric water heater is load controlled (time of use), the agency shall contact the HE+ Help Desk for approval prior to proceeding. <p>Model for peak daily demand:</p> <ol style="list-style-type: none"> 1. Power vented shall have a minimum .70 UEF. An indirect water heater working with a high-efficiency boiler system. 2. A heat pump water heater with a UEF of 3.3 or greater. |
| 8.7.3.2 | Multifamily Water Heater Replacement Specifications | <ol style="list-style-type: none"> a. Power vented shall have a minimum .70 UEF. An indirect water heater working with a high-efficiency boiler system. b. A heat pump water heater with a UEF of 3.3 or greater. |
| 8.7.4 | Cooling Replacement Modeling | <p>Model central air conditioners or room air conditioners as an energy conservation measure with the audit based on the criteria listed in the specifications. All replacement systems shall meet the minimum Wisconsin Weatherization Material Specifications, as specified in Appendix C. The specifications are available on the HE+ TTA website under Weatherization Procurement.</p> |

| Section | Topic | Revision |
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| 8.7.4.1 | Modeling Replacement Cooling Systems | <p>Central or room air conditioners:</p> <ol style="list-style-type: none"> Model replacement in the energy audit to determine approximate estimated savings based on default efficiency and cost entered in Setup Library. Enter pre- and post-cooling loads from audit results, pre- and post-efficiencies, and percent of cooling load supplied in cooling system replacement worksheet to calculate trued-up estimated savings. Un-check modeling of the replacement in the cooling tab and enter trued-up savings as an itemized cost record in the audit with actual costs. Prior approval from the HE+ Help Desk is required before proceeding with the installation of cooling systems. <p>Room air conditioners with replacement of electric baseboard heat.</p> <p>NEAT combines savings for both heating and cooling savings when the baseboard heat is modeled for replacement with a ccASHP. Contact the HE+ Help Desk for further guidance when considering replacing both electric heat and cooling.</p> |
| 8.10 | Weatherization Readiness Funds (WRF) | ZZ Repair codes, all fund sources, max of \$6,000 per unit per fund source unless prior Division approval. Use of all Readiness Funds DOE, PB, LIHEAP requires a deferral status in the HE+ System, 1-4 units only, no mobile homes. |
| 8.10.1 | Weatherization Readiness Funded Repairs: ZZ Repair Codes | All repair measures >\$1,000 shall be modeled using ZZ measure codes in the Weatherization Assistant Itemized Cost tab and NOT included in the SIR (see Weatherization Assistant Guide 4.5 Itemized Costs on the HE+ TTA website under Weatherization Manuals & Guides). Report the repair costs under the appropriate Repair category in the HE+ System (see Appendix D). |
| 8.11 | Work Order | A comprehensive work order shall be created that details all results from the completed energy audit to be included in the scope of work to be completed. The scope of work should include specifications such as R-value to be installed or efficiency of mechanical equipment to be installed. Crews and contractors shall be instructed to follow installation standards in the WI |

| Section | Topic | Revision |
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| | | <p>Weatherization Field Guide and/or the SWS, local while following local and national codes.</p> <p>The funding source and type of work for reporting purposes shall follow guidance provided in Appendix D when reporting completed work.</p> |
| 9.1.3 | Worker Safety (Health & Safety Training and Certification Report) | The report provides a listing of agency staff that have completed program-required health and safety trainings. The report also provides a listing of agency Asbestos and Lead Company certifications. The report is used by the Division to confirm Health and Safety training requirements during the annual Administrative Review. The agency shall report staff training and certifications in the database within 10 business days of receiving the training. |
| 9.2 | Radon and Weatherization | Air-tight seal on sump pits or ventilation, see Field Guide for more details. |
| Appendix C | Wisconsin Weatherization Material Specifications | Changes to align with WPN 23-6. |
| Appendix C Section 5 | Additional Minimum Requirements for Replacement Mechanical Equipment | <p>Mini Split Heat Pump ≥ 10 HSPF2 ≥ 22 SEER2 <30K Capacity</p> <p>Mini Split Heat Pump ≥ 9.5 HSPF2 ≥ 20 SEER2 ≥ 30K Capacity</p> <p>Heat Pump ≥ 9.5 HSPF2 ≥ 18 SEER2 <40K Capacity</p> <p>Heat Pump ≥ 9 HSPF2 ≥ 17 SEER2 ≥ 40K Capacity</p> |
| Appendix C | Cooling Systems: 1 to 4-Unit Buildings (all sizes) | Air Conditioner ≥ 22 SEER2 |
| Appendix C | Water Heaters: Mobile Homes | <p>Gas: 30 gallons ≥ 60 UEF</p> <p>Gas: 40 gallons ≥ 59 UEF</p> <p>Gas: 50 gallons ≥ 57 UEF</p> <p>Electric: 30 to 50 gallons ≥ 93 UEF</p> |
| Appendix C | Water Heaters: 1 to 4-Unit Buildings | <p>Gas: 30 to 50 gallons $\geq .70$ UEF</p> <p>Power vented. Natural vent allowed for Health & Safety replacements of leaking water heaters with no draft issues; commercially available.</p> <p>First Hour Rating ≥ 51 GPH</p> <p>Electric: 30 to 50 gallons $.93$ UEF</p> |

| Section | Topic | Revision |
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| Appendix C | Water Heaters: 5+ Unit Buildings | Gas: 30 to 50 Gallons $\geq .70$ UEF Electric: 30 to 50 gallons $\geq .93$ UEF |
| Appendix C | Water Heaters: 5+ Unit Buildings | Integrated Heat Pump Water Heater ≥ 3.3 UEF First Hour Rating ≥ 45 GPH |
| Appendix C | Water Heaters: 5+ Unit Buildings | Integrated Heat Pump Water Heater – 120Volt/15 Amp ≥ 2.2 UEF |

Appendix B | Home Energy Plus Resources

The table below is a comprehensive list of the Division-administered and -endorsed resources referenced throughout the Program Manual. Secured resources require a user account and password. Contact the appropriate administrator for access to these resources:

Division Administered Resources: heat@wisconsin.gov

Slipstream Administered Resources: HEPlusTTA@slipstreaminc.org

| Resource | Type | Content Summary | Secured | Admin |
|--|---------|---|---------|------------|
| HE+ System | Website | WHEAP referrals, weatherization jobs and invoicing, HE+ applications, HE+ Program Services jobs, and job QC information | Yes | Division |
| DEHCR Weatherization | Website | DOE plans, Program Manual, Field Guide | No | Division |
| DEHCR HE+ Program Services | Website | HE+ Program Services (heating/water conservation) Manual and forms, WHEAP application forms, Non-Disclosure Agreement, LIEAC information, Public Benefits Report | No | Division |
| DEHCR WHEAP | Website | WHEAP Program Manual | No | Division |
| Home Energy Plus Training & Technical Assistance (HE+ TTA) | Website | Events calendar and online registration, conferences, FAQs, informational transmittals, Wx and HE+ Furnace online learning, procurement resource tools and templates, SDS search, Wx and HE+ Furnace resource documents/forms, Wx Guidebook, workbooks, calculators, HE Plus videos, Training reports, Tech Shorts Newsletter, Weatherization Assistant Guide | Yes | Slipstream |

| | | | | |
|--|---------|--|-----|----------|
| HE+ System Administrative and Financial Review | Website | Administrative/Financial Review uploads: From HE+ System go to the <u>Contract</u> tab, click on the <u>WISWAP</u> Contract, then Search. Select the <u>agency</u> . Click on the <u>Paperclip Icon</u> on the right side of the screen. | Yes | Division |
|--|---------|--|-----|----------|

Appendix C | Wisconsin Weatherization Material Specifications

1. General

Installation of materials shall follow required health and safety protocols and shall be of professional quality in order to ensure the effectiveness of the measure. Materials shall be installed to meet manufacturer's specifications. All work will meet applicable codes and regulations. Products shall be designed and rated for their intended use. Materials used shall meet the requirements outlined in this appendix. All materials and workmanship shall be warranted for at least one year. Any manufacturer's warranty of longer term shall also apply. See also Chapter [6.16 Warranty Requirements](#).

2. Insulation Fact Sheets and Information

The Federal Trade Commission rule "Trade Regulation Rules: Labeling and Advertising of Home Insulation" ([16 CFR 460](#)) requires that Grantees:

1. Retain the manufacturers' fact sheets for insulation the agency installs.
2. Provide the customer with a contract or receipt for the insulation installed.
 - a. The receipt shall be dated and signed by the installer.
 - b. To figure out the R-value of the insulation, use the data that the manufacturer provides.
 - c. If insulation is installed in more than one part of the house, put the data for each part on the receipt. Do this on one receipt, as long as it does not add up the coverage areas or R-values for different parts of the house.
 - d. Do not multiply the R-value for one inch by the number of inches installed.
 - e. For loose-fill insulation, the receipt shall show the coverage area, initial installed thickness, minimum settled thickness, R-value installed, total R-value, and the number of bags used.
 - f. For aluminum foil, the receipt shall show the number and thickness of the air spaces, the direction of heat flow, and the R-value.

Grantees shall provide a certificate, including the information outlined above, for each building or mobile home. Agencies shall affix the certificate (more than one, if necessary, for multi-units) near an attic hatch, electrical panel, or other visible location. An Insulation Labeling Template is available on the [Home Energy Plus Training & Technical Assistance \(HE+ TTA\) website](#) under Weatherization | Forms.

3. Recycled Insulation Products

A Grantee that meets the criteria listed in Section 3.1 below shall comply with the Environmental Protection agency (EPA) regulations dealing with the purchase of building insulation products, as specified in EPA regulations [40 CFR 247](#). These regulations implement Section 6002 of the Resource Conservation and Recovery Act (RCRA), which encourages recycling of materials. The regulations cover insulation products used in commercial, industrial, and residential applications. They apply to insulation products used to improve the thermal effectiveness of building envelopes, but do not apply to insulation for air handling units, insulation for acoustic purposes, or cold storage insulation. Commercially available insulation products that can contain recycled materials include cellulose, fiberglass, perlite, composite board, plastic foams

and boards, and rock wool. There are EPA-recommended minimum recovered materials standards for these products except for fiberglass.

Criteria for Use of Recycled Products

The EPA recycling regulations apply to all direct purchases of products from vendors or suppliers or contractors of:

1. At least \$10,000 worth of insulation products in the previous fiscal year, or
2. A single purchase in excess of \$10,000 of a covered product in the current fiscal year.

When a Grantee meets these criteria, the Grantee shall comply with the regulations in the current and following fiscal years.

A Grantee that meets the criteria shall comply with the following:

1. Specifications for insulation products shall allow for the purchase of items containing recovered materials, and
2. Establish an affirmative procurement program to facilitate procurement of insulation products containing recovered materials.

4. Weatherization Standards for Materials

A Grantee shall purchase weatherization materials and use the installation procedures that meet or exceed the standards prescribed in this appendix. Weatherization material standards include any of the following government standards listed here. The following government standards are produced by the [Consumer Product Safety Commission](#) and are published in [title 16, Code of Federal Regulations](#).

| | |
|--|--------------------------------------|
| Thermal Insulating Materials for Building Elements Including Walls, Floors, Ceilings, Attics, and Roofs Insulation: Organic Fiber. | Safety Standard in 16 CFR part 1209; |
| Fire Safety Requirements for Thermal Insulating Materials According to Insulation Use – Attic Floor – insulation materials intended for exposed use in attic floors shall be capable of meeting the same flammability requirements given for cellulose insulation. | 16 CFR part 1209 |
| Enclosed spaces – insulation materials intended for use within enclosed stud or joist spaces shall be capable of meeting smoldering combustion requirements. | 16 CFR part 1209 |

The following standards not otherwise set forth in part 440 are incorporated by reference and made part of part 440. The following standards have been approved for incorporation by reference by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. These materials are incorporated as they exist on January 3, 2002, and a notice of any change in these materials will be published in the Federal Register. [The standards incorporated by reference are available for inspection at the National Archives and Records Administration

(NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to <http://www.archives.gov/federalregister/codof/federalregulations/ibrlocations.html>. The standards incorporated by reference in part 440 can be obtained from the following sources:

- Air Conditioning and Refrigeration Institute, 1501 Wilson Blvd, Arlington, VA 22209: 1-703-534-8800 <http://www.ahrinet.org>
- American Gas Association, 1515 Wilson Blvd., Arlington, VA 22209: 1-703-841-8400 <http://www.aga.org>
- Americana National Standards Institute, Inc., 1430 Broadway, New York, NY 10018: 1-212-642-4900 <http://ansi.org>
- American Society of Mechanical Engineers, United Engineering Center, 345 East 47th, New York, NY 10017; 1-212-705-7800 www.asme.org
- American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103; 1-215-299-5400 www.astm.org
- American Architectural Manufacturers Association, 1540 East Dundee Road, Palatine, IL 60067; (708) 202-1350.
- Federal Specifications, General Services Administration, Specifications Section, Room 6654, 7th and D Streets, SW, Washington, DC 20407: 202-708-5082 <http://www.gsa.gov/>
- Gas Appliance Manufacturers Association, 1-703-525-9565.
- National Electrical Manufacturers Association, 2101 L Street, NW, Suite 300, Washington, DC 20037, 202-457-8400.
- National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269: 1-617-770-3000 <http://www.nfpa.org>
- National Standards Association, 1200 Quince Orchard Blvd., Gaithersburg, MD 20878; (301) 590-2300. (NSA is a local contact for materials from ASTM).
- National Wood Window and Door Association, 1400 East Touhy Avenue, Des Plaines, IL 60018; (708) 299-5200.
- Sheet Metal and Air Conditioning Contractors Association, P.O. Box 221230, Chantilly, VA 22022: 1-703-803-2980. <http://www.smacna.org>
- Steel Door Institute, 712 Lakewood Center North, 14600 Detroit Avenue, Cleveland, OH 44107; (216) 899-0100. <https://steeldoor.org/>
- Steel Window Institute, 1230 Keith Building, Cleveland, OH 44115; (216) 241-7333. <https://www.steelwindows.com/>
- Tubular Exchanger Manufacturers Association, 25 North Broadway, Tarrytown, NY 10591; (914) 332-0040. <http://www.tema.org>
- Underwriters Laboratories, Inc., P.O. Box 75530, Chicago, IL 60675: 1-708-272-8800. <http://www.ul.com>
- Solar Rating and Certification Corporation, c/o FSEC, 1679 Clearlake Road, Cocoa FL 32922: 1-321-638-1537 <http://solar-rating.org>

More information regarding the standards in this reference can be obtained for the following sources:

- Environmental Protection agency, 401 M Street, NW Washington, DC 20006; 1-202-554-1080 <http://www.epa.gov>
- National Institute of Standards and Technology, U.S. Department of Commerce, Gaithersburg, MD 20899; 1-301-975-2000 <http://www.nist.gov>
- Weatherization Assistance Program, U.S. Department of Energy, Conservation and Renewable Energy, Mail Stop 5G-023, Forrestal Bldg, 1000 Independence Ave, SW, Washington DC 20585, 202-586-2207 <https://www.energy.gov/eere/wipo/weatherization-and-intergovernmental-programs-office>

4.1 Thermal Insulating Materials for Walls, Floors, Ceilings, Attics, and Roofs

| | |
|---|--|
| <p>Insulation – mineral fiber: Blanket insulation Roof insulation board Loose-fill insulation</p> | <p>ASTM¹ C665-98 ASTM C726-00a ASTM C764-99</p> |
| <p>Insulation – mineral cellular: Vermiculite loose-fill insulation Perlite loose-fill insulation Cellular glass insulation block Perlite insulation board</p> | <p>ASTM C516-80 (1990) ASTM C549-81 (1986) ASTM C552-88 ASTM C728-89a</p> |
| <p>Insulation – organic fiber: Cellulosic fiber insulating board Cellulose loose-fill insulation</p> | <p>ASTM C208-72 (1982) ASTM C739-88</p> |
| <p>Insulation – organic cellular: Preformed block-type polystyrene insulation Rigid preformed polyurethane insulation board Polyurethane or polyisocyanurate insulation board faced with aluminum foil on both sides Polyurethane or polyisocyanurate insulation board faced with felt on both sides</p> | <p>ASTM C578-87a ASTM C591-85 FS² HH-I-1972/1 (1981) FS HH-I-1972/2 (1981) and Amendment 1,10/03/85</p> |
| <p>Insulation – composite boards: Mineral fiber and rigid cellular polyurethane composite roof insulation board Perlite board and rigid cellular polyurethane composite roof insulation Gypsum board and polyurethane or polyisocyanurate composite board</p> | <p>ASTM C726-88 ASTM C984-83 FS HH-I-1972/4 (1981)</p> |
| <p>Materials used as a patch to reduce infiltration through the building envelope</p> | <p>Commercially available</p> |

¹ ASTM indicates American Society for Testing and Materials

² FS indicates Federal Specifications

4.2 Thermal Insulating Materials for Pipes, Ducts, and Equipment such as Boilers and Furnaces

| | |
|--|---|
| <p>Insulation – mineral fiber: Preformed pipe insulation Blanket and felt insulation (industrial type) Blanket insulation and blanket type pipe insulation (metal-mesh covered, industrial type) Block and board insulation Spray applied fibrous insulation for elevated temperature High-temperature fiber blanket insulation Duct work insulation</p> | <p>ASTM 1 C547-77 ASTM C553-70 (1977) ASTM C592-80 ASTM C612-83 ASTM C720-89 ASTM C892-89 Selected and applied according to ASTM C971-82</p> |
| <p>Insulation – mineral cellular: Diatomaceous earth block and pipe insulation Calcium silicate block and pipe insulation Cellular glass insulation Expanded perlite block and pipe insulation</p> | <p>ASTM C517-71 (1979) ASTM C533-85 (1990) ASTM C552-88 ASTM C610-85</p> |
| <p>Insulation – organic cellular: Preformed flexible elastomeric cellular insulation in sheet and tubular form Unfaced preformed rigid cellular polyurethane insulation</p> | <p>ASTM C534-88 ASTM C591-85</p> |
| <p>Insulation Skirting</p> | <p>Commercially available</p> |

¹ ASTM indicates American Society for Testing and Materials

4.3 Fire Safety Requirements for Insulating Materials According to Insulation Use

| | |
|-------------------------------------|--|
| Attic floor | Insulation materials intended for exposed use in attic floors shall be capable of meeting the same smoldering combustion requirements given for cellulose insulation in ASTM ¹ C739-88 |
| Enclosed space | Insulation materials intended for use within enclosed stud or joist spaces shall be capable of meeting the same smoldering combustion requirements given for cellulose insulation in ASTM C739-88 |
| Exposed interior walls and ceilings | Insulation materials, including those with combustible facings, which remain exposed and serve as wall or ceiling interior finish, shall have a flame spread classification not to exceed 150 (per ASTM E84-89a) |
| Exterior envelope walls and roofs | Exterior envelope walls and roofs containing thermal insulation shall meet applicable local government building code requirements for the complete wall or roof assembly |
| Pipes, ducts, and equipment | Insulation materials intended for use on pipes, ducts, and equipment shall be capable of meeting a flame spread classification not to exceed 150 (per ASTM E84-89a) |

¹ ASTM indicates American Society for Testing and Materials

4.4 Storm Windows and Window Replacements

| | |
|--|--|
| Storm windows: Aluminum insulating storm window Aluminum frame storm windows Wood frame storm window Rigid vinyl frame storm windows Frameless plastic glazing storm | ANSI ¹ /AAMA ² 1002.10-83 ANSI/AAMA 1002.10-83 ANSI/NWWDA ³ I.S. 2-87. (Section 3) ASTM ⁴ D4099-89 Required minimum thickness for windows is 6 mil (0.006") ⁵ |
| Movable insulation systems for windows | Commercially available |
| Replacement windows: All windows Aluminum frame windows Steel frame windows Wood frame windows Rigid vinyl frame windows | Replacement windows shall meet ENERGY STAR [®] standards ⁵ ANSI/AAMA 101-88 Steel Window Institute recommended specifications for steel windows, 1990 ANSI/NWWDA I.S. 2-87 ASTM D4099-89 |

¹ ANSI indicates American National Standards Institute

² AAMA indicates American Architectural Manufacturers Association

³ NWWDA indicates American Architectural Manufacturers Association/National Wood Window and Door Association (Now the Window and Door Manufacturers Association)

⁴ ASTM indicates American Society for Testing and Materials

⁵ Wisconsin Weatherization Specifications

4.5 Storm Doors and Door Replacements

| | |
|---|--|
| Storm doors – aluminum: Storm doors Sliding glass storm doors Wood storm doors Rigid vinyl storm doors | ANSI ¹ /AAMA ² 1102.7-89 ANSI/AAMA 1002.10-83 ANSI//NWWDA ³ I.S. 6-86 ASTM ⁴ D3678-88 |
| Vestibules: Materials to construct vestibules | Commercially available |
| Replacement doors: All doors Hinged doors: Steel doors Wood doors: Flush doors Pine, fir, hemlock, and spruce doors Sliding patio doors: Aluminum doors Wood doors | Replacement doors shall have a minimum value of R-5. For mobile homes a commercial mobile home replacement door is acceptable. ⁵ ANSI/SDI 100-1985 ANSI/NWWDA I.S. 1-87 (exterior door provisions) ANSI/NWWDA I.S. 6-86 ANSI/AAMA 101.88 NWWDA I.S. 3-83 |

¹ ANSI indicates American National Standards Institute

² AAMA indicates American Architectural Manufacturers Association

³ NWWDA indicates American Architectural Manufacturers Association/National Wood Window and Door Association (Now the Window and Door Manufacturers Association)

⁴ ASTM indicates American Society for Testing and Materials

⁵ Wisconsin Weatherization Specifications

4.6 Caulks and Sealants

| | |
|---|---|
| Putty | FS ¹ TT-P-00791B, 10/16/1969 and Amendment 2, 03/23/1971 |
| Glazing compounds for metal sash Oil- and resin-based caulks | ASTM ² C669-75 (1989) ASTM C570-72 (1989) |
| Acrylic (solvent types) sealants | FS TT-S-00230C, 02/02/1970 and Amendment 2, 10/09/1970 |
| Butyl rubber sealants | FS TT-S 001657, 10/08/1970 |
| Chlorosulfonated polyethylene sealants | FS TT-S-00230C, 02/02/1970 and Amendment 2, 10/09/1970 |
| Latex sealing compounds Elastometric joint sealants (normally considered to include polysulfide, polyurethane, and silicone) | ASTM C834-76 (1986) ASTM C920-87 |
| Preformed gaskets and sealing materials | ASTM C509-84 |
| Duct sealing mastic | Commercially available |

¹ FS Indicates Federal Specifications

² ASTM indicates American Society for Testing and Materials

4.7 Weatherstripping and Vapor Retarders

| | |
|------------------------------------|---|
| Weatherstripping | Commercially available |
| Vapor retarders | Selected according to the provisions cited in ASTM ¹ C755-85 (1990). Permeance rating not greater than 1 perm when determined according to the desiccant method described in ASTM E96-90. Ground moisture vapor retarders shall meet tear and puncture resistance standard ASTM E1745. |
| Items to improve attic ventilation | Commercially available |

¹ ASTM indicates American Society for Testing and Materials

4.8 Heat Exchangers

| | |
|--|--|
| Heat exchangers, water-to-water and steam-to-water | ASME ¹ Boiler and Pressure Vessel Code, 1992, Sections II, V, VIII, IX, and X, as applicable to pressure vessels. Standards of Tubular Exchanger Manufacturers Association, Seventh Edition, 1988 |
| Heat exchangers with gas-fired appliances ² | Conformance to AGA ³ Requirements for Heat Reclaimer Devices for Use with Gas-Fired Appliances No. 1–80, June 1, 1980. AGA Laboratories Certification Seal |
| Heat pump water heating heat recovery systems | Electrical components to be listed by UL ⁴ |

¹ ASME indicates American Society for Mechanical Engineers

² The heat reclaimer is for installation in a section of the vent connector from appliances equipped with draft hoods or appliances equipped with powered burners or induced draft and not equipped with a draft hood

³ AGA indicates American Gas Institute

⁴ UL indicates Underwriters Laboratories

4.9 Boiler/Furnace Control Systems

| | |
|--|---|
| Automatic set-back thermostats | Listed by UL ¹ . Conformance to NEMA ² DC 3-1989 |
| Line voltage or low voltage room thermostats | NEMA DC 3-1989 |
| Automatic gas ignition systems | ANSI ³ Z21.21-1987 and Z21.21a-1989 AGA ⁴ Laboratories Certification Seal |
| Energy management systems | Listed by UL |
| Hydronic boiler controls | Listed by UL |
| Other burner controls | Listed by UL |

¹ UL indicates Underwriters Laboratory

² NEMA indicates National Electrical Manufacturers Association

³ ANSI indicates American National Standards Institute

⁴ AGA indicates American Gas Institute

4.10 Water Heater Modifications

| | |
|---|---|
| Insulate tank and distribution piping | (See section 4.2 of this appendix) |
| Install heat traps on inlet and outlet piping | Applicable local plumbing code |
| Install/replace water heater heating elements | Listed by UL ¹ |
| Electric, freeze-prevention tape for pipes | Listed by UL |
| Install stack damper, gas-fueled | ANSI ² Z21.66-1988, including Exhibits A&B, and ANSI Z223.1-1988 |
| Install stack damper, oil-fueled | UL 17, November 28, 1988, and NFPA ³ 31-1987 |
| Install water flow modifiers | Commercially available |

¹ UL indicates Underwriters Laboratories

² ANSI indicates American National Standards Institute

³ NFPA indicates National Fire Prevention Institute

4.11 Replacement Water Heaters

See also Section 5 (below) - Additional Minimum Requirements for Replacement Mechanical Equipment

| | |
|--|---|
| Electric (resistance) Water Heaters | 10 CFR ¹ 430 and UL ² 174. |
| Heat Pump Water Heaters | UL 1995 and UL 174, Electrical components to be listed by UL. |
| Gas Water Heaters | <u>Mobile homes</u> : All replacements shall be mobile-home rated. |
| Rated ≤75 kBTU/hr Rated ≥75 kBTU/hr | 10 CFR 430 and ANSI ³ Z21.10.1/CSA 4.1 ANSI Z21.10.3/CSA 4.3UL 732, Fifth Edition, 1995, Revised 2/3/05 |
| Oil Water Heaters | |

¹ CFR indicates Code of Federal Regulations

² UL indicates Underwriters Laboratories

³ ANSI indicates American National Standards Institute

4.12 Solar Water Heating Systems

| | |
|--|---|
| Solar water heating systems, including forced circulation, integral collector storage, thermo-siphon, and self-pumping systems | System shall be certified per SRCC ¹ OG 300, July 16, 1998 |
|--|---|

¹ SRCC indicates Solar Rating and Certification Corporation

4.13 Waste Heat Recovery Devices

| | |
|---|--|
| Desuperheater/water heaters Condensing heat exchangers | ARI ¹ 470-1987 Commercially available components and in new heating furnace systems to manufacturers' specifications. Commercially available (Commercial, multi-story building, with teflon-lined tubes institutional) to manufacturers' specifications |
| Heat pump water heating heat recovery systems | |
| Energy recovery equipment | Energy Recovery Equipment and Systems Air-to-Air 1978 Sheet Metal and Air-Conditioning Contractors National Association (SMACNA) |

¹ ARI indicates Air Conditioning and Refrigeration Institute

4.14 Boiler Repair and Modifications/Efficiency Improvements

See also Section 5 (below) - Additional Minimum Requirements for Replacement Mechanical Equipment

| | |
|---|---|
| Install gas conversion burners | ANSI ¹ Z21.8-1984 (for gas or oil-fired systems), ANSI Z21.17-1984, and ANSI Z223.1-1988 (NFPA ² 54-1988). AGA ³ Laboratories Certification Seal |
| Replace oil burner | UL ⁴ 296, February 28, 1989 revision and NFPA 31-1987 |
| Install burners (oil/gas) | ANSI Z223.1-1988 for gas equipment and NFPA 31-1987 for oil equipment |
| Re-adjust boiler water temperature or install automatic boiler temperature reset control | ASME ⁵ CSD-1-1988, ASME CSD-1a-1989, ANSI Z223.1-1988, and NFPA 31-1987 |
| Replace/modify boilers | ASME boiler and Pressure Vessel Code, 1992, Section II, IV, V, VI, VIII, IX, and X. Boilers must be Institute of Boilers and Radiation Manufacturers (IBR) equipment. |
| Clean heat exchanger, adjust burner air shutter(s), and check smoke number on oil-fueled equipment. Check operation of pump(s) and replacement filters. | Per manufacturers' instructions |
| Repair combustion chambers | Refractory linings may be required for conversions |
| Replace heat exchangers, tubes | Protection from flame contact with conversion burners by refractory shield |
| Install/replace thermostatic radiator valves | Commercially available. One-pipe steam systems require air vents on each radiator; see manufacturers' requirements. |
| Install boiler duty cycle control system | Commercially available. NFPA 70, National Electrical Code (NEC) 1993 and local electrical codes provisions for wiring. |

¹ ANSI indicates American National Standards Institute

² NFPA indicates National Fire Prevention Association

³ AGA indicates American Gas Institute

⁴ UL indicates Underwriters Laboratories

⁵ ASME indicates American Society for Mechanical Engineers

4.15 Heating and Cooling System Repairs and Tune-ups/Efficiency Improvements

| | |
|---|---|
| Install duct insulation | FS ¹ HH-I-558C, January 7, 1992 (see section 4.2 of this appendix) |
| Reduce input of burner; derate gas-fueled equipment | Local utility company and procedures if applicable for gas-fueled furnaces and ANSI ² Z223.1-1988 (NFPA ³ 54-1988) including Appendix H |
| Repair/replace oil-fired equipment | NFPA 31-1987 |
| Replace combustion chamber in oil-fired furnaces or boilers | NFPA 31-1987 |

| | |
|---|---|
| Clean heat exchanger and adjust burner; adjust air shutter and check CO ₂ and stack temperature. Clean or replace air filter on forced-air furnace | ANSI Z223.1-1988 (NFPA 54-1988) including Appendix H |
| Install vent dampers for gas-fueled heating systems | Applicable sections of ANSI Z223.1-1988 (NFPA 54-1988) including Appendix H, I, J, and K. ANSI Z21.66-1988 and Exhibits A&B for electrically operated dampers |
| Install vent dampers for oil-fueled heating systems | Applicable sections of NFPA 31-1987 for installation and in conformance with UL ⁴ 17, November 28, 1988 |
| Reduce excess combustion air: A. Reduce vent connector size of gas-fueled appliances B. Adjust barometric draft regulator for oil fuels | ANSI Z223,1-1988 (NFPA 54-1988) part 9 and Appendices G&H NFPA 31-1987 and per manufacturers' (furnace and boiler) instructions |
| Replace constant burning pilot with electronic ignition device on gas-fueled furnaces or boilers | ANSI Z21.71-1981, Z21.71a-1985, and Z21.71b-1989 |
| Readjust fan switch on forced-air gas- or oil-fueled furnaces | Applicable sections and Appendix H of ANSI Z223.1-1988 (NFPA 54-1988) for gas furnaces and NFPA 31-1987 for oil furnaces |
| Replace burners | See power burners (oil/gas) ⁵ |
| Install/replace duct furnaces (gas) | ANSI Z223.1-1988 (NFPA 54-1988) |
| Install/replace heat pumps | Listed by UL |
| Replace air diffusers, intakes, registers, and grilles | Commercially available |
| Install/replace warm air heating metal ducts | Commercially available |
| Filter alarm units | Commercially available |

¹ FS Indicates Federal Specifications

² ANSI indicates American National Standards Institute

³ NFPA indicates National Fire Prevention Association

⁴ UL indicates Underwriters Laboratories

⁵ Wisconsin Weatherization Specifications

4.16 Replacement Furnaces, Boilers (Burners), and Wood Stoves

See also Section 5 (below) Additional Minimum Requirements for Replacement Mechanical Equipment

| | |
|--|--|
| Chimneys, fireplaces, vents and solid fuel burning appliances Gas-fired furnaces | NFPA ¹ 211-1988 ANSI ² Z21.47-1987, Z21.47a-1988, and Z21.47b-1989, ANSI Z223.1-1988 (NFPA 54-1988) |
| Oil-fired furnaces | UL ³ 727, August 27, 1991 Revision and NFPA 31-1987 |
| Liquefied petroleum gas storage Ventilation fans, including electric attic, ceiling, and whole-house fans | NFPA 58-1989 Shall meet ENERGY STAR [®] standards ⁴ , UL 507, August 23, 1990 Revision |

¹ NFPA indicates National Fire Prevention Association

² ANSI indicates American National Standards Institute

³ UL indicates Underwriters Laboratories

⁴ Wisconsin Weatherization Specifications

4.17 Air Conditioners and Cooling Equipment

| | |
|---|---|
| Air conditioners: Central air conditioners Room size units | ARI ¹ 210/240-1989, ANSI/AHAM ² RAC-1-1982 |
| Other cooling equipment, including evaporative coolers, heat pumps, and other equipment | UL ³ 1995, November 30, 1990 |

¹ ARI indicates Air Conditioning and Refrigeration Institute

² ANSI/AHAM indicates American National Standards Institute/Association of Home Appliance Manufacturers

³ UL indicates Underwriters Laboratories

4.18 Screens, Window Films, and Reflective Materials

| | |
|--|--|
| Insect screens Window films | Commercially available Commercially available |
| Shade screens: Fiberglass shade screens Polyester shade screens | Commercially available Commercially available |
| Rigid awnings: Wood rigid awnings Metal rigid awnings | Commercially available Commercially available |
| Louver systems: Wood louver systems Metal louver systems | Commercially available Commercially available |
| Industrial-grade white paint used as a heat-reflective measure on awnings, window louvers, doors, and exterior duct work (exposed) | Commercially available |

4.19 Refrigerators and Freezers

| | |
|------------------------|---|
| Refrigerators/Freezers | <p>Technical specifications are available on the HE+ TTA website under Weatherization Procurement Category 5: Commodities in Refrigerator/Freezer Attachment 4.</p> <p>Refrigerators only: Preference may be given to ENERGY STAR® rated products.</p> |
|------------------------|---|

4.20 Lamps and Fixtures

| | |
|---|---|
| <p>Light emitting diode (LED) lamps and fixtures</p> <p>Note: Grantees may use https://www.energystar.gov/productfinder/ to check for availability of ENERGY STAR® rated lamps and use non-rated lamps when ENERGY STAR® is not available, documenting this in the customer file.</p> | <p>Shall meet ENERGY STAR® standards¹: https://www.energystar.gov/sites/default/files/ENERGY%20STAR%20Lamps%20V1%201_Specification.pdf</p> <p>When applicable and feasible, LED lamps installed in enclosed fixtures shall be suitable for enclosed locations.</p> <p>LED lamps installed in exterior locations shall be rated for wet or damp environments.</p> |
|---|---|

¹ Wisconsin Weatherization Specifications

5. Additional Minimum Requirements for Replacement Mechanical Equipment

| Equipment | ENERGY STAR® Required | AHRI Rating Required | Minimum AFUE, EF or Thermal Efficiency | Other Specifications |
|--|-----------------------|----------------------|--|--|
| Heating Systems: 1 to 4-Unit Buildings | | | | |
| Gas Forced-Air | No | Yes | ≥ 95% | Condensing sealed combustion. FER compliant air handler motor |
| Oil Forced-Air | No | Yes | ≥ 83% | FER compliant air handler motor |
| High Efficiency Gas Boilers | No | Yes | ≥ 90% | Modulating boiler. |
| Standard Efficiency Gas Boilers | No | Yes | ≥ 84% | Based on energy audit modeling protocol. |
| Oil Boilers | No | Yes | ≥ 83% | |
| Direct Vent Gas Space Heaters | No | Yes | ≥ 80% | Air circulating fan required. Electronic Intermittent Pilot or Electronic Ignition. No Standing Pilot Lights. No vent free units. |
| “B” Vent/Inside Wall Gas Space Heaters | No | Yes | ≥ 75% | Air circulating fan required. Electronic Intermittent Pilot or Electronic Ignition. No Standing Pilot Lights. No vent free units. |
| Condensing Gas Space Heaters | No | Yes | ≥ 90% | Installer shall implement a means to drain condensate (or deliver condensate to an approved drain). An evaporator pan is not an acceptable condensate management system. Air circulating fan required. Electronic Intermittent Pilot or Electronic Ignition. No Standing Pilot Lights. No vent free units. |
| Oil Space Heaters | No | No | NA | Air circulating fan required. |
| Mini Split Heat Pump <30K Capacity | No | Yes | ≥ 10 HSPF2 ≥ 22 SEER2 | Must be rated for use in cold climates |
| Mini Split Heat Pump ≥30K Capacity | No | Yes | ≥ 9.5 HSPF2 ≥ 20 SEER2 | Must be rated for use in cold climates |
| Heat Pump <40K Capacity | No | Yes | ≥ 9.5 HSPF2 ≥ 18 SEER2 | Must be rated for use in cold climates |
| Heat Pump ≥40K Capacity | No | Yes | ≥ 9 HSPF2 ≥ 17 SEER2 | Must be rated for use in cold climates |
| Heating Systems: Mobile Homes (all equipment shall be rated for manufactured housing) | | | | |
| Forced-Air Gas | No | Yes | ≥ 95% | Condensing sealed combustion; shall fit footprint of existing system and door should close fully. FER compliant air handler motor. |
| Forced-Air Oil | No | Yes | ≥ 79% | Shall fit footprint of existing system and door should close fully. FER compliant air handler motor. |

| Equipment | ENERGY STAR® Required | AHRI Rating Required | Minimum AFUE, EF or Thermal Efficiency | Other Specifications |
|--|-----------------------|----------------------|--|--|
| Forced-Air Electric | No | NA | NA | Repair only; conversion recommended. |
| Other | NA | NA | NA | Default to 1 to 4-unit space heaters. |
| Cooling Systems: 1 to 4-Unit Buildings (all sizes) | | | | |
| Air Conditioner | No | Yes | ≥ 22 SEER2 | |
| Water Heaters: Mobile Homes (all equipment shall be rated for manufactured housing) | | | | |
| Gas: 30 gallons | No | Yes | ≥.60 UEF | |
| Gas: 40 gallons | No | Yes | ≥.59 UEF | |
| Gas: 50 gallons | No | Yes | ≥.57 UEF | |
| Electric: 30 to 50 gallons | No | Yes | ≥.93 UEF | |
| Integrated Heat Pump Water Heater | Yes | Yes | ≥ 3.3 UEF | First Hour Rating ≥ 45 GPH |
| Integrated Heat Pump Water Heater – 120Volt/15 Amp | Yes | Yes | ≥ 2.2 UEF | First Hour Rating ≥ 45 GPH |
| Water Heaters: 1 to 4-Unit Buildings | | | | |
| Gas: 30 to 50 gallons | Yes | Yes | ≥.70 UEF | Power vented. Natural vent allowed for Health & Safety replacements of leaking water heaters with no draft issues; commercially available. First Hour Rating ≥ 51 GPH |
| Electric: 30 to 50 gallons | No | Yes | ≥.93 UEF | |
| Water Heaters: 5+ Unit Buildings (Commercial Equipment exempt from ENERGY STAR® requirements; shall be properly commissioned) | | | | |
| Gas: 30 to 50 gallons | Yes | Yes | ≥.70 UEF | When serving a single unit, see 1 to 4-unit notes. First Hour Rating ≥ 51 GPH |
| Electric: 30 to 50 gallons | No | Yes | ≥.93 UEF | When serving a single unit, see 1 to 4-unit notes. |
| Gas: 75+ gallons or FHR>75 gallons | No | Yes | ≥.88 UEF | For units serving multiple apartments; “High” UEF usage rating |
| Indirect water heater | No | No | NA | Follow manufacturer instructions when installing indirect water heaters. |
| Integrated Heat Pump Water Heater | Yes | Yes | ≥ 3.3 UEF | First Hour Rating ≥ 45 GPH |
| Integrated Heat Pump Water Heater – 120Volt/15 Amp | Yes | Yes | ≥ 2.2 UEF | First Hour Rating ≥ 45 GPH |

| Equipment | ENERGY STAR® Required | AHRI Rating Required | Minimum AFUE, EF or Thermal Efficiency | Other Specifications |
|---|-----------------------|----------------------|--|--|
| Heating Systems: 5+ Unit Buildings (Residential Systems) | | | | |
| Gas Forced-Air | No | Yes | ≥ 95% | Condensing/ sealed combustion. FER compliant air handler motor |
| Oil Forced-Air | No | Yes | ≥ 83% | FER compliant air handler motor |
| Gas Boilers | No | Yes | ≥ 92% | Condensing/ sealed combustion. |
| Oil Boilers | No | Yes | ≥ 83% | |
| Heating Systems: 5+ Unit Buildings (Commercial Systems) | | | | |
| Furnace (including rooftop units) | N/A | Yes | ≥ 80% EF | |
| Gas Boilers | N/A | Yes | ≥ 94% EF | Condensing/sealed combustion. |
| Light Oil Boilers | N/A | Yes | ≥ 85% EF | |
| Heavy Oil Boilers | N/A | Yes | ≥ 83% EF | |



Appendix D | HE+ System/WisWAP Reporting Guide

Additional WisWAP reporting codes can be located in the HE+ System | WisWAP Reports | Job Costing | Grantee Measure Defaults.

| Code | Name | Measure Detail | Reporting Tips | Allowable Funds |
|--|-------------------------------------|---|--|-----------------|
| ENERGY CONSERVATION MEASURES (ECMs) | | | | |
| ABD Air Sealing | | | | |
| ABD016 | Multi 5+ Sealing | <p>Includes blower door setup and all minor and major air sealing. Does not include auditor or final inspection blower door setup.</p> <p>Enter the As Is CFM₅₀ Test and total CFM₅₀ reduction in the Actual “Qty” (Quantity) field. The unit of measure for costs is CFM₅₀ reduction.</p> <p>Include the reason for no blower door test in the comments box.</p> | <p>Report crew labor and materials with measure. Examples of materials include rigid insulation board, replacement glass (missing), foam, caulk, silicone, weatherstripping, etc. Include the cost of minor blown insulation used to repair damage from air sealing when attic insulation will not be included in the job.</p> | EAP, PB |
| ABD035 | 7/1/16 Non-Guideline Sealing – MHML | <p>Air sealing completed on natural gas mobile homes being treated with the Mobile Homes Measures List (MHML).</p> <p>Enter the total cost of performing air sealing for homes that are treated with the use of the MHML.</p> <p>Limited to 3 total labor-hours or \$450, whichever comes first.</p> | <p>Report crew labor and materials with measure.</p> | EAP, PB |
| ABD040 | Air Sealing – Mobile Home | <p>Air sealing completed on bulk fuel mobile homes modeled with Weatherization Assistant. Includes blower door set-up and all minor and major air sealing. Does not include auditor or final inspection blower door set-up.</p> <p>Enter the As Is CFM₅₀ Test and total CFM₅₀ reduction in the Actual “Qty” (Quantity) field. The unit of measure for costs is CFM₅₀ Reduction.</p> <p>Include the reason for no blower door test in the comments box.</p> | <p>Report crew labor and materials with measure. Examples of materials include rigid insulation board, replacement glass (missing), foam, caulk, silicone, weatherstripping, etc. Include the cost of minor blown insulation used to repair damage from air sealing when attic insulation will not be included in the job.</p> | EAP, PB |

| Code | Name | Measure Detail | Reporting Tips | Allowable Funds |
|----------------------|------------------------|---|---|-----------------|
| ABD045 | Air Sealing | <p>Air sealing completed on 1 to 4-unit modeled with Weatherization Assistant. Includes blower door set-up, all minor and major air sealing, and Pressure Diagnostic testing. Does not include auditor or final inspection blower door set-up. Enter the As Is CFM₅₀ Test and total CFM₅₀ reduction in the Actual “Qty” (Quantity) field. The unit of measure for costs is CFM₅₀ reduction.</p> <p>Include the reason for no blower door test in the comments box.</p> | Report crew labor and materials with measure. Examples of materials include rigid insulation board, replacement glass (missing), foam, caulk, silicone, weatherstripping, etc. Include the cost of minor blown insulation used to repair damage from air sealing when attic insulation will not be included in the job. | DOE, EAP, PB |
| PCFL Lighting | | | | |
| PCFL015 | LED Exit Light | Replacement or installation of an LED Exit Light in a multifamily building. | Report the number of lamps installed and total cost. | EAP, PB |
| PCFL030 | Fixture Replacement | Replacement of existing incandescent lighting fixture with a light emitting diode fixture. | Report the number of fixtures installed and total cost. | PB |
| PCFL055 | LED Bulb – Mobile Home | Replacement of incandescent bulb with a light emitting diode lamp. | Report the number of bulbs installed and total cost. HE+ System/WisWAP will calculate the cost per bulb. All bulbs regardless of style can be reported in one measure. | EAP, PB |
| PCFL070 | LED Bulb | Replacement of incandescent bulb with a light emitting diode lamp. | Report the number of bulbs installed and total cost. HE+ System/WisWAP will calculate the cost per bulb. All bulbs regardless of style can be reported in one measure. | EAP, PB |
| PCFL085 | LED Can Light Insert | Replacement of existing can light with a light emitting diode insert. | Report the number of can lights installed and total cost. | PB |

| Code | Name | Measure Detail | Reporting Tips | Allowable Funds |
|--|----------------------------------|---|--|-----------------|
| DIA Attic Insulation | | | | |
| DIA | Attic Insulation | The cost of attic insulation and standard attic preparation for insulation. Attic preparation includes the proper boxing and damming of the access, electrical junction boxes, and other hazards, vent stacks including chimneys, and the insulating and sealing of the attic access. Include the cost of attic access insulation and air sealing of attic access with the insulation of the attic. | When installing additional insulation, all associated attic costs are reported with the attic insulation measure. This includes materials used to prepare the attic for the installation of insulation. Material examples are: Insul-shield; wood boards; plywood. | DOE, EAP, PB |
| DIA120 | Attic Prep - No Attic Insulation | The cost of attic prep and attic access when no insulation is installed. Attic preparation includes the proper boxing and damming of the access, electrical junction boxes, and other hazards, vent stacks including chimneys, and the insulating and sealing of the attic access. | Material examples are: Insul-shield; wood boards; plywood. | DOE, EAP, PB |
| DIF Floor Insulation | | | | |
| DIFL | Floor Insulation (MH) | Belly insulation installation. Includes belly repairs unless the SIR is <1. Also includes board insulation installed under ducts and plumbing. | See Weatherization Program Manual Chapter 8 and Weatherization Assistant Guide for MHEA modeling and measure options. Report repairs separately when modeled separately. See also ZRRS040. | EAP, PB |
| JBM Boiler Modifications | | | | |
| JBM | Boiler Modifications | All required modifications that are not included with a basic boiler installation. Reported modifications may occur with or without a boiler replacement. | Examples include outdoor reset, auto fill valves, distribution system work, and compression tanks. | DOE, EAP, PB |
| JHSM Heating System Modifications | | | | |
| JHSM | Heating System Modifications | Includes all modifications needed aside from what would be included with basic furnace installation. These may occur with or without a furnace replacement. | Examples for existing forced-air systems include ductwork modifications, insulating ducts and filters. Do not include ductwork costs associated with electric conversions in this measure category. | DOE, EAP, PB |

| Code | Name | Measure Detail | Reporting Tips | Allowable Funds |
|--|--|---|---|-----------------|
| JHSM005 | Clean and Tune | Includes primarily cleaning surfaces and adjusting burners, oxygen, diaphragms, and gas pressure; it also includes work needed to increase the efficiency while reducing carbon monoxide as part of a Clean & Tune. | Do not include other modifications or repairs to the balance of the heating system (e.g. ductwork) with the clean and tune. Report those measures separately. | DOE, EAP, PB |
| JHSM015 | Setback Thermostat | Limited to programmable thermostats only. | Conventional thermostats are reported in ZRHS030 Thermostat Replacement. | DOE, EAP, PB |
| JHSM020 | Repair/ Replace/ Add Ductwork - First Floor | Includes ductwork that is installed to improve the heating system distribution. Includes filter covers and filter racks. | Ductwork completed primarily to address CAZ pressure is reported under Health & Safety as XHHS030 Ducts repair or replace. Report the ductwork repair or replacement separately from the heating system in HE+ System/WisWAP (exception: electric conversions). | DOE, EAP, PB |
| JHSM025 | Repair/ Replace/ Add Ductwork - Second Floor | Includes ductwork that is installed to improve the heating system distribution. | Report the ductwork separately from the heating system repair or replacement activity in HE+ System/WisWAP (exception: electric conversions). | DOE, EAP, PB |
| JHSM035 | Seal Ducts | Includes sealing ductwork to improve the heating system distribution. Duct sealing should be limited to the following conditions: distribution is outside of the heating envelope, distribution leaks are causing excessive negative or positive pressure in the CAZ, and large leaks in the distribution system are causing heat to not reach the intended occupiable space. DOE funds may not be used for this measure. | | EAP, PB |
| JHSR Heating System Replacement | | | | |
| JHSR | Heating System Replacement | Heating systems reported under this category have been modeled as an ECM and have an SIR ≥ 1.0 . The exception is the conversion of electrical heating systems in 1 to 4-unit buildings. See JHSR060 for additional information. | Does not include replacements that are done due to Health and Safety problems. Items that are bid with the base installation cost can be included in this measure. | DOE, EAP, PB |

| Code | Name | Measure Detail | Reporting Tips | Allowable Funds |
|---|--------------------------------|--|---|-----------------|
| JHSR060 | Electric Conversion | All electric conversions that are not Health and Safety. Use the Electric Fuel Switch calculator to generate the savings information. | The total cost of the electric conversion, including ductwork, shall be reported in this measure. | DOE, EAP, PB |
| HEALTH AND SAFETY MEASURES (H&S) | | | | |
| XHAR Ventilation | | | | |
| XHAR005 | 62.2 Ventilation | Includes whole building mechanical ventilation running continuous or intermittently. Also known as whole house or continuous. | The Diagnostic Workbook summary page will indicate when this measure is required, and the job is eligible for use of DOE funds. DOE funds shall not be used if customer refuses 62.2 ventilation. | DOE, EAP, PB |
| XHAR007 | Local Exhaust Ventilation | An exhaust fan controlled with a switch or motion sensor. | Local exhaust or spot ventilation is turned on and off by the customer. It may include a timer to allow the fan to run for a certain period of time after use. | DOE, EAP, PB |
| XHAR009 | Venting Existing Exhaust | Venting existing fans to the outside of the building. | Includes correcting incorrect venting. | DOE, EAP, PB |
| XHAR013 | Make Up Air | Installation of make-up air for combustion safety. | | DOE, EAP, PB |
| XHAP Health and Safety Appliance | | | | |
| XHAP015 | Appliance Repair | Gas leak repair only. | Cannot be used to repair high CO in cook stoves. | DOE, EAP, PB |
| XHAS Health and Safety Asbestos | | | | |
| XHAS005 | Attic with Vermiculite | The additional cost to follow procedures (O&M or certified supervisor and workers) when vermiculite insulation is present in the attic. | Model the additional asbestos costs with the related measure(s). Report the costs separately. | DOE, EAP, PB |
| XHAS010 | Attic with Non-Vermiculite ACM | The additional cost to follow procedures (O&M or certified supervisor and workers) when suspect or confirmed ACM (non-vermiculite) was present in the attic. | Model the additional asbestos costs with the related measure(s). Report the costs separately. | DOE, EAP, PB |
| XHAS015 | Sidewalls with Vermiculite | The additional cost to follow procedures (O&M or certified supervisor and workers) when vermiculite insulation was present in the sidewalls. | Model asbestos costs with the related measure(s). Report the costs separately. | DOE, EAP, PB |

| Code | Name | Measure Detail | Reporting Tips | Allowable Funds |
|---|--|--|---|-----------------|
| XHAS020 | Sidewalls Slate/ Stucco Siding | The additional cost to follow procedures for certified supervisor and workers to remove and re-install slate side or disturb stucco. | Model additional asbestos costs with the related measure(s). Report the costs separately. | DOE, EAP, PB |
| XHAS025 | HVAC/ Distribution | The additional cost to follow procedures (O&M or certified supervisor and workers) when suspect or confirmed ACM was present on HVAC/distribution. | Model additional asbestos costs with the related measure(s). Report the costs separately. | DOE, EAP, PB |
| XHAS030 | Miscellaneous ACM | The additional cost to follow procedures (O&M or certified supervisor and workers) when suspect or confirmed ACM (not vermiculite, slate, stucco, or HVAC/distribution) was disturbed during weatherization. | Model additional asbestos costs with the related measure(s). Report the costs separately. | DOE, EAP, PB |
| XHAQ Health and Safety Air Quality | | | | |
| XHAQ005 | Greatest Depressurization Achievable Test | Standardized test procedures that include an appliance spillage test under greatest depressurization achievable conditions. Complete greatest depressurization achievable tests on every dwelling with natural draft or assisted draft appliances. | The greatest depressurization achievable (GDA) test includes both the greatest depressurization measurement of all of a structure's CAZs and a spillage test of naturally drafting combustion appliances under those greatest depressurization achievable conditions. | DOE, EAP, PB |
| XHAQ006 | Greatest Depressurization Achievable w/o Spillage | Standardized test procedures that determine the depressurization of building. No spillage test is taken. This test is important to determine the impact of ventilation on a building. Complete greatest depressurization achievable tests on every dwelling. | With Category I natural draft and fan assisted draft appliances, this measure cannot be used. See Spillage Test. Use this measure with sealed combustion appliances only. | DOE, EAP, PB |
| XHAQ008 | Combustion Appliance Safety Testing | Standardized test procedures that determine the depressurization of the building, along with appliance spillage and CO tests under greatest depressurization achievable. | This measure is for setting up the greatest depressurization achievable, CO tests for combustion appliances, and spillage testing of natural drafting appliances. | DOE, EAP, PB |

| Code | Name | Measure Detail | Reporting Tips | Allowable Funds |
|---------|--|--|---|-----------------|
| XHAQ010 | Health and Safety Dryer Venting | Installation of UL listed materials for ducting and necessary supplies or hardware (i.e., hose clamp) to address an existing moisture or combustion gas hazard. See Field Guide Section 5.9.11 . | Effective July 1, 2018, dryer venting shall be reported as a Health and Safety measure, not a repair. | DOE, EAP, PB |
| XHAQ025 | Dehumidifier New or Replace | Installation of a dehumidifier to address an existing moisture problem which cannot be addressed in any other way. | This is not a baseload measure. | DOE, EAP, PB |
| XHAQ035 | Other Remediation | Measures performed to decrease indoor air quality pollutants in the home. Includes sealing of open core blocks and installing 6 mil poly in crawl spaces not receiving an insulation measure. Can also include oil tank capping or removal when a documented health and safety issue was identified during the energy audit and the oil tank work is not associated with a heating system fuel switch. | Report crew labor and materials with measure. | EAP, PB |
| XHAQ045 | Gas Leak Repair | Gas leak repair throughout the building. Natural gas leaks on the utility side of the meter should be addressed by the utility or the building owner. Limited repair is allowed when the LP tank and distribution are owned by the low-income customer. | | DOE, EAP, PB |
| XHAQ058 | Combustion Appliance Safety Testing – Mobile Homes | Standardized test procedures that determine the depressurization of the building, along with appliance spillage and CO tests under greatest depressurization achievable for mobile homes. | This measure is for setting up the greatest depressurization achievable, CO tests for combustion appliances, and spillage testing of natural drafting appliances. | EAP, PB |

| Code | Name | Measure Detail | Reporting Tips | Allowable Funds |
|--|-------------------------------------|--|---|-----------------|
| XHEL Health and Safety Electrical | | | | |
| XHEL015 | Upgrade or Repair Electric | Includes necessary weatherization related electrical wiring installation and upgrades. Includes separate circuit for the heating system when required, the installation of GFCI receptacles, wiring for condensate pumps, the proper bonding of the electrical systems to gas service, or repairs to correct unsafe wiring, including junction box covers in attics to be insulated. | The replacement of knob-and-tube wiring is reported as a repair. Charge service repair or upgrade to ZREL005. Charge knob-and-tube wiring replacement to ZREL015 (attic) or ZREL020 (walls). | DOE, EAP, PB |
| XHHS Health and Safety Heating System | | | | |
| XHHS | Heating System Replacement | Generally limited to the replacement of unsafe heating systems that do not have an SIR ≥ 1.0 and where the job has a cumulative SIR ≥ 1.0 . | Note for all Health and Safety heating system replacements: DOE funds shall not be used on in-progress replacements when the cumulative SIR < 1.0 . See Program Manual 8.3.2.3 End-State Planning. Items that are bid with the base installation cost can be included in this measure. | DOE, EAP, PB |
| XHHS005 | Boiler Replace | Limited to the replacement of unsafe boilers that do not have an SIR ≥ 1.0 and where the job has a cumulative SIR ≥ 1.0 . | Report heating system modifications separately. Items that are bid with the base installation cost can be included in this measure. | DOE, EAP, PB |
| XHHS010 | Boiler Repair | Includes miscellaneous boiler repair not included in JBM Boiler Modifications category or XHHS015. | Including, but not limited to venting modifications, condensate pumps, and repairs to improve high CO level. | DOE, EAP, PB |
| XHHS015 | Boiler Radiators, Repair or Replace | Includes repairs to address a safety problem. | Including, but not limited to distribution system leaks and repair or replacement of radiators. | DOE, EAP, PB |
| XHHS020 | Furnace Replace | Limited to the replacement of unsafe heating systems that do not have an SIR ≥ 1.0 and where the job has a cumulative SIR ≥ 1.0 . | Report heating system modifications separately. Items that are bid with the base installation cost can be included in this measure. | DOE, EAP, PB |

| Code | Name | Measure Detail | Reporting Tips | Allowable Funds |
|---|--------------------------------------|---|---|-----------------|
| XHHS025 | Furnace Repair | Includes repairs to address a safety problem. | Includes miscellaneous furnace repair such as condensate pump or plumbing, venting modifications, and items not listed in JHSM Heating System modification category. | DOE, EAP, PB |
| XHHS030 | Ducts Repair or Replace | Includes duct repairs that are linked directly to health and safety measures. | Includes ductwork for health and safety heating system replacement or duct repair based on greatest depressurization achievable tests (can include filter covers when natural draft appliances will remain in the CAZ.) | DOE, EAP, PB |
| XHHS035 | Space Heater or Wall Furnace Replace | Limited to the replacement of unsafe space heaters that do not have an SIR ≥ 1.0 and where the job has a cumulative SIR ≥ 1.0 . | Items that are bid with the base installation cost can be included in this measure. | DOE, EAP, PB |
| XHHS040 | Space Heater or Wall Furnace Repair | Includes repairs to address a safety problem, where no space heater replacement or other ECM heating system repair is planned. | | DOE, EAP, PB |
| XHHS055 | Electric Replace | Includes the replacement of electrical heating systems with electrical heating systems. This must be a health and safety measure based on unsafe conditions. When possible, convert electric heating systems to another fuel. | Report conversions as an ECM, using JHSR060. | DOE, EAP, PB |
| XHHS060 | Electric Repair | Includes the repair of an existing electrical heating system. | | DOE, EAP, PB |
| XHHW Health and Safety Hot Water | | | | |
| XHHW | Health and Safety Hot Water | Limited to unsafe or leaking water heater replacements that do not have an SIR ≥ 1.0 and where the job has a cumulative SIR ≥ 1.0 . | Items that are bid with the base installation cost can be included in this measure. | DOE, EAP, PB |
| XHHW003 | Electric to Electric Mobile Home .90 | For the replacement of an unsafe mobile home electric water heater with an electric water heater of higher efficiency which is rated for mobile home installation. | | EAP, PB |

| Code | Name | Measure Detail | Reporting Tips | Allowable Funds |
|--|--------------------------------------|--|---|-----------------|
| XHHW004 | Electric to Electric .94 | Includes the replacement of an unsafe electric water heater with an electric water heater of higher efficiency. | | DOE, EAP, PB |
| XHHW005 | Water Heater Replace | Includes the replacement of an unsafe or leaking water heater that doesn't fit into the other health and safety water heater replacement categories. | May include the cost of electric circuit installation and interior gas piping. | DOE, EAP, PB |
| XHHW007 | Gas power vent from conventional gas | Includes the conversion of an unsafe atmospheric gas water heater with a power vented gas water heater. | Can include the cost of electric circuit installation and interior gas piping. | DOE, EAP, PB |
| XHHW008 | Gas power vent from electric | Includes the conversion of an unsafe electric water heater with a power vented gas water heater. | Can include the cost of electric circuit modifications and interior gas piping. Verify this water heater was initially modeled as an ECM. Most electric to gas water heaters modeled as an ECM have an SIR ≥ 1.0 . | DOE, EAP, PB |
| XHHW010 | Water Heater Repair | Includes the repair of an unsafe water heater. | | DOE, EAP, PB |
| XHHW015 | Plumbing Repair or Replace | Includes plumbing repair that is linked directly to an unsafe or leaking water heater. | Includes installing TPR valve and pipe on a water heater when tank insulation is installed. | DOE, EAP, PB |
| REPAIR MEASURES Limit, not to exceed \$1,000 per repair measure | | | | |
| ZREL Repair Electric Service | | | | |
| ZREL | Repair Electric Service | Measures in this category are meant to protect an ECM. | | DOE, EAP, PB |
| ZREL005 | Upgrade or Repair Electric Service | Upgrade or repair of the electric system that is directly linked to protecting or assuring the effectiveness of a weatherization measure. | | DOE, EAP, PB |
| ZREL015 | Knob and Tube Replace Attic | Replacement of knob-and-tube wiring to allow for the proper air sealing and the installation of attic insulation. | Model the wiring replacement in the itemized cost tab. | DOE, EAP, PB |
| ZREL020 | Knob and Tube Replace Walls | Replacement of knob-and-tube wiring to allow for the proper installation of sidewall insulation. | Model the wiring replacement in the itemized cost tab. | DOE, EAP, PB |

| Code | Name | Measure Detail | Reporting Tips | Allowable Funds |
|-----------------------------------|---|---|---|-----------------|
| ZRHS Repair Heating System | | | | |
| ZRHS030 | Thermostat Replacement - Non-programmable | Installation of a non-programmable thermostat. | Report programmable thermostats under JHSM015 Setback Thermostat. Non-programmable thermostats can only be installed as a repair. | DOE, EAP, PB |
| ZRHS035 | Fuel Switching | Costs related to fuel switching that are not part of the base bid price for installing a heating system. Allowable activities include oil tank capping or removal when performed in conjunction with an oil to gas heating system replacement, installation of exterior gas lines (lateral), and orifice replacement for LP to natural gas conversions. | For heating system replacements, report the bid costs with the appropriate heating system measure and all additional costs in ZRHS035. For heating system conversions where existing system is not replaced, report all costs in ZRHS035. Include the total linear feet of natural gas lateral (utility + weatherization) and the type of fuel switch (Oil to NG/LP; LP to NG) in comments. | DOE, EAP, PB |
| ZRHW Repair Hot Water | | | | |
| ZRHW | Repair Hot Water | Measures in this category are meant to protect and ECM. | | DOE, EAP, PB |
| ZRHW005 | Water Heater Repair | Repairs to the water heater that are not for health and safety but protect ECMs. | This could include items such as a replacement of a sacrificial anode, controls, clean and tune, or replacement elements. | DOE, EAP, PB |
| ZRHW010 | Plumbing Repair or Replace | Repairs to the hot water plumbing system that are not for health and safety but protect ECMs. | Examples might include resizing intake and output pipes, repairing leaks, repairing dripping tub spouts, and modifying distribution to accommodate related measures. | DOE, EAP, PB |
| ZRRS Repair Structure | | | | |
| ZRRS | Repair Structure | Measures in this category are solely to allow installation of an ECM or to assure that other weatherization measures are effective. | | DOE, EAP, PB |
| ZRRS005 | Chimney | Repairs to the chimney to improve performance or structural integrity. | | DOE, EAP, PB |
| ZRRS030 | Door Replacement R5 | Door replacement. | Exterior doors, including field fabricated wood doors for basements. | EAP, PB |

| Code | Name | Measure Detail | Reporting Tips | Allowable Funds |
|---------|---------------------------------------|---|--|-----------------|
| ZRRS035 | Window Replacement ENERGY STAR® Rated | Includes window replacement that is a repair, not an ECM. | Includes basement window replacements that are not ENERGY STAR® rated. | EAP, PB |
| ZRRS040 | Repair Structure Other | Cost of repairs not covered by other measures. | Includes repairs that are modeled as Itemized Costs, cold water plumbing repairs that affect ECMs. | DOE, EAP, PB |
| ZRRS045 | Ventilation - Soffit/Roof/ Gable | Ventilate the attic based on local code requirements or if unsealed bypasses remain in the attic. | Includes passive ventilation added to the attic via roof, gable end or soffit. | DOE, EAP, PB |
| ZRRS085 | Major Pressure Boundary | Costs associated with addressing substantial air barrier holes; repairs roughly the size of a walk door or larger that are expected to result in a large (but unpredictable) change in the infiltration rate. | Includes work such as installing drywall or an interior door between living space and a tuck-under garage or walk-up attic, repairing a failed ceiling in a closet to seal off attic from house, or installing a sheet of plywood to seal off an open crawl space from a basement. Indicate in comments box what portion of the home is receiving this measure. Examples: tuck-under garage, attic, knee wall. | DOE, EAP, PB |

Weatherization Readiness Funds REPAIR MEASURES to address reasons for deferrals
Repair Limit: \$6,000 per fund source without prior approval from the Division
Modeled as itemized cost, but not included in the SIR. See Section 8.10 for policy. DOE WRF shall be a DOE unit and conform to DOE policy

ZZEL Repair Electric Service

| | | | | |
|---------|------------------------------------|---|--|---------------------|
| ZZEL | Repair Electric Service | Measures in this category are meant to protect an ECM. | | EAP, PB. DOE WRF |
| ZZEL005 | Upgrade or Repair Electric Service | Upgrade or repair of the electric system that is directly linked to protecting or assuring the effectiveness of a weatherization measure. | | EAP, PB. DOE WRF |
| ZZEL015 | Knob and Tube Replace Attic | Replacement of knob-and-tube wiring to allow for the proper air sealing and the installation of attic insulation. | Model the wiring replacement in the itemized cost tab. | EAP, PB. DOE WRF |
| ZZEL020 | Knob and Tube Replace Walls | Replacement of knob-and-tube wiring to allow for the proper the installation of sidewall insulation. | Model the wiring replacement in the itemized cost tab. | EAP, PB. DOE WRF |

| Code | Name | Measure Detail | Reporting Tips | Allowable Funds |
|-----------------------------------|---|---|---|---------------------|
| ZZHS Repair Heating System | | | | |
| ZZHS030 | Thermostat Replacement - Non-programmable | Installation of a non-programmable thermostat. | Report programmable thermostats under JHSM015 Setback Thermostat. Non-programmable thermostats can only be installed as a repair. | EAP, PB. DOE WRF |
| ZZHS035 | Fuel Switching | Costs related to fuel switching that are not part of the base bid price for installing a heating system. Allowable activities include oil tank capping or removal when performed in conjunction with an oil-to-gas heating system replacement, installation of exterior gas lines (lateral), and orifice replacement for LP-to-natural gas conversions. | For heating system replacements, report the bid costs with the appropriate heating system measure and all additional costs in ZZHS035. For heating system conversions where existing system is not replaced, report all costs in ZZHS035. Include the total linear feet of natural gas lateral (utility + weatherization) and the type of fuel switch (Oil to NG/LP; LP to NG) in comments. | EAP, PB. DOE WRF |
| ZZHW Repair Hot Water | | | | |
| ZZHW | Repair Hot Water | Measures in this category are meant to protect and ECM. | | EAP, PB. DOE WRF |
| ZZHW005 | Water Heater Repair | Repairs to the water heater that are not for health and safety but protect ECMs. | This could include items such as a replacement of a sacrificial anode, controls, clean and tune, or replacement elements. | EAP, PB. DOE WRF |
| ZZHW010 | Plumbing Repair or Replace | Repairs to the hot water plumbing system that are not for health and safety but protect ECMs. | Examples might include resizing intake and output pipes, repairing leaks, repairing dripping tub spouts, and modifying distribution to accommodate related measures. | EAP, PB. DOE WRF |
| ZZRS Repair Structure | | | | |
| ZZRS | Repair Structure | Measures in this category are solely to allow installation of an ECM or to assure that other weatherization measures are effective. | | EAP, PB. DOE WRF |
| ZZRS005 | Chimney | Repairs to the chimney to improve performance or structural integrity. | | EAP, PB. DOE WRF |
| ZZRS010 | Floors | | | EAP, PB. DOE WRF |
| ZZRS015 | Roof | Repair - Patch - Replacement | | EAP, PB. DOE WRF |

| Code | Name | Measure Detail | Reporting Tips | Allowable Funds |
|---------|---------------------------------------|--|--|---------------------|
| ZZRS020 | Walls | Repair Exterior: house sheathing - house wrap for missing section | | EAP, PB. DOE WRF |
| ZZRS030 | Door Replacement R5 | Door replacement | Exterior doors, including field fabricated wood doors for basements. | EAP, PB. DOE WRF |
| ZZRS035 | Window Replacement ENERGY STAR® Rated | Includes window replacement that is a repair not an ECM. | Includes basement window replacements that are not ENERGY STAR® rated. | EAP, PB. DOE WRF |
| ZZRS040 | Repair Structure Other | Cost of repairs not covered by other measures. (Foundation leak, gutter/down spouts, bulkhead door, clutter/housekeeping/dumpster/ sump pump/rodent removal/mold-feces clean-up) | Includes repairs that are modeled as Itemized Costs, cold water plumbing repairs that affect ECMs. | EAP, PB. DOE WRF |
| ZZRS045 | Ventilation - Soffit/Roof/ Gable | Ventilate the attic based on local code requirements or if unsealed bypasses remain in the attic. | Includes passive ventilation added to the attic via roof, gable end or soffit. | EAP, PB. DOE WRF |
| ZZRS085 | Major Pressure Boundary | Costs associated with addressing substantial air barrier holes; repairs roughly the size of a walk door or larger, that are expected to result in a large (but unpredictable) change in the infiltration rate. | Includes work such as installing drywall or an interior door between living space and a tuck-under garage or walk-up attic, repairing a failed ceiling in a closet to seal off attic from house, or installing a sheet of plywood to seal off an open crawl space from a basement. Indicate in comments box what portion of the home is receiving this measure. Examples: tuck-under garage, attic, knee wall. | EAP, PB. DOE WRF |



Appendix E | HE+ System Upload Requirements

Required documents and photos for file upload in the HE+ System for Weatherization and Furnace Programs:

| Item Name | Document Upload |
|--|--|
| Verification of Ownership | Document used to verify homeownership |
| High Cost Job over \$15,000 and/or H&S > \$5,000 Approval | Document uploaded or note added with agency designee approval, BID, and what was reviewed. Required per Wx PM 2.1.6, 1) a) & b) and section 2.2.3 |
| Signed Work Agreement | Work agreement signed by the property owner |
| Signed Completion Certificate | Owner or authorized agent sign-off that states the weatherization work has been completed as agreed |
| Diagnostic Workbook | Completed Diagnostic Workbook for building type |
| Therm Calculator | Only required when there is an audit uploaded and fuel adjustment is used |
| Furnace Useful Life Calculator | Only required when XHHS005, XHHS020, and XHHS065 are installed |
| Electric Fuel Switch Worksheet | Only required when measure JHSR060 Electric Conversion is installed |
| Freezer Calculator | Only required when measure VFR005 Freezer Replacement is installed |
| Health and Safety Checklist | Owner or authorized agent sign off on a completed checklist and receipt of EPA pamphlets |
| Heating System Checklist | Only required when measure category JBM, JHSM, JHSR, XHHS, and ZRHS are installed |
| Required Photos See separate list as Appendix E for more details. | Photos taken during an Energy Audit and agency Final Inspection documenting the installed Energy Conservation Measures repairs and any other weatherization work, repairs, and Health & Safety |
| Building Permit | Based on local requirements – not required on every unit |
| DOE QCI Form | Only required when DOE funds are used on a measure |
| QA Final Inspection Form | Required form documenting all measures have been installed and meet program standards |
| Audit Field Data Collection Form and notes | Completed FDCF and any additional notes |
| Work Orders for Crew and/or Contractors | Work orders describing the measures to be installed |
| Refusal of Ventilation (if relevant) | Form with owner or authorized agent signature |

| Item Name | Document Upload |
|------------------------------------|--|
| Heating System Sizing Calculations | Required for heating system replacement, who reviewed for accuracy based on building information from Weatherization Assistant |
| Lead Work Documentation | Documentation as required in accordance with Table 9.3 of Wx Program Manual, including testing results (if performed) per Wx PM Section 2.2.3, 14) & Renovation Recordkeeping Checklist (if applicable) per Wx PM 2.2.3, 15) |
| ACM Work Documentation | Documentation as required in accordance with Table 9.3 of Wx Program Manual, including testing results (if performed) per Wx PM Section 2.2.3, 14) |
| Final Inspection Checklist | For all completed weatherization jobs. Forms located on T&TA website |

Minimum Audit and Final Inspection Photo Upload Requirements

| | | |
|----|---|--|
| 1 | 4 sides of the house (including exposed foundation) | <ul style="list-style-type: none"> • North (one picture including windows and doors) • South (one picture including windows and doors) • East (one picture including windows and doors) • West (one picture including windows and doors) |
| 2 | General | <ul style="list-style-type: none"> • One or two photos documenting general interior condition • Photos documenting existing condition of each measure to be completed |
| 3 | Conditioned additions | <ul style="list-style-type: none"> • Photo of areas requiring unusual air sealing measures at junctures |
| 4 | Roof condition | <ul style="list-style-type: none"> • Including all penetrations through the roof |
| 5 | Attic insulation depth | <ul style="list-style-type: none"> • General area photo of each attic area • Include photos of unusual area sealing defects |
| 6 | Foundation | <ul style="list-style-type: none"> • Box sills • Crawl space if present area exposed |
| 7 | Interior walls | <ul style="list-style-type: none"> • General area photos of areas where interior blow is recommended |
| 8 | Refrigerator and model number | <ul style="list-style-type: none"> • Including bounty if provided |
| 9 | Freezer and model number | <ul style="list-style-type: none"> • Including bounty if provided |
| 10 | Repairs (all required repairs) | <ul style="list-style-type: none"> • Include windows and doors • Ducts • Major pressure boundary • Wall cavity insulation (each test hole) |
| 11 | Dryer venting | |

| | | |
|----|--|--|
| 12 | Electrical service including dedicated circuit for furnace | <ul style="list-style-type: none"> • Include gas line if CSST bonding may be performed by the agency |
| 13 | Live knob-and-tube | <ul style="list-style-type: none"> • If present |
| 14 | Heating Systems and Testing results and locations | <ul style="list-style-type: none"> • General area photo(s) – front, back, sides • Make and model number • Exhaust and intake terminations • Secondary heating systems - if present • Thermostat • Drain proximity documented for addition of condensate pump • Return grilles to be patched in CAZ, Supply ducts for conditioned basements. |
| 15 | AC units | <ul style="list-style-type: none"> • Make and model number, if possible |
| 16 | Water Heater and Testing results | <ul style="list-style-type: none"> • Location • Leaking water heater • Make and model number |
| 17 | Ventilation fans and Testing results | |
| 18 | Attic access | |
| 19 | Door seals | |
| 20 | Health and Safety concerns | <ul style="list-style-type: none"> • Mold if present • PACM if present and test location • Lead test - if present • Other H&S items identified • Flagged gas leaks, existing plumbing leaks |
| 21 | Blower Door testing and CFM@50 | |
| 22 | IR camera pictures | <ul style="list-style-type: none"> • When applicable at the final inspections |
| 23 | Washing Machine make and model | <ul style="list-style-type: none"> • For those agencies participating in pilot |

¹ Final Inspection should have photos of all installed measures, repairs, and Health and Safety.

² Diagnostic Workbook – Final Inspection Tab should also be completed.

Minimum Mobile Home Audit and Final Inspection Photo Upload Requirements

| | | |
|---|---|--|
| 1 | 4 sides of the house (including exposed skirting) | <ul style="list-style-type: none"> • North (one picture including window and doors) • South (one picture including window and doors) • East (one picture including window and doors) • West (one picture including window and doors) |
| 2 | General | <ul style="list-style-type: none"> • Photo(s) documenting existing condition of each measure to be completed |
| 3 | Conditioned additions | <ul style="list-style-type: none"> • General area photo • Photo of areas requiring unusual air sealing measures at junctures |

| | | |
|----|---|---|
| 4 | Roof condition if installing vent (2 sides) | <ul style="list-style-type: none"> • Including all penetrations through the roof |
| 5 | Refrigerator and model number | <ul style="list-style-type: none"> • Including bounty |
| 6 | Freezer and model number | <ul style="list-style-type: none"> • Including bounty |
| 7 | Dryer venting | |
| 8 | Water Heater and Testing results | <ul style="list-style-type: none"> • General area (WH closet/cabinet) photo |
| 9 | Ventilation fans and testing results | |
| 10 | Ducts | |
| 11 | Heating systems and Testing results | <ul style="list-style-type: none"> • Make and model • Exhaust and intake terminations • Secondary heating systems if present • Thermostat |
| 12 | AC units | <ul style="list-style-type: none"> • Make and model, if possible |
| 13 | Belly condition | <ul style="list-style-type: none"> • Include photos of unusual repairs needed |
| 14 | Health and Safety concerns | <ul style="list-style-type: none"> • Mold if present • PACM if present • Lead test if present • Other identified H&S items |
| 15 | Blower Door testing and CFM@50 | |
| 16 | IR camera pictures | |