Connecticut Weatherization Assistance Program

Operations Manual

Revised in August 2025

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About the CT WAP Operations Manual

The Connecticut Weatherization Assistance Program Operations Manual (CT WAP Ops Manual) provides a comprehensive resource to guide state and local agency staff in delivering weatherization services consistently and effectively, utilizing funds allocated by the DOE to low-income households throughout Connecticut.

The Manual serves as a reference book for daily operational program matters, accessible as needed. Its arrangement and numbering allow for easy updates whenever changes occur in the program. Additionally, it functions as a training aid for new staff and a resource for existing staff to stay informed about evolving program policies.

As a matter of convention, state agencies are generically referred to as the "State" in this Manual. DEEP is specifically referred to as the "Grantee." The local agencies contracted to implement the program are referred to as the "Subgrantee."

Failure to comply with the requirements set forth in this manual may result in sanctions, penalties, or complete termination of the agreement. The Operations Manual also:

- Provides information regarding WAP policy mandated by the federal and state government;
- Outlines required procedures necessary for the operation of WAP; and
- Provides instruction for completion of required forms.

The CT WAP Ops Manual is organized into three Parts and a total of twelve Sections:

Part I – Program Overview and Requirements

- Section 1: Program Overview
- Section 2: Weatherization Program Administrative Requirements
- Section 3: Weatherization Program Fiscal Requirements

Part II – The Weatherization Process

- Section 4: Outreach, Application, and Selection
- Section 5: Owner Participation and Tenant Protections
- Section 6: Building Analysis and Work Standards
- Section 7: Health and Safety Testing
- Section 8: Implementing Weatherization Measures
- Section 9: Monitoring and Quality Assurance

Part III – Reporting, Payments, Procurement, and Other Considerations

- Section 10: Reporting
- Section 11: Payments
- Section 12: Procurement
- Section 13: Weatherization Special Considerations

PART 1 | Program Overview and Requirements

1 Program Overview

This section contains general information about the Weatherization Assistance Program (WAP) in Connecticut. It details the program's administrative and organizational aspects, as well as funding and advisory boards. Finally, it also provides a purpose and overview of this manual, along with further details of the document's structure, to facilitate its use.

1.1 About the Weatherization Assistance Program

The U.S. Department of Energy's (DOE) Weatherization Assistance Program (WAP)'s primary purpose is to install energy efficiency measures in the homes of income-eligible persons, especially homes occupied by the elderly, persons with disabilities, and children. Funds are targeted to the most cost-effective conservation measures, determined by an on-site energy audit of the building. The program is intended to reduce national energy consumption, particularly imported oil, and to reduce the impact of higher energy costs on low-income families.

In Connecticut, WAP is managed by the Department of Energy and Environmental Protection's (DEEP) Affordable Housing Energy Retrofit (AHER) office, which competitively selects nonprofit organizations to act as on-the-ground service providers. Each organization employs certified energy auditors, quality control inspectors, and the administrative staff needed to run the program. A network of local subcontractors performs the weatherization work in the homes they serve.

The Connecticut Weatherization Assistance Program (CT WAP) provides needed energy savings to the low-income community. CT WAP also positively impacts community economic development and energy conservation, making the program a significant economic stimulus for both individual clients and the community.

1.2 Program Organization

1.2.1 State Administration

CT WAP, also referred as the “Grantee”, is the recipient of WAP funds. It is responsible for applying for weatherization funding from the DOE, the federal agency that administers the funds for the program and oversees its federal compliance.

Before DOE releases funding, CT WAP must submit an annual State Plan to DOE that outlines how CT WAP will use the funds to achieve the program's goals for the upcoming Program Year. The CT WAP State Plan includes separate planning narratives for:

- Training and Technical Assistance (T&TA);
- Health & Safety (H&S);
- Weatherization Readiness Funds (WRF), and;
- Program Budget and Production Projections.

In addition, CT WAP has the following state-level planning responsibilities:

- Write and maintain policies and procedures that will optimize the delivery of the program benefits in compliance with state and federal requirements;
- Develop and maintain effective forms and software formats and efficient procedures that assist in the delivery of services without overburdening program operations;
- Develop a statewide budget utilizing all funding resources in the most cost-effective manner possible;
- Allocate grant funds among Subgrantees in a fair and efficient formula that optimizes the use of the grant dollars;
- Set state-wide and local production targets for weatherization activities based on available funding;
- Allocate funds for budgets and budget modifications to ensure compliance, efficiency, and accountability; and
- Review and approve local plans and budgets to ensure compliance and effectiveness in policy implementation.

The State is responsible for staffing the program to ensure that all administrative, fiscal, and programmatic functions are covered at the Grantee level. Personnel staffing at the state level is determined based on need and available funding. At a minimum, Grantee staffing functions will include program management and fiscal management. Grantee contracted resources provide technical expertise and quality field monitoring.

State weatherization staff functions include:

- Overall plan & budget management;
- Design and maintenance of policies, procedures, forms, and software;
- Review and approval of local agency plans and budgets;
- Assessment and support of local agency production and claims;
- Preparation and submission of federal & state reports;
- Administration of T&TA programs;
- Local liaison and coordination of services;
- State-level appeals process;
- Program quality monitoring; and
- Fiscal and regulatory compliance monitoring.

1.2.2 Subgrantees

In accordance with 10 CFR Part 440.3, a "Subgrantee" is an entity that manages a weatherization project that receives a grant of funds awarded to the grantee, in this case, CT WAP.

CT WAP enters into contracts with subgrantees to perform WAP services within specified service areas throughout the state. The subgrantees cover all areas of Connecticut.

CT WAP enters into contracts with subgrantees for a usual term of one year. Contract periods of more than one year may be executed at the Grantee's discretion. The contract identifies the production goals of units to be weatherized during each annual budget period. The contract requires the work to be performed in accordance with all regulations, policies, procedures, and priorities set forth in this manual and all other contract documents.

1.3 Funding

CT WAP' main funding source is DOE. However, leveraging funds is allowable, and CT WAP facilitates cost sharing with utilities.

1.3.1 General Funding

DOE distributes funding to the states based on a formula which considers income-eligible population and climate conditions, as established in the federal regulations. The policies and procedures of WAP are governed by federal statutes and implementing regulations set forth in Title 10, Code of Federal Regulation Parts 440 and 200, as well as periodic grant guidance from DOE. This funding is documented and agreed upon in an Assistance Agreement.

1.3.2 Weatherization Readiness Funds

DOE has established the Weatherization Readiness Fund (WRF) for the purpose of addressing necessary building repairs that prevent otherwise eligible units from being weatherized rather than being deferred. Subgrantees are directed to target these funds for those homes that have been deferred for reasons that can be addressed with standard weatherization funds for necessary structural and/or health and safety repairs. These funds may be used in advance of other DOE WAP funds to rectify health and safety and other issues that would otherwise lead to (or has led to) a deferral. CT WAP will release these funds to subgrantees as part of annual allocations (See "Section 6.10 Weatherization Readiness Funds (WRF)" and the CT WRF Plan for more information on WRF)

1.3.3 Leveraged Funds

Leveraged funds are used directly by subgrantee, at the local level. Subgrantees must account separately for the leveraged funds. Both federal & non-federal leveraged funds may be used on the same unit, but in no instance may DOE funds be comingled in the same account with leveraged funds. DOE funds may not be used to cover expenditures for which leveraged funds are used, or to be used. Leveraged funds are not considered program income.

1.3.4 Cost Share with Utility Program

CT WAP has developed and published a process document for projects that are cost-shared between the CT WAP and the Home Energy Solutions – Income Eligible (HES-IE) programs. HES-IE is administered by Eversource and Avangrid, two utility providers in CT and is funded by a charge collected on electric and natural gas bills. Both WAP and HES-IE provide energy efficiency upgrades to low-income, single-family households so this cost-sharing process will allow these households to be served more comprehensively. A scope of work for cost-shared units was published in Program Year 2024 and is publicly available on the DEEP Energy Filings website for subgrantees to follow. Subgrantees should notify CT WAP staff when there is a unit that will be cost-shared between the two programs. Additionally, subgrantees must

report on the number of cost shared units in their monthly reports

1.4 Policy Advisory Council

The DOE requires, under 10 C.F.R. § 440.17, that before the expenditure of any grant funds, the State must establish a Policy Advisory Council (PAC) or a state commission or council to advise on the development of the DOE Weatherization Program. Members of the PAC must demonstrate sensitivity to low-income issues and be broadly representative of various organizations and agencies, including consumer groups that represent low-income individuals, the elderly, and Native Americans. States are also allowed to use an existing commission or council to serve as the PAC to advise on the implementation of CT WAP activities.

CT WAP has chosen to use the Low-Income Energy Water Advisory Board (LIEWAB) as its PAC. LIEWAB is responsible for advising and assisting the Office of Policy and Management (OPM) and DSS in planning, developing, implementing, and coordinating energy assistance and CT WAP policies. LIEWAB meets on a bi-monthly basis, and the meetings are open to the public. The current membership of the LIEWAB, as of June 2025, includes representatives from:

- Connecticut AARP;
- Connecticut Association for Community Action (CAFCA);
- Connecticut Energy Marketers Association (CEMA);
- Connecticut Local Administrators of Social Services (CLASS);
- Connecticut Natural Gas Corporation (CNG);
- Eversource Energy (electric and gas);
- Connecticut Legal Services, Inc.;
- Norwich Public Utilities;
- Office of Consumer Counsel (OCC);
- Operation Fuel;
- Public Utilities Regulatory Authority (PURA);
- The Southern Connecticut Gas Company (SCG);
- The United Illuminating Company (UI) (also referred to as Avangrid);
- United Way Connecticut/ 2-1-1;
- Connecticut Water Company;
- Manchester Water and Sewer Department;
- Build Green CT;
- Center for Children’s Advocacy; and

- Connecticut Fair Housing Center.

1.5 State Plan

A WAP State Plan is developed annually by CT WAP as part of the State's application for federal WAP funds. The State Plan is used as an overall guide for program operation and outlines the State's objectives for the expenditure of funds received from DOE. It identifies the local subgrantees contracted to carry out the State's WAP activities, projects the allocation to be awarded to each local subgrantee, and lists the number of units expected to be weatherized during the program year based in the allocated budget.

Before the State Plan is submitted to DOE for approval, it is reviewed by the PAC, and public hearings are held to obtain comments. The hearings provide an opportunity for subgrantees, local leaders, WAP beneficiaries, and other interested persons to comment on program operations, community needs, and subgrantee performance. Subgrantees are encouraged to publicize the hearings to WAP participants. In addition to the hearings, there is also a public comment period of at least one week in which members of the public may submit comments and feedback via email or written mail. The final State Plan is submitted to DOE for approval after consideration of comments received. The approved State Plan becomes the basis for the WAP contract.

2 Weatherization Program Administrative Requirements

The purpose of this section is to set forth general administrative requirements of the WAP in Connecticut.

2.1 Subgrantee Selection

According to its assessment of need, the State may periodically issue requests for proposals from nonprofits and/or Community Action Agencies (CAA's) to be a sub-recipient of the DOE grant and to provide local services under the CT WAP. The procurement of a subgrantee will be conducted in an open and competitive proposal process.

All subgrantees will be selected in a method that complies with 10 CFR § 440.15(a). For an entity in Connecticut to qualify as a subgrantee, it must:

- Be a CAA or other public or nonprofit entity;
- Be selected based on public comments received during a public hearing;
- Have experience in weatherization or housing renovation activities;
- Have experience assisting low-income people in the area(s) to be served; and
- Be able to undertake a timely and effective weatherization program.

Pursuant to 10 C.F.R. § 440.15(a)(3), preference will be extended to agencies that have previously or are currently administering an effective program. Program effectiveness is evaluated by considering certain factors, including, but not limited to:

- The extent to which the past or current program achieved or is achieving weatherization goals in a timely fashion;
- The quality of work performed by the subgrantee;
- The number, qualifications, and experience of the staff members; and
- The ability of the subgrantee to secure training.

All WAP subgrantees will be selected through a competitive Request for Proposal (RFP) process. Prior to issuing the RFP, the Grantee may have external parties review the RFP and provide input as long as these parties will not be submitting a proposal. As part of the RFP process, the Grantee will host at least one bidder's conference, providing an opportunity for public comments. Once new subgrantees are selected in accordance with the State and Federal regulations, the Grantee will hold a public hearing to gather public input, as new subgrantees are considered a significant change to the Program. Announcement of new or additional subgrantees at a public hearing is done following the 10 C.F.R. § 440.15(d).

2.2 Subgrantees and Regions

CT WAP currently contracts with two entities as subgrantees: Community Renewal Team (CRT), a CAA, and the Center for EcoTechnology (CET), a non-profit. These two organizations provide weatherization services statewide.

The State is currently divided into two service areas: Weatherization Region 1 and Weatherization Region 2. Each service area is serviced by one subgrantee Agency. The counties by Service area, as well as which subgrantee agency services each area, are detailed below:

SUBGRANTEE AGENCY	SERVICE AREA
Community Renewal Team (CRT) 555 Windsor Street Hartford, CT 06120	**Weatherization Region 1** (Litchfield, Hartford, Tolland, Windham, New London, and Middlesex Counties)
Center for EcoTechnology (CET) PO Box 990 Waterbury, CT 06701	**Weatherization Region 2** (Fairfield and New Haven Counties)

2.3 Subgrantee Roles and Responsibilities

Subgrantees administer the WAP on the local level. Subgrantees perform most of the functions that are necessary to meet program goals and follow procedures to ensure compliance with all program requirements.

The clients eligible for CT WAP primarily come from applications for the Connecticut Energy Assistance Program (CEAP), which are processed at several CAAs located throughout the state. Applications from CAAs that do not provide WAP services are forwarded to the subgrantee in the appropriate CT WAP service area.

Subgrantees are responsible for ensuring that WAP funds are only expended on eligible activities and on behalf of eligible households. They are responsible for meeting energy efficiency and technical performance goals of the program, and for educating assisted households, building owners and supervisors, and maintenance staff. Together with CT WAP and other program partners, subgrantees foster the technical advancement of the program and provide the public face of weatherization. Subgrantees are also responsible for cooperating with CT WAP in providing information to DOE, other State agencies, and to the public.

Subgrantees, by contract with CT WAP, are responsible for meeting all the terms and conditions of this manual and other contract documentation. Any subgrantee with questions on any provision in this manual is encouraged to contact CT WAP staff.

2.3.1 Administrative

To enter into and keep a contract with the state, subgrantees must be enrolled in CT Source. To sign up, subgrantees must create an account on CT Source and fill out the Vendor Profile form and ACH Payment Request form. They must also be registered in the DAS Contracting Portal and entered into CORE.

The subgrantee must have an updated Annual Report with the CT Secretary of State.

Adequate staffing is essential to the success of CT WAP. The number of full-time local positions depends on the size and needs of the program, and staff planning should reflect required Subgrantee functions in administration, casework, service delivery, fiscal, reporting, quality management, and training. Weatherization services may be implemented by Subgrantee-employed crews or may be contracted to qualified companies. In addition to program staff, each Subgrantee should also employ dedicated administrative and support staff to accomplish program activities.

2.3.2 Subgrantee Responsibilities

Subgrantees have responsibility for all aspects of local program operations. Subgrantees must:

- Conduct casework, outreach, and education for CT WAP;

- Contract for qualified weatherization services, as needed;
- Manage tasks to ensure timely and accurate job completion;
- Procure services, equipment, materials, and supplies through an open and competitive procurement process;
- Manage weatherization funds;
- Track and report on expenditures and production, as required;
- Conduct quality assurance reviews to ensure that staff and contractors are adhering to program policies and work standards; and
- Participate in T&TA activities.

While these responsibilities involve several procedures and tasks which are further detailed throughout this manual, a summary of the main functions is listed below.

Case Work

Subgrantee staff are expected to perform the following functions, which are necessary for effective implementation of the CT WAP:

- Intake of applicants from recipients of CEAP as provided by the CAA network;
- Maintaining a waiting list of all applicants based on program availability;
- Pulling names from the waiting list in priority order, according to the program;
- Verifying the family's eligibility strictly according to CT WAP eligibility rules;
- Providing energy education services to the program participants;
- Explaining the weatherization work and being available to the program participants for questions or problems;
- Maintaining applications, correspondence, forms, and documentation in an organized client file;
- Assigning a specific work order tracking number traceable to every step in the weatherization process; and
- Processing local client appeals in accordance with Subgrantee procedures.

Service Delivery

Subgrantee staff are responsible for managing tasks to ensure timely and accurate job completion, such as:

- Coordination of weatherization workflow among the Subgrantee crews, the household, and weatherization contractors;

- Assigning the unit to an auditor for the initial energy audit;
- Inputting the audit data into the Weatherization Assistant software to help in the determination of cost-effective measures to be installed;
- Generate a work order based on the recommended qualified measures in the energy auditing software;
- Conducting a supervisory review and approval of the finalized work order measures;
- Assigning the weatherization work to agency crews or Contractors according to the weatherization needs identified in the work order;
- Monitoring the progress of weatherization work on the unit to ensure the work and time frames comply with program requirements;
- Being available to answer questions or resolve issues among the occupants, the work crew(s), and the contractors;
- Assigning the completed unit and conducting the final inspection;
- Conducting a supervisory review of the final inspection to ensure the work was completed properly, resolving issues with contractors, coordinating any re-works, and so forth;
- Paying contractors for work that is completed and has passed the final QCI;
- Approving units for the claim and reporting them as completed units only after the Final Inspection is passed.

Fiscal Administration

Subgrantees' are responsible for managing weatherization funds in accordance with 2 C.F.R. § 200 et seq. and Generally Accepted Accounting Principles (GAAP). For example, Subgrantees are responsible for:

- Preparing Subgrantees program budget according to CT WAP's allocations and the allowable cost categories;
- Requesting budget modifications as needed;
- Reviewing, approving, and paying contractor claims for labor and materials only after the unit has passed the inspection, as required by program policies;
- Submitting the monthly report/claims packets for the reimbursement of weatherization expenditures to CT WAP in a method designated by CT WAP;
- Accounting for weatherization funds in accordance with applicable financial regulations and GAAP;
- Maintaining a fair and competitive process for the procurement of weatherization-related supplies, equipment, and services;

- Accounting fully for the purchase, maintenance, and disposition of inventory;
- Instituting an annual audit of weatherization funds as required by applicable regulations;
- Meeting all reporting requirements regarding weatherization expenditures and production; and
- Cooperating fully with weatherization program monitoring, fiscal reviews, or other requests for fiscal information.

For more information, see "Section 10 Reporting" and "Section 11 Payments"

Reporting

Subgrantees are required to submit the reports on DEEP's prescribed timeframe and forms. Reporting includes, but is not limited to:

- Monthly and grant-to-date production reports;
- Monthly and grant-to-date expenditure reports;
- Program service demographics and statistics; and
- Ad-hoc reports as requested by CT WAP or DOE.

For more information, see "Section 10 Reporting" and "Section 11 Payments"

Quality Assurance

Subgrantees are responsible for conducting quality assurance reviews to ensure that staff and contractors are adhering to program policies and work standards and that work completed meets all requirements, including:

- Client income eligibility;
- Dwelling unit eligibility;
- Agreed upon project timelines;
- Expenditure limits;
- Approval of waivers by CT WAP where required;
- All required paperwork is completed and in digital files;
- All required weatherization testing protocols are implemented and followed;
- All protocols for weatherization measures are being performed;
- All Health and Safety (H&S) tests and protocols are being conducted;
- Workmanship and material standards are met; and

- Only appropriately certified and licensed personnel are conducting tasks that require appropriate specialization and certification.

For more information, see “Section 6.11 Post-Inspection and Certification”.

Training and Technical Assistance

As part of its effort to improve the quality of weatherization services, CT WAP has devised an ongoing T&TA regimen, including a comprehensive set of training requirements that will apply to CT WAP staff, subgrantee staff, and contractors. All training plans and requirements will be aligned with the CT State T&TA Plan, and Weatherization Program Notices (WPNs) 22-4, 24-2, and 25-1.

Other Responsibilities

Subgrantees' weatherization administrators must thoroughly understand every aspect of this program in order to plan and implement it effectively.

2.3.3 Subgrantee Program Plan

Within 15 business days of the execution of the agreement between CT WAP and the subgrantee, the subgrantee must submit a Program Plan to CT WAP. This document must describe how program services and production goals will be met over the contract period.

Based on the production goals and program parameters provided by CT WAP (see Section 3.2 of this manual for more information), the subgrantee must create a Program Plan that details program implementation. The plan must describe the following:

- **Application Process:** The program plan must explain the process that is in place for receiving weatherization applications, particularly from CEAP service areas that are covered by the Subgrantees for weatherization.
- **Crew Staffing:** Subgrantees must detail the extent to which they use their own crews and/ or contractor crews. The budget must indicate the estimated number of each type of personnel and the specific responsibilities of each staff member.
- **Local Health and Safety:** Subgrantees must demonstrate how they plan to ensure compliance with the State H&S plan, both in their own operation of the weatherization services and in the requirements for their weatherization Contractors.
- **Agency T&TA Plan:** Subgrantees must demonstrate how they plan to ensure compliance with the State T&TA Plan, both in their own operation and in the requirements for their weatherization contractors.

2.4 Insurance Requirements

The subgrantee shall purchase and maintain such insurance as will protect the subgrantee, DEEP, and the state of Connecticut, from claims set forth below which may arise out of or result from the subgrantee's operations or performance of the work, whether such operations be conducted by the subgrantee, a subcontractor, or anyone directly employed or acting as an agent for whose act any may be liable.

Subgrantees are contractually required to hold the State harmless from and against any and all claims for injury, loss of life, or damage to or loss of use of property caused or alleged to be caused, by acts or omissions of Subgrantees, its agents, employees, assigns, and invitees on or about the premises and which arise out of Subgrantees' performance, or failure to perform as specified in Subgrantees' contract.

The State of CT or DEEP must always be identified and named as an additional insured on the subgrantee's insurance policy.

Subgrantees must also require their subcontractors to carry these levels of insurance.

Required insurance coverages are detailed below.

- **Indemnification**

  Subgrantees are contractually required to hold the State harmless from and against any and all claims for injury, loss of life, or damage to or loss of use of property caused or alleged to be caused, by acts or omissions of Subgrantees, its agents, employees, assigns, and invitees on or about the premises and which arise out of Subgrantees' performance, or failure to perform as specified in Subgrantees' contract.

- **Liability**

  Subgrantees must provide proof of comprehensive general liability insurance coverage in the minimum amount of two million dollars ($2,000,000) for liability coverage for personal injury and property damage, with a minimum amount of $1,000,000 per occurrence for each.

- **Pollution Occurrence**

  Subgrantees must provide Pollution Occurrence Insurance coverage in the minimum amount of at least $2,000,000.00 per occurrence.

- **Workers' Compensation**

  Subgrantees must provide proof of Workers' Compensation as required by state law.

- **Unemployment Compensation**

  Subgrantees must provide proof of Unemployment Compensation as required by state law.

- **Misappropriation Bond**

  Subgrantees shall provide a bond or insurance coverage for all persons who will be handling funds or property received or disbursed as a result of its contractual agreement with the State in an amount equal to one-half of the total annual of funding provided to Subgrantees through the State, or $250,000 whichever is less, to be effective for the period of Subgrantees' contract plus three (3) years for purposes of discovery. Subgrantees' coverage must provide protection against losses resulting from criminal acts and wrongful and negligent performance of the person's duties.

- **Cyber Liability**

  Subgrantees must provide proof of cyber liability coverage in the minimum amount of $2,000,000.

Subgrantees must immediately notify DEEP if any required insurance is canceled or modified in amount. In the event of a cancellation of a Subgrantee's coverage, DEEP will make no further disbursements to the Subgrantees until certification is provided by a company that the coverage has been restored. In the event such verification is not received by DEEP within ten (10) days of the Notice of Cancellation, Subgrantees must agree to return the balance of all funds from the WAP insurance budget paid to Subgrantees under their contractual agreement.

2.5 Required Subgrantee Documentation

CT WAP is required to keep certain documentation on file for each subgrantee. The following documentation must be submitted to CT WAP by each subgrantee and must be revised and updated within 10 days of any changes:

- Subgrantee incorporation papers, including any amendments to date;
- Subgrantee's current corporate bylaws;
- A Board Resolution granting the agency permission to enter into the agreement and the signatory permission to sign amendments;
- Incumbency documentation – a list of individuals authorized to sign contracts and amendments on behalf of the subgrantee. It can be combined with the Board Resolution;
- List of the current members and officers of the board of directors as well as their mailing addresses and their terms of office;
- Proof of current compliance with the requirements of the Department of Law, Office of Charities Registration, or proof of exemption from the requirement;
- Incentive award criteria from subgrantee personnel manual;
- Applicable indirect cost rate approval documentation;
- Evidence of required insurance (see Subsection 2.03);
- Organizational code of conduct;
- An operations plan that describes the subgrantee's procedures for implementing the WAP;
- The subgrantee's outreach and intake plan, that shows how applications are prioritized for assistance, including renter-occupied small multifamily buildings;
- The subgrantee's process for resolving complaints and contractor disputes, including provisions for arbitration (see Subsection 2.22);
- Subgrantee's Procurement policy;
- Subgrantee's Deferral policy;
- A current organizational chart showing management hierarchy and division of responsibilities.
- Debarment checks for Subcontractors (SAM, CONCORD, DOL/DCP. Etc.)

2.6 Contract Management

The WAP contract between DEEP and the subgrantee is written for a period of up to three years. These contracts are divided into budget periods, each typically for one year, beginning on July 1 and ending on June 30 of the following year.

The subgrantee is responsible for meeting the production goal regardless of participation in any other projects that they may enter into.

Subgrantees are required to monitor their expenditures and production each month and make adjustments necessary to complete their production goal and fully expend their budget allocation for the program year.

Subgrantees should assess their expenditures and production each month, and again 90 days prior to the end date of the budget period. This assessment should review expenditures and production to date, as well as any anticipated expenditures and production through the end of the budget period. If the total projected expenditures or production for the budget period has changed significantly from the last approved budget for that budget period, or if the projected expenditures within budget categories vary significantly from the last approved budget for that budget period, CT WAP staff should be consulted to determine whether a budget amendment is necessary. It is the responsibility of the subgrantee to analyze their budget and manage production and expenditures accordingly and inform the Grantee of any projected shortfalls with enough notice so that necessary corrections can be made prior to the conclusion of the performance period.

2.7 Electronic Data Collection, Management, Transfer

Subgrantees must have the capability to collect and manage WAP data electronically. CT WAP currently utilizes **Hancock Software** for these functions. Hancock functions as the program's *Central Database*, and subgrantees must add all required information on the weatherized units, as well as project implementation and closing to the platform, as requested by CT WAP.

In addition, subgrantees must be capable of transferring and receiving AP data, spreadsheets, and other CT WAP documents electronically.

2.8 Coordination with Other Programs

CT WAP encourages the WAP subgrantees to partner with local housing and energy program administrators, local governments, and other federal and state agencies to leverage WAP resources with other resources whenever possible.

CT WAP staff is available to help subgrantees collaborate with other housing providers. WAP supervisors will work with other programs and offices within DEEP to maximize resources, coordinate approvals, and avoid delays.

CT WAP is committed to an open and flexible approach to work strategically with WAP subgrantees and local partners to maximize resources, save energy, and preserve affordability.

Although coordination is strongly encouraged, subgrantees are reminded that there are core program principles that must be maintained as follows:

- Assisted households must be eligible under WAP rules and all WAP policies must be followed.
- The DOE approved, CT WAP energy audit must be utilized to evaluate all weatherization-related health and safety (H&S) conditions, analyze existing building conditions and current and future building energy use. There must also be a written scope of the work that documents the work that will be funded by WAP and the work that other sources will fund. For more information on energy audits and work scope development, see "Section 6 Building Analysis and Work Standards."
- Material and installation standards must meet WAP requirements.
- All contractors installing measures funded by WAP must meet the established WAP certification requirements.

When coordinating with other programs, Subgrantees must determine how the WAP work scope (which must be based on the energy audit) will be integrated with other work that will be done on the building.

Since WAP can only fund work where the savings-to-investment ratio (SIR) is 1.0 or greater, the program is limited to activities and work that primarily focus on energy savings. With the exception of measures listed in the WAP Health and Safety Plan and Weatherization Readiness Funds State Plan, other work needed in the building that does not meet WAP priorities must be paid for with other funds.

2.9 Coordinated Work

Subgrantees may enter into agreements with outside funding sources and combine WAP funds with other resources to provide more comprehensive energy efficiency work on eligible buildings. This is considered coordinated work. All such initiatives require written prior approval from the CT WAP team. A letter must accompany the request for approval and state the following minimum terms and conditions:

- The type of households to be served (first time served, specific priority group, etc.).
- Programs that WAP is coordinating with (e.g., Home Energy Solutions- Income Eligible (HES-IE)).
- The amounts of WAP funds invested by budget category (materials, labor, program support, other).
- Confirmation that a DOE-approved software (i.e., NEAT or MHEA) will be used to identify the scope of work.
- Size/scope of project initiative and work scope.
- Estimated investment in the building to be assisted.

All expended funds that provide services to WAP-assisted households must be documented in Hancock. Coordinated work may be structured as Program Income.

The following conditions must be met when performing coordinated work:

- A copy of any written agreement that the subgrantee enters into with other funding sources for coordinated work must accompany the written request for prior approval to participate.
- All assisted households must meet WAP income eligibility limits.
- The building analysis process described in “Section 6 Building Analysis and Work Standards” must be followed
- All work, whether funded by WAP or by other sources, must be performed in accordance with all WAP standards.
- All contractors installing measures funded by WAP must meet the established WAP certification requirements.
- All costs incurred must be reported in the Database along with WAP-funded work as work completed with contract funds.

2.10 Training and Technical Assistance

To ensure the consistent delivery of high-quality weatherization services nationwide, the DOE, through a network of weatherization professionals, identified and developed a set of core competencies for the various staff positions that implement the weatherization program, including the types of training required to increase levels of core competencies for these job categories. The goal is to increase the levels of competencies and expertise in the workforce so that every weatherized house receives appropriate, properly installed, cost-effective measures.

Although many of the core competencies and job classifications identified are universal, each state will require specific certifications or licensing for different competencies related to WAP implementation.

The activities listed below can be considered eligible T&TA costs if not charged as either administrative costs or, in some cases, Program Support costs. Subgrantees should consult with CT WAP staff for prior approval to use Program Support for these types of T&TA activities.

Conferences	Registration, travel, and lodging costs for conferences, seminars, workshops, and on-site training.
Staff Training	Costs incurred to provide training and professional certification for subgrantee staff.
Weatherization Training / Monitoring Equipment	Purchase of weatherization equipment directly related to specific training and technical assistance activities, such as monitoring, demonstrations, instruction, etc. T&TA funds are not for the purchase of tools and other weatherization program equipment used to perform Weatherization services. Those costs are to be allocated to the appropriate budget line(s) provided.
Membership and Subscriptions	Membership fees for weatherization-related organizations and subscriptions to trade papers and magazines/ newsletters.
Computer/Electronic Media	Purchase of computer/electronic media equipment, any necessary related software, and the cost of training subgrantee staff to operate

	the equipment.
Energy Data Collection and Analysis	Costs directly related to gathering, compiling, or copying information to be used in providing fuel usage and savings analysis data, the cost of devices used to calculate fuel usage, and the cost of inputting data for a Database to track previously weatherized units.
Applicant/Client Education	Development and distribution of educational materials for applicant education meetings, workshops, presentations, videos, and other client education activities.

Compliance with training requirements will be monitored by CT WAP. Weatherization measures installed by untrained personnel, whether employed by subgrantees or by its contractors, shall result in questioned and/or disallowed costs for the weatherization work completed on a unit.

2.10.1 Subgrantee Staff Certifications

CT WAP requires that subgrantee personnel in certain professional positions be certified by the Building Performance Institute (BPI). Subgrantees must ensure that any individual holding a staff position that requires certification meets the certification requirements within 6 months from the time they are assigned to the position. If the individual fails to become certified after the 6-month period, CT WAP will review and decide, on a case-by-case basis, to recommend to the subgrantee that the individual either be allowed to remain in their position while pursuing their certification or be assigned to another position.

It is the responsibility of the subgrantee to maintain records confirming that all certification, licensing, and training are current. Subgrantees must maintain an inventory of all training attended by individuals working on the weatherization program, whether it is with Subgrantees themselves or their contractors.

CT WAP will review the status of subgrantee staff certification compliance during the annual monitoring and will issue written findings to subgrantees that are not in compliance with certification requirements. See Subsection 2.17 for more information on CT WAP monitoring and field visits.

DOE requires that all WAP-funded work be conducted in a lead-safe manner. WAP is subject to the Environmental Protection Agency (EPA) Lead; Renovation, Repair, and Painting Program final rule that became effective in 2008. The EPA rule requires that *each subgrantee* be certified by the EPA as a Certified Renovation Firm. Subgrantees can apply or renew their existing certifications online, with certificates mailed in a couple of weeks. Application can be completed on the EPA website. See

Subsection 6.02 for additional requirements related to Lead Based Paint. As such, the following are required:

- Lead Safe Weatherization (LSW) training for all workers
- At least one onsite worker must be an EPA Certified Renovator (RRP)
- EPA RRP training for all state monitors

Subgrantees should be aware that DOE facilitated development of national guidelines for home energy retrofits that include the Standard Work Specifications (SWS) and skill standards for energy retrofit workers. The Guidelines for Home Energy Professionals (HEP) project is a collaborative effort between DOE, the National Renewable Energy Laboratory (NREL), and the home energy performance industry. The project assists the industry by defining quality work through SWS, an accredited training process, and advanced professional certifications for workers. The certifications are to be administered by BPI. NREL's four major energy upgrade job classifications are Energy Auditor, Retrofit Installer Technician, Crew Leader, and QCI. The Energy Auditor certification is a prerequisite for obtaining the required HEP QCI micro-credential, effective March 1, 2019.

Training related to work performed and reported as DOE completed CT WAP sites must comply with DOE WPN 22-4 and the CT WAP Quality Work Plan requirements, Connecticut Weatherization Field Guide, and the CT WAP State Plan.

Certified Subgrantee staff are required to participate in training specific to the NREL HEP recertification on a regular 3-year basis and within 6 months of the HEP recertification dates.

Subgrantee staff are required to maintain the certifications necessary to perform the duties of the position which they were hired for, including all continuing education and recertification requirements. And subgrantees are responsible for reporting on training participation both monthly and during the annual monitoring. Subgrantees are also required to monitor and track subcontractor training and maintain subcontractor records readily available for CT WAP and DOE monitoring reviews.

All WAP units reported to DOE as complete must be inspected to ensure compliance with the specifications outlined in the SWS. All quality control inspections performed by subgrantees in single-family (1-4 units) projects are required to be conducted and signed off by a certified Single-family Quality Control Inspector (QCI) to ensure compliance with the specifications outlined in the SWS. QCI personnel must complete DOE approved Tier-1 Training and possess knowledge, skills, and abilities as listed in the NREL Job Task Analysis and become certified by BPI as a HEP QCI.

Subgrantees are advised to allocate sufficient resources for staff training so that they are prepared to meet all required certifications in a timely manner. The cost to subgrantees for certifications or training may be charged to either the T&TA line and/or to the Program Support line of the WAP budget.

The following certifications apply to subgrantees that deliver single-family projects (1-4-units):

- All post inspectors are required to hold a HEP QCI micro-credential.
- Subgrantees that complete more than three mobile/manufactured homes a year are required to have an auditor who is a BPI-certified Manufactured Housing Professional on staff to review and approve all audits of manufactured homes.
- Subgrantees are required to have a building auditor certified as a HEP Energy Auditor; the costs of certification will be recognized as an eligible T&TA expense. Subgrantee staff are encouraged to pursue the BPI Building Analyst Technician (BA-T) & Building Analyst Professional (BA-P), particularly those pursuing the HEP Energy Auditor certification. Training for the BA-T and the BA-P certification is an eligible expense, but it is not a required certification.
- Auditors of 1 - 4-unit buildings are also required to have a BPI Heating Professional certification. This certification will assure that the auditor understands basic building science and how to test and evaluate heating systems. This requirement can also be met by becoming a certified HEP Energy Auditor.
- Subgrantee staff and contractor crew leaders are encouraged to pursue certification in any Crew Leader / Retrofit Installer Technician job classification maintained by BPI. A Crew Leader or RIT certification is not required; however, costs of training and certification will be recognized as an eligible T&TA expense.
- DOE requires all individuals working on pre-1978 housing projects to complete the 8-hour LSW course prior to performing work on any pre-1978 sites. A Certified Renovator is required to attend an additional EPA Certified Renovator course sponsored by an EPA-approved training center. If the Certified Renovator has previously attended the 8-hour LSW Course, the renovator must attend a 4- hour LRRP Refresher Course. If the Certified Renovator has not attended the 8-hour LSW course, they must attend both an 8-hour LSW course and an 8-hour EPA Certified Renovator course. Subgrantee staff are encouraged to pursue BPI Healthy Homes Evaluator certification. This certification is essential in CT due to the age and condition of the housing stock encountered while completing energy efficiency retrofit work.

2.10.2 Training Plan

Through monitoring review and assessments from DOE and Grantee monitoring activities, CT WAP will coordinate with the local subgrantees to deliver the types of training needed to strengthen weatherization services. Based on the identified needs of the weatherization network, the Grantee will continue to periodically provide both comprehensive and specific training and workshops such as statewide lead-safe training, management training, fiscal training, air sealing, use of two-part foam, pressure diagnostics, proper insulation of attics and walls, and so forth. CT WAP will contract with weatherization experts to present on this range of training activities required to foster individual competencies with the various classifications of weatherization services. The curriculum will be presented by training experts in a combination of classroom, hands-on activities, and field training to continuously increase the skill levels of each type of weatherization worker.

To facilitate contractor training, subgrantees are allowed to pay a per-diem, on a case-by-case basis, for contractor personnel to attend training when it is designated as mandatory and has the prior approval of the CT WAP.

CT WAP requires that Subgrantees evaluate their weatherization workforce to determine the types of training needed. Subgrantees' policy should be to encourage its staff, and that of its contractors, to attend training to strengthen worker competencies and skills.

2.10.3 Mandatory Subgrantee Staff Training

CT WAP sponsors training throughout the year on a variety of topics. Training is often offered through contracted training and technical assistance providers. When topics involve a change to existing WAP policy and procedures (e.g., air sealing standards, changes to audit protocols, etc.) or emphasize an important program area, subgrantee attendance may be mandatory. In this case, the subgrantee is required to assign the most appropriate person to attend.

If a subgrantee hires a new employee into any of these positions or any current employee transfers into any of these positions, it is required that they receive the mandatory training within 6 months of their start date.

Training must be repeated every 3 years by subgrantee personnel who occupy these positions. Compliance with this program requirement will be monitored during the Annual Programmatic Monitoring (APM). Any agencies that are not in compliance will be referred to the CT WAP staff and instructed to arrange for mandatory training for appropriate staff.

The table below summarizes the required certification and mandatory training for various subgrantee staff.

Subgrantee staff who are required to complete training	Description of Job Classification	Required Certification/ License	Mandatory Training
Energy Auditor	The energy auditor and inspector are responsible for evaluating recommended measures for H&S and cost-effectiveness	- Building Analyst BPI Certification - Building Analyst Professional - Building Analyst Technician - Multifamily Building Analyst	- BPI HEP energy auditor - EPA RRP - OSHA 10 - OSHA Confined Space - Healthy Home Evaluator - Additional training as needed for specific tasks

Quality Control Inspector	The quality control inspector is responsible for making the post-weatherization determination of the actual success of those installed measures and the overall home performance.	- Building Analyst BPI Certification - Building Analyst Professional - Building Analyst Technician - Multifamily Building Analyst	- BPI HEP energy auditor - BPI HEP QCI Micro-credential - EPA RRP - OSHA 10 - OSHA Confined Space - Healthy Home Evaluator - Additional training as needed for specific tasks
Crew Chief/Supervisor	The crew chief/supervisor is directly responsible for the on-site management of the weatherization installers and their work.	- N/A	- BPI HEP Crew Chief - ASHRAE 62.2 2016 - Hazardous Materials Awareness - Residential Radon Awareness - Additional training as needed for specific tasks
Weatherization Installers	Installers include all workers that install weatherization measures such as air sealing, duct sealing, base-load measures, and insulation.	- Lead Safe Weatherization related certifications - OSHA 10 - BPI Healthy Home Evaluator Certification - Proper state licensure for certain trades - EPA Renovation, Repair, and Painting Program: Renovator certification	- BPI - Training in the proper use of Weatherization Readiness Funds in accordance with the WRF State Plan - Additional training as needed for specific tasks

Mechanical Systems Contractor	Connecticut law requires licensure by the State Board of Occupational Licensing in several areas relevant to working on combustion appliances and heating systems. Skilled workers such as, electricians, plumbers, heating professionals, and home improvement contractors; must currently hold all required state or local licenses and credentials.	Applicable licenses include: - Heating, piping and cooling - Plumbing - Electrical work - Duct work (sheet metal)	- Additional training as needed for specific tasks
Weatherization Program Coordinator/Manager	The Weatherization Program Coordinator/Manager is responsible for the day-to-day administration of the CT WAP at the Subgrantee level.	- N/A	- BPI Building Science Principles - BPI Healthy Housing Principles - BPI Building Analyst - EPA RRP - ASHRAE 62.2 2016 - OSHA 10 - Additional training as needed for specific tasks

2.10.4 Program Administration Training

Training is important in all aspects of the weatherization program, including the non-technical and administrative functions. Some examples include training topics such as:

- Program management and weatherization program supervision
- Financial management, including budgets, claims, and weatherization financial rules

- CT WAP client services, including program application and eligibility policies, and procedures
- Client energy education, case work, and delivery of weatherization information
- Procedural training for all staff on program forms, including those contained in the software, used in the effective administration of the program
- Comprehensive program training with the CT Program Operations and Training Manual and other policy sources

2.10.5 Weatherization Services Training

Detailed training related to specific weatherization functions is vital in the effective delivery of services. Such areas of expertise will include comprehensive and specific training in:

- Energy Audit and Final Inspection: techniques, tools, testing used in all of the technical aspects of weatherization, evaluation skills, building science, Energy Audit Modelling software, and forms training.
- Weatherization Installation: tools, techniques, and materials used in various areas of the installation of weatherization measures, carpentry, ventilation, plumbing, and electrical safety.
- Crew Supervision: technical training on every aspect of weatherization, supervisory skills & human relations, specialized site safety training such as OSHA and EPA RRP, proper use of protective equipment (PPEs), and MSDS.
- Mechanical Systems: tools, techniques, parts, and materials used in various areas of the installation of weatherization mechanical measures, worst-case CAZ depressurization spillage test, combustion appliances, plumbing and electrical, other specific mechanical work, and state certification.
- Mobile Home Training for Auditors, Inspectors, and Installers: tools, techniques, and materials used in auditing, inspecting, and installations, including special aspects of weatherizing mobile homes.
- Specific training on the Connecticut Weatherization Field Guide: overall training on protocols and technical information needed for weatherization work.

Any time training is offered, the subgrantee is expected to select the most appropriate person(s) to attend. When training is mandatory, subgrantees are required to send the appropriate person(s) to that training session. Whenever possible, CT WAP staff or the technical service support team will record training sessions and distribute the video(s) with subgrantee staff.

Additional requests for T&TA can be initiated by the subgrantee submitting a request via email to the CT WAP team, including the type(s) of assistance needed, the name(s) of staff to be trained, and estimated total cost.

2.10.6 Health And Safety Training

Weatherization work must be conducted in a manner that avoids current and future harm to the client, other residents, and the weatherization worker. CT WAP has established H&S training requirements for key weatherization program workers, including energy auditors, inspectors, weatherization installers, program management, and others. Training includes identification of the range of H&S issues, and requirements for subgrantee responses under the program guidelines, and possible resources outside of the program boundaries.

Worker safety is an important training component. Training will include DOE and State of Connecticut regulations, along with EPA requirements for addressing environmental hazards, and OSHA requirements in areas such as proper use of PPE.

H&S training is vital and will be addressed in various forms on an annual basis, including some of the following areas:

- Indoor Air Quality (IAQ): All training on the recognition and mitigation of IAQ issues, including mold, moisture, volatile compounds, and so forth.
- Combustion Appliance Safety: Annual CT training provided
- OSHA: Worker safety training for new Subgrantee staff and Contractor staff
- General Hazardous Materials Awareness Training: asbestos, vermiculite, VOCs, radon
- Lead Safety: EPA lead safety regulations and EPA Certified Renovator course; Connecticut regulations (DEEP); DOE Lead Safe Weatherization (LSW) regulations

2.10.7 Contractor Training and Retention Agreement

Connecticut's contractors agree with contractual assurances that their weatherization employees will participate fully in training appropriate to their work, as required by Subgrantees and the Grantee.

T&TA funds may also be used to train contractors at the Subgrantee level participating in the Program. In making the decision to pay for contractors' training, Subgrantees must secure a retention agreement in exchange for the training. The retention must require that contractors work in the Program for 6 months and must align with the cost of the T&TA provided. If the contractor leaves the Program within 6 months of receiving training, the contractor shall be responsible for paying the cost of the T&TA provided back to the subgrantee. The subgrantee must reimburse CT WAP.

2.11 Required Client File Documentation

The following documents must be maintained in each client file by all subgrantees in an organized manner so that they are readily accessible for review by CT WAP staff or representatives at any time. CT WAP has provided subgrantees with the Hancock software to assist with file recording and management, and model files to aid subgrantees with file organization; subgrantees must utilize Hancock as the program's central database.

Below, there is a summary board with a list of documentation by Category. The board is followed by more detailed information.

SUMMARY OF REQUIRED CLIENT FILE DOCUMENTATION	
CATEGORY	**DOCUMENTATION**
1. Subgrantee Sign Off Sheet	• Cover Sheet
2. Eligibility	• Weatherization Application • Income Eligibility Documentation • Client Demographic Information • Owner/Rental Documentation • Multifamily Energy Information • Copy of Utility Bills • Deferral Documentation, if applicable • Denial Documentation, if applicable • SHPO Documentation

3. Client Correspondence and Sign Offs	• Required H&S Client Forms
	  • Occupant Pre-Existing or Potential Health Condition Screening
	  • Hazard Identification Notification
	• Notification to the client of approval (or denial) for service
	• Client Complaints and Documented Resolution, if applicable
	• Client Sign Off on the work to be performed
	• Client Sign Off on the work completed

4. The Work	• Assessment/Audit • Work Order • WRF • Work Summary • Testing Documentation • Reports of Each Interim Inspection • Subgrantee's Final Inspection Form • Documentation of any call backs, returns, client requests, etc • Grantee's Monitoring Inspection Form, if applicable
5. Supporting Documentation For The Work Performed	• Permits • Certified Renovator (CR) Documentation • Photo Documentation

6. Invoices	• Contractor-Based
	  • WAP measure materials, and labor costs by installed measures
	  • Information related to bid/equipment detail/specifications
	• Subgrantee-Based
	  • Labor tracking documentation
	  • Transportation
	  • T&TA
	  • Others

1. Subgrantee Sign Off Sheet

A cover sheet documenting the entire client file was reviewed against the requirements of the Grantee and information contained within the file is complete and ready to be closed.

2. Eligibility

Eligibility documents may be in the file or "on file" depending on the Subgrantee file structure.

- Weatherization Application completed and signed by the weatherization applicant and, if applicable, the property owner. In small multifamily units, each tenant must sign an agreement.
- Income Eligibility Documentation: Consistent with Federal Poverty Income Guidelines at the time of application.

- Client Demographic Information: Information about household members for data reporting purposes.
- Owner/Rental Documentation: Proof of ownership OR signed rental agreement.
- Multifamily Energy Information: Provide energy information for any building with more than one unit and/or more than one person paying the energy bills.
- Copy of Utility bills for the unit or the building. Utility bills must show the cost and usage from the past years or longer, if possible.
- Deferral Information, if applicable: Documentation/letter to client specifying either a deferral or activities that need to be accomplished for work to begin.
- Denial Documentation, if applicable: Documentation/letter to client detailing denial reason and dispute process.
- State Historic Preservation (SHPO) Documentation: If applicable, any SHPO correspondence related to the unit.

3. Client Correspondence and Sign Offs

Each file must have clear records of client interactions during the weatherization process.

Required Health & Safety (H&S) Client Forms

Each notification must include the occupant(s) (and landlord if applicable) name and address, indicate that they understand and have been informed of their rights and options, and be signed and dated by the occupant (and landlord if applicable). The form must also be signed by the Subgrantee personnel collecting the information.

Occupant Pre-existing or Potential Health Condition Screening

Subgrantee must complete the **Weatherization Client Health Intake Survey**, which allows occupant(s) to self-report known or suspected health concerns as part of initial application for weatherization, during the energy audit, or other part of the weatherization process as specified. Both the subgrantee representative and client must sign and date the form. The form should provide information on the following:

- Any known risks associated with the measures and materials being installed.
- Subgrantee point of contact information for occupant(s).
- Date of screening.

Hazard Identification Notification

Provides documentation that the occupant and landlord (if applicable), have been informed of any potential hazards identified during the energy audit or intake process. Must minimally contain the following:

- Date(s) of the energy audit/assessment and when the occupant(s) (and landlord, if applicable) was informed of a potential H&S issue.
- A clear description of the problem, including any testing results.
- A statement indicating if, or when weatherization could continue.

The following notifications are part of the Hazard Identification Notification and should be used as needed:

Radon Informed Consent Form

Provides documentation that the occupant(s) (and landlord if applicable) have been informed of any potential hazards associated with radon in weatherized dwellings. A sample radon informed consent form is available. The form must minimally contain the following:

- An explanation of the small potential risk of increasing radon levels when building air leakage is reduced. This is based on the results of the Buildings Assessment of Radon Reduction Interventions with Energy Retrofits Expansion Study.
- A list of precautionary measures WAP will install based on EPA Healthy Indoor Environment Protocols.
- Benefits of weatherization include energy savings, energy cost savings, improved home comfort, and increased safety.
- Confirmation that EPA's A Citizen's Guide to Radon was received and radon related risks were discussed with the client.

Lead Paint Notification

Confirmation client received EPA's Renovate Right document, if applicable.

Mold/Moisture Assessment

EPA's "A Brief Guide to Mold and Moisture, and Your Home" is handed out to the client.

Other Hazard Notifications

Asbestos, stored materials that prevent being able to perform the work (e.g., gas, paint, etc.) or other areas that might require a deferral.

Notification to the client of approval (or denial) for service.

Timeline for anticipated next step (e.g., when client should anticipate hearing from the Subgrantee for an audit to be scheduled).

- Notice of Eligibility on subgrantee's letterhead that was sent to the applicant. In

multi-family buildings, where tenants pass through a common entrance, the Notice of Eligibility need not be sent to each applicant but rather may be posted in a conspicuous place in the building (e.g., a bulletin board in the lobby or a building-wide newsletter). Written correspondence reiterating information that may be verbally shared with client by the auditor (e.g., if home is being deferred, when work will begin, how waitlists work, etc.).

- Notice of Postponement of Services (NPS) - If the home is deferred, written correspondence specific to any repairs or modifications that need to take place for work to resume.
- Notice of Ineligibility - Written correspondence if the home is not eligible for weatherization, or, in the case that the home was previously approved but now is denied service (e.g., eligible parties move, death, etc.).

Client Complaints and Documented Resolution; if applicable.

Client Sign off on the work to be performed.

- Measures to be included (may be included on a form within the Scope of Work).

Client Sign off on the work completed (may be included with the final inspection form).

- Acknowledgment work was completed.
- Acknowledgment/awareness of any warranties.
- Acknowledgment of client education/maintenance information (Standard Work Specification (SWS) compliant).
- Acknowledgment of how the worksite was left - cleaned up, materials taken away.
- Signed and dated by the client.

4. The Work

The following represents documentation that provides a complete picture of the work performed.

Assessment/Audit

Documentation of how the unit was audited. In assessing the unit, these elements may be included in this section:

- If doing site-specific audits, the input report from audit tool (NEAT, MHEA, REM, etc.) and output reports showing individual measure Savings to Investment Ratios (SIR) and SIR for the package of measures.
- If auditing with a priority list, a copy of the full list of measures, documentation and any explanations if any measures are not included in scope and necessary justification for why a measure is not included (“major measure” cannot be

skipped).

- Auditor field data collection form and associated documentation including required photo documentation.

Work Order

Documentation of the Auditor's Scope of Work (SOW) outlining all measures to be installed and instructions/standards for work installation (e.g., efficiency values, equipment sizing, installation areas, etc.).

- Weatherization Readiness Funding (WRF) Details, if applicable – Documentation of what measures are being installed with WRF funds to alleviate deferral conditions.

Work Summary

- Work order deviations/comments from field that may alter the SOW, providing justification for any adjustments (e.g., scope called for 40 bags of insulation, but 32 bags provided necessary depth in attic).
- Challenges or comments that are important to convey for an inspector to understand what precipitated decisions made by the crew in executing the SOW.
- Change orders, as applicable, and how they were approved.
- Insulation certificate.

Testing Documentation

- Combustion Safety Testing Information for each combustion appliance (e.g., spillage, Carbon Monoxide measurements, Worst Case Depressurization).
- Infiltration/Blower Door Testing.
- HVAC System Efficiency Testing.
- Duct Leakage Testing.
- Zone Pressure Diagnostic Testing.
- Lead, Radon, Asbestos Testing Results, etc., as applicable.
- Ventilation diagnostics, calculations, and design (i.e., ASHRAE 62.2 compliance).

Reports of Each Interim Inspection

A tracking log or data sheet must be in each building folder for each program field representative and must include the date of visit, the name of the person conducting the inspection, and all observations/findings as they relate to work quality/quantity, apartments/common areas, contractors present, etc. This information should be accurate as of the date of the interim inspection and should come from the field staff's personal logs.

Subgrantee's Final Inspection Form

This form requires a signature by a Quality Control Inspector-certified (QCI) individual. The following reflects the minimum expectations of what is included on a final inspection form.

- Signed by Subgrantee QCI (with printed name and certification number).
- Date the Subgrantee's inspection was completed.
- Verify accuracy of energy audit and completed SOW.
- Identify any corrections necessary (and provide documentation of the full cycle of rework and verification).
- Review/Verify all appropriate measures were on the work order and the accuracy of the audit inputs.
- Identify/Verify documentation and justification for any measures not installed are in the file.
- Verify all diagnostic testing at the Final Inspection.
- Verify the invoicing matches any bids and costs input into the energy model; making note of any areas where there is deviation from bid/audit input.
- Client Signature – sign off the work was accomplished (may be a separate form).

Documentation of any call backs, returns, client requests, etc.

- Written and/or photo verification that this happened, dates, work performed, etc.

CT WAP's Monitoring Inspection Form (if applicable)

This form requires signature by a QCI-certified individual. The following reflects the minimum expectations of what is included on a Grantee's monitoring inspection form.

- Signed by Grantee QCI (with printed name and certification number).
- Date the Grantee's inspection was completed.
- Verify the Grantee QCI reviewed each component of the Subgrantee Final Inspection Form, and the form is in the file.
- Verify the Scope of Work, accuracy of audit inputs, and required documentation is in the client file.
- Identify any corrections necessary (and provide documentation of the full cycle of rework and verification).
- Review/Verify all appropriate measures were on the work order.
- Identify/Verify documentation and justification for any measures not installed.
- Review results of diagnostic testing performed at Monitoring Inspection.

- Verify the invoicing matches any bids and costs input into the energy model; making note of any areas where there is deviation from bid/audit input.

5. Supporting Documentation for the Work Performed

Permits: Where applicable, QCI verification is included for that activity.

Certified Renovator (CR) Documentation: Name of CR is legible on the documentation. Subgrantee should have ability to pull certifications, as needed, to verify CR credential.

Photo Documentation: Photos should document audit and final inspection results.

6. Invoices

Subgrantee must have consistent procedures, whether this information is contained "in the file" or "on file." A Subgrantee needs to demonstrate a methodical and consistent ability to pull the necessary invoice information by job. Invoicing should contain funding source and category (H&S, Incidental Repair Measures (IRM), General Heat Waste (GHW), etc.).

Contractor-Based:

- WAP measure materials, and labor costs by installed measure.
- Information related to bid/equipment detail/specifications.

Subgrantee-Based:

- Labor tracking documentation
- Transportation
- T&TA
- Others

7. Grantee-Specific Requirements

Grantees may have varying additional documentation requirements for the client file (e.g., pre-WAP utility bills, additional digital photographs, property records, etc.).

2.12 Program Monitoring

CT WAP, in accordance with the State Plan and Quality Work Plan, conducts periodic monitoring and ongoing quality assurance. Through regular monitoring and quality assurance, CT WAP and subgrantees identify and address problems to ensure that weatherization services are managed and delivered following: best practices, agency policies, program rules, applicable regulations, and laws. Monitoring and quality assurance inspections promote the overall improvement of the program, guarantee higher quality measure implementation, and better service provided to CT communities. See “Section 9. Monitoring and Quality Assurance” for more information.

2.13 Comprehensive Annual Subgrantee Evaluations

As required by DOE, an annual evaluation of each subgrantee is conducted at the conclusion of every program year. This evaluation consists of two areas: program and fiscal. CT WAP implements this requirement through the Annual Programmatic Monitoring and Annual Fiscal Monitoring.

The combined results of the monitoring may affect future funding of subgrantees.

For more information on the annual monitoring processes and requirements, refer to “Section 9.1.1 Annual Programmatic Monitoring (APM)” and “9.1.2 Annual Fiscal Monitoring (AFM)”.

2.14 Dispute Resolution

CT WAP has in place the following process for resolving all disputes and issues raised by applicants (owners or renters), subcontractors, or any other parties involved in the provision of weatherization services as part of the WAP program (complainants). This process applies to complaints brought to Subgrantees, the program's technical team (desk and field representatives), or directly to CT WAP or DEEP. This Process sets forth the minimum requirements to be followed by the Subgrantees to ensure all disputes are fully acknowledged, investigated, and resolved as expeditiously as possible.

2.14.1 Subgrantee Dispute Process

Subgrantees must attempt to resolve all disputes and issues involving Complainant(s), before involving CT WAP. Complaints, disputes, and issues may include client complaints, contractor complaints, procurement protests, application denials, project deferrals, or work quality issues. To ensure that each complaint, dispute, or issue is fully investigated and addressed, the Subgrantee is required to develop a Dispute Resolution policy that aligns with and implements this process. A copy of the Subgrantee's dispute resolution policy and procedures must be provided to all Subgrantee staff who are involved with communicating with potential complainants. A copy must also be submitted to CT WAP for review and approval.

Client Complaints

The Subgrantee shall adhere to its internal process, approved by CT WAP, in all cases of Client Complaints. The Subgrantee shall include the following documents in the file of any client who files a complaint, raises an issue with any aspect of services provided, or has a dispute with a subcontractor.

- A copy of the written complaint, with a description of the issue and identification of all parties involved;
- If the complaint was verbal, an accurate description of the conversation had with the customer and a description of the issue and identification of all parties involved;
- A timeline of events;
- Documentation of all communications between the complainant and the Subgrantee staff;
- Documentation of the investigation into the complaint, including accurate descriptions of conversations or interviews;
- Documentation of all attempts at a resolution, including the level of cooperation received from all involved parties; and
- A summary of the final result or resolution.

If the Subgrantee is not successful in reaching a resolution and determines that a resolution is not possible by the Subgrantee, then the Subgrantee shall escalate the complaint, dispute, or issue to CT

WAP by submitting a copy of the entire client file involved, including all documentation related to the complaint, issue, or dispute. The Subgrantee shall notify the complainant when the matter is escalated to CT WAP.

Applicant Appeal Process Applicable to Weatherization Denials

The following process applies to all Weatherization Applicants.

The Subgrantees must consider all timely written notices received from an Applicant indicating intent and reason for appeal after a denial is issued, pursuant to the procedure for appeal outlined in this Manual. Subgrantees must return any appeals received after the fifteen (15) business-day appeal period, accompanied by a notice stating that the appeal cannot be considered because it was submitted beyond the deadline.

Subgrantees may use their own official procedure for hearing and appeal decisions after the procedure has been approved by DEEP. Appealed decisions are to be decided by a Subgrantee staff person who is at least one level higher than the person who made the decision on the case eligibility

An appeal must be considered and decided, and the decision must be communicated to the appellant in writing no later than ten (10) business days following receipt of the appeal. If the Subgrantee fails to meet this deadline, the appeal must be automatically forwarded by the Subgrantee to CT WAP for action. The appeal decision notice must clearly state the acceptance or denial of the appeal. If accepted, the Weatherization process continues. If the appeal is denied, the notice must state:

- That the appeal has been reviewed and denied; and
- That the appellant has a right to final appeal to CT WAP; and
- That the appellant has an additional ten (10) business days from the date of the second letter to appeal to CT WAP; and
- The procedure required to be used to appeal to CT WAP.

Contractor Complaints

The Subgrantee shall adhere to its internal process, approved by CT WAP, in all cases of Contractor complaints. The Subgrantee shall add the following documents to the file of a client who is the subject of a complaint by a subcontractor, or whose property is the subject of an issue or dispute raised by a subcontractor:

- All documentation related to the contractor's involvement in the project, including the subcontract, scope of work for the project at issue, all invoices and records of payment;
- A copy of the written complaint, with a description of the issue and identification of all parties involved, or if the complaint was verbal, an accurate description of the conversation had with the customer and a description of the issue and identification of all parties involved;

- A timeline of events;
- Documentation of all communications between the contractor and the subgrantee staff;
- Documentation of the investigation into the complaint, including accurate descriptions of conversations or interviews; and
- A summary of the final result or resolution.

If the Subgrantee is not successful in resolving the complaint and determines that a resolution is not possible by the Subgrantee, then the Subgrantee shall escalate the complaint, dispute, or issue to CT WAP by submitting a copy of the entire client file involved, including all documentation related to the complaint, issue, or dispute.

The Subgrantee shall notify the complainant when the matter is escalated to CT WAP.

Work Quality Issues

Complaints, issues, and disputes involving work quality may arise at various stages of a project. Depending on the source of the complaint (i.e. client, subcontractor, inspector), the Subgrantee shall proceed according to established internal processes, as approved by DEEP and in accordance this OPS Manual, to address identified work quality issues. Each Subgrantee has a contractual obligation to ensure that quality, effective, and safe weatherization work is being completed prior to inspection by the QCI. Subgrantee policies in this regard shall include a process for an Auditor, QCI, or Subcontractor that receives a complaint from a client regarding work quality to communicate the issues identified to the Subgrantee in writing.

The subgrantee weatherization staff shall investigate and work with all parties involved in any work quality complaint to come up with a plan to address and resolve the issues before work is reported as complete to CT WAP. The Subgrantee shall acknowledge the Complainant's concern within one (1) business day of receiving the complaint and provide a response with a proposed resolution within five (5) business days of receiving the initial complaint. All work necessary to remedy the legitimate issues raised must be completed prior to the final QCI.

2.14.2 CT WAP Process

Client Complaints

This process applies to all Client Complaints, whether involving service provided, service deferral, service denial, or work quality, or any other credible complaint regarding the WAP program.

Direct complaints

When a client complaint is brought directly to CT WAP, acknowledgment of the complaint will be made within one (1) business day of receipt. CT WAP will gather relevant information from the Complainant and the Subgrantee and may either refer the Complainant to the Subgrantee for resolution of the

complaint or retain the complaint and initiate the appeal process at the discretion of CT WAP.

Appeals to CT WAP

If a client complaint is escalated or appealed to CT WAP after the Subgrantee has attempted resolution, CT WAP will acknowledge the complaint within one (1) business day of receipt. CT WAP staff will review all documentation submitted and the attempted resolution provided by the Subgrantee and will open a Complaint file.

CT WAP will investigate all credible complaints, by gathering information and documentation from the Client and the Subgrantee, and if necessary, from the subcontractor involved, the auditor, or the Quality Inspector who worked on the Project. Based on the nature of the complaint, CT WAP technical and fiscal representatives may be involved in the investigation.

CT WAP staff will analyze the complaint, and all information and documentation gathered within the parameters of program rules and state law. A response to the Complainant will be developed by staff for management review within three (3) business days of receipt of all requested information and documentation from any party involved. CT WAP may deny any remedy in response to the complaint in its discretion if, for example, the complainant does not produce information or documentation requested by CT WAP to properly investigate the complaint, or if the complaint claims remedies that are not allowed under program rules.

CT WAP Management will review and amend or approve the response as appropriate and consult with the legal department if warranted. Management and legal review will be as expedient as possible, with a goal of completion within five (5) business days from submission by staff. The response to the complaint will be shared with the client and the other parties involved if the other parties are directed by CT WAP to take further action to resolve the complaint.

If the Subgrantee or a subcontractor has to complete or correct work, or take other action as directed by CT WAP, it shall do so within one (1) week of the directive. Upon the party involved taking corrective action to CT WAP's satisfaction, the matter will be considered resolved, and CT WAP's Complaint file will be closed. After CT WAP's decision is issued, no other administrative appeal steps will be available to the Complainant. Nothing in this process is to be construed as limiting an applicant's right to seek additional legal and judicial remedy.

Contractor Complaints

Direct complaints

If a contractor complaint is brought directly to CT WAP, it will acknowledge the complaint within one (1) business day of receipt. CT WAP will gather relevant information from the Complainant and the Subgrantee and may either refer the Complainant to the Subgrantee for resolution of the complaint or retain the complaint and initial the appeal process at the discretion of CT WAP.

Appeals to CT WAP

If a subcontractor complaint is escalated to CT WAP, it will acknowledge the complaint within one (1) business day of receipt. CT WAP staff will review all documentation submitted and the attempted resolution provided by the Subgrantee and will open a Complaint file.

CT WAP will investigate all credible complaints, by gathering information and documentation from the subcontractor and the Subgrantee, and if necessary, from the client involved, the auditor, or the Quality Inspector who worked on the Project. Based on the nature of the complaint, CT WAP technical and fiscal staff may be involved in the investigation.

CT WAP staff will analyze the complaint, and all information and documentation gathered within the parameters of program rules and state law. A response to the Complainant will be developed by staff for management review within three (3) business days of receipt of all requested information and documentation from any party involved. CT WAP may deny any remedy in response to the complaint in its discretion, if, for example, the Complainant does not produce information or documentation requested by CT WAP to properly investigate the complaint, or if the complaint claims remedies that are not allowed under program rules.

CT WAP Management will review and amend or approve the response as appropriate and consult with the legal department if warranted. Management and legal review will be as expedient as possible, with a goal of completion within five (5) business days from submission by staff. The response to the complaint will be shared with the Complainant and the other parties involved if the other parties are directed by DEEP to take further action to resolve the complaint.

If the Subgrantee or the Complainant has to complete or correct work, or take other action as directed by CT WAP, it shall do so within one (1) week of the directive. Upon the party involved taking corrective action to CT WAP satisfaction, the matter will be considered resolved and CT WAP's Complaint file will be closed. After CT WAP's decision is issued no other administrative appeal steps will be available to the Complainant. Nothing in this process is to be construed as limiting an applicant's right to seek additional legal and judicial remedy.

2.15 Subgrantee Termination

Subgrantees receive WAP funds and perform work pursuant to written agreements with DEEP. . DEEP may terminate an agreement with a subgrantee for failure to comply with the terms and conditions of the agreement or if DEEP determines that the termination would be in the best interest of the State. DEEP may also, at its discretion, choose not to extend or renew an agreement with a Subgrantee.

All performance issues, and all instances of breach, default, and termination are governed by the written agreement between the Subgrantee and DEEP. Reasons for termination may include, *but are not limited to*, the following:

- Work performance fails to satisfy the requirements of the written agreement;
- Subgrantee refusal to proceed with the work;
- Disregard for laws, rules, ordinances, or regulations of the local public jurisdiction;
- Misuse of dedicated funds;
- Failure to notify CT WAP of fraud or the allegation of fraud, embezzlement, misappropriation, abuse of funds, declaration of bankruptcy, fiscal insolvency, or the failure of a subgrantee to maintain its status as a going concern;
- Disregard for competitive bidding; and
- Conflict of interest.

When a Grantee representative becomes aware of problem areas with the work or actions of a Subgrantee, the CT WAP representative must document such problem areas for CT WAP management. If the problems can be resolved in accordance with the terms of the agreement with the Subgrantee to CT WAP's satisfaction, the Subgrantee will not be terminated. If a problem cannot be resolved in accordance with the terms of the agreement, then DEEP will take appropriate action pursuant to the terms of the agreement.

2.16 Codes of Ethics

Subgrantees(s) must maintain written codes of conduct. These codes are specified in the contract and must include employees, officers, and agents of Subgrantees, which may include their families, partners, or related organizations. CT WAP may ask to review these codes at any time for monitoring purposes.

2.16.1 Conflict of Interest

No employee, officer, or agent of the Grantee or Subgrantees shall participate in the election, award, or administration of a weatherization contract or subcontract if a real or apparent conflict of interest would be involved.

No employee, officer, agent, or contractor of the Grantee or Subgrantee who may be eligible to participate in the decision-making process may derive an inappropriate personal or financial interest or benefit from any activity funded through a contract or subcontract, either for him or for those with whom he has family or business ties.

The officers, employees, and agents of the Grantee and of Subgrantees shall neither solicit nor accept gratuities, favors, or anything of monetary value from Subgrantee(s) or contractors, or parties to contracts or subcontracts, or any client this program serves.

If any organization, agency, or company responding to a procurement request offers such gratuities, favors, or anything of monetary value to any officers, employees, and agents of the Grantee and of Subgrantees, said entity, and its employees will be disqualified from participation in current and future weatherization contracts.

2.16.2 Discrimination Prohibition

Subgrantees(s) and its contractor(s) may not discriminate against any applicants, staff, personnel, suppliers, clients, or others connected to the weatherization program on the basis of race, color, creed, religion, sex, sexual orientation, gender identity, age, national origin, disability, present or past military status, or any other characteristic protected by applicable state or federal laws

2.16.3 Debarment and Suspension

Subgrantees must certify through the US Government System of Awards Management (SAM) that within the last five (5) years, and afterward annually, neither the organization nor its principals are debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in a weatherization contract with DEEP, the State of Connecticut, or any federal department or agency. Subgrantees must contractually require the same certification from its contractors.

2.16.4 Drug-Free Workplace

Subgrantees must make a good-faith effort to provide and maintain a drug-free workplace. Subgrantees are required to provide written notice to DEEP within ten (10) days after receiving actual notice that an employee has been convicted of a criminal drug violation occurring in the workplace.

2.16.5 Criminal Background Investigation

All subgrantees, their staff, and their contractors must agree to undergo criminal background checks.

2.16.6 Ownership of Intellectual Property

All copyright and patent rights to all papers, reports, forms, materials, creations, or inventions created or developed in the performance of the CT WAP are the sole property of the CT WAP as administered by DEEP.

2.16.7 Religious Activities

The rendering of weatherization services is non-sectarian in nature. As such, Subgrantees must ensure that religious activities are not a part of any activities funded under the grant.

2.16.8 Political Activity

Subgrantees must ensure that the funding provided by DEEP through any weatherization contract or agreement is not used to further any political or voter activity of any kind. Subgrantees must comply with applicable provisions of the Hatch Act (5 U.S.C. §§ 1501-1508 and §§ 7324-7326), which limits the political activities of employees whose principal employment activities are funded in whole or in part with weatherization funds.

2.16.9 Campaign Contribution and Solicitation Ban

Neither Subgrantees nor its principals shall make a contribution to or solicit contributions on behalf of an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of State, or Treasurer; or to a political committee authorized to make contributions or expenditures to or for the benefit of such candidates; or to a party committee.

2.16.10 Legislative Contact

Subgrantees may not use weatherization funds to lobby or to directly or indirectly influence action on any legislation or appropriation matters before federal or state legislative bodies. However, nothing in this section prohibits Subgrantees from providing educational or other information regarding the weatherization program, as appropriate.

2.16.11 Whistleblower Protection

Subgrantees may not discharge, demote, or otherwise discriminate against an employee as a reprisal for disclosing "whistleblower" information, such as mismanagement, abuse, fraud, legal violations, or non-competitive procurement, and so forth.

2.16.12 Client Confidentiality

Subgrantees, including their contractors, must ensure the confidentiality of client information per federal and state confidentiality laws which include but are not limited to the Health Insurance and Portability and Accountability Act of 1996 (HIPAA). This includes the requirement to encrypt all electronic data classified as confidential.

2.16.13 Other Requirements

Subgrantees must adhere to all policies, stipulations, terms, and requirements set forth in the following:

- Contracts and agreements between Subgrantees and the Grantee, and funded under the DOE grants;
- The Current Connecticut Weatherization Assistance Program State Plan and subsequent revisions, as approved by the DOE;
- The Current Connecticut Weatherization Assistance Program Operations Manual
- The Current Weatherization Assistance Program Field Guide; and
- All other weatherization guidance documents, as approved and issued by DEEP or DOE.

Throughout the term of any contract between the Grantee and Subgrantees for a weatherization services contract, all Subgrantees must:

- Adhere to DOE's regulations regarding nondiscrimination in federally assisted programs, in accordance with 10 C.F.R. Part 1040 et seq., as amended;
- Expend and administer funds in accordance with the DOE's financial assistance regulations defined in 10 C.F.R. Part 200 et seq., as amended;
- Comply with the Americans with Disabilities Act of 1990;
- Comply with the Federal Rehabilitation Act of 1973 regarding access to programs and facilities by individuals with disabilities.
- Comply with all reporting requirements related to client abuse and neglect, including but not limited to:
    - Children
    - Persons with developmental disabilities

    - Elderly persons
- In accordance with 2 C.F.R. § 200.321 and CT State Statute, utilize small businesses, minority businesses, women's business enterprises, veteran-owned businesses, and labor surplus area firms where applicable;
- Utilize Minority Business Enterprises as defined by C.G.S. § 4a-60 to 4a-60a and 4a-60g;
- Subject to determining the qualifications for all employment positions, give priority to hiring welfare recipients who are subject to time-limit welfare and must find employment. Subgrantees will determine the number and types of positions to which this section applies;
- Submit reports to DEEP in a timely and accurate manner as prescribed according to procedures;
- Conduct all procurement transactions in such a manner so as to provide, to the maximum extent possible, free and open competition;
- Require that contractors comply with federal standards in the purchase of supplies and other expendable property, equipment, and services;
- Retain financial records, supporting documents, statistical records, and all program or other records pertaining to Subgrantees' contract with DEEP for a period of three (3) years from the date of the final expenditure report by Subgrantees. If litigation, claim, or audit is started before the expiration of the 3-year period, the records must be maintained for a 3-year period from when all litigation, claims or audit findings involving the records have been resolved and final action taken;
- Have in place a system used to determine the order of service for program eligible clients that is applied equally to both owners and renters and prioritizes eligible households that have members who are elderly, disabled, children 5 and under, high energy use, and/ or high energy burden;
- Ensure that services are provided only to eligible households and dwellings;
- Ensure that ineligible dwellings are not re-weatherized, including those that received weatherization services within less than 15 years as defined by 42 U.S.C. § 6865(c)(2);
- Comply with the current Connecticut H&S Plan as approved by DOE;
- Comply with certification and training requirements as set forth in the approved CT WAP State Plan, the CT WAP Operations Manual and other approved and issued state guidance documents;
- Comply with applicable EPA and DOE regulations ensuring that lead-safe weatherization work practices are followed, as applicable;
- Submit for payment only work that has been inspected and report units as completed only after they have passed final inspection;
- Perform no additional work on units that have been reported as completed under the DOE

program, except as may be re-weatherized under program policies;

- Monitor and maintain expenditure levels within all cost limits, including the ACPU, as well as other limits further defined in this manual;
- Maintain a record of all maintenance performed on vehicles, as well as a “mileage log” for each vehicle utilized for the provisions of CT WAP services;

Report any vehicle accidents related to contracted services and theft of CT WAP materials and/or equipment, in writing to CT WAP within 30 days of such event(s). Any occurrence of theft of property valued at more than $100.00 must be reported to the police, and a copy of the resulting police report must be submitted to DEEP Within 30 days of occurrence.

3 Weatherization Program Fiscal Requirements

The purpose of this section is to set forth the general fiscal requirements of the WAP in Connecticut.

3.1 Subgrantee Allocation, Production Goals, and Budget Plan

3.1.1 Allocation

Each year, CT WAP is awarded a Total Program Allocation from DOE, which is comprised of three components:

- Program Dollars,
- Training and Technical Assistance (T&TA), and
- Weatherization Readiness Funds.

Furthermore, 10 C.F.R. § 440.18 establishes specific cost categories for all CT WAP expenditures, including: administration, training and technical assistance, program operations (material, labor and other program support), Health & Safety, vehicles and equipment, liability and pollution occurrence insurance, and financial audit.

Administration:

Pursuant to 43 U.S.C. § 6865(a)(1), Grantees may allocate up to 15% of the Total Program Allocation to administrative purposes. Of this 15%, Grantees may only use up to 7.5% of the total program allocation for administering the CT WAP at the state level. Grantees must then allocate no less than 7.5% of the total program allocation to their subgrantees' administration budget.

Training and Technical Assistance:

The Training and Technical Assistance (T&TA) budget is determined by DOE as part of the Total Program Allocation. Grantees are permitted to retain T&TA funding at the state level to cover the costs of training (services, tools, and equipment) and monitoring staff. Grantees can also provide T&TA funding to Subgrantees to provide training.

Weatherization Readiness Funding:

DOE determines the Weatherization Readiness Funds (WRF) budget as part of the Total Program Allocation. The Grantee and Subgrantee allocations are determined by the DOE approved Weatherization Readiness Funds State Plan.

Financial Audit and Insurance:

The Subgrantee Financial Audit and Insurance Budgets are set by the grantee based upon actual cost reported by the Subgrantees. These amounts are fixed costs that are reviewed and reevaluated annually.

Program Operations:

The Program Operations budget is the Total Allocation minus the amounts listed above.

Health and Safety:

Within Program Operations, CT WAP has received DOE approval to allocate up to 23% to the provision of Health and Safety Measures as detailed in the DOE-approved State Health and Safety Plan.

Weatherization Program Dollars:

The remaining 77% of the Program Operations budget is allocated to the provision of weatherization services.

Summary of the CT WAP Budget Categories:

- Grantee
    - Grantee Administration
    - Grantee T&TA
- Subgrantee
    - Subgrantee Administration
    - Program Operations
    - Health and Safety
    - Liability Insurance
    - Financial Audits
    - Subgrantee T&TA
    - Weatherization Readiness Funds

Please see “Section 10.3 Cost Categories” for more information on cost allocation.

Subgrantee Distribution:

CT WAP is responsible for ensuring that weatherization funds are distributed across the two CT WAP Service territories according to need and all applicable Federal regulations.

3.1.2 Production Goals

The number of units to be produced statewide, also known as “production goal”, is determined by dividing the amount in the Weatherization Program Dollars by DOE’s determined Average Cost Per Unit (ACPU) for the current program year.

CT WAP will monitor production reports submitted by Subgrantees during the contract to determine whether the number of weatherization completions and Subgrantee expenditures meet quarterly goals

or any goals developed to address augmented production periods. If Subgrantees' production falls substantially below the projected schedule of production, CT WAP may require a written corrective action plan for bringing production in line. Approval and ongoing evaluation of any corrective action plan will remain in effect until satisfactory results have been achieved.

If production continues to fall short of program and corrective action goals, CT WAP may, at its sole discretion, suspend, de-obligate, and re-distribute all or any portion of the funds allocated to Subgrantees.

3.1.3 Budget Plan

Within 15 business days of the execution of the agreement between CT WAP and the subgrantee, the subgrantee must submit a Budget Plan to CT WAP. This document must provide a line-item budget detailing the projected use of allocated contract funds during the program year. The budget projections should be tied to production goals based on the ACPU and other limits. The line-item budget includes details by cost category similar to the following chart:

CATEGORY LINE ITEMS	SUBCATEGORY LINE ITEMS
Materials	• Contractor Materials Installed in Completed Units • Agency Materials Installed in Completed Units
Program Support (Direct)	• Storage • Contractor Installed Measures – Labor • Contractor-Other (attach itemized sheet) • Maintenance, Repair, Tools, Equipment, and Vehicles • Insurance for Tools, Equipment, and Vehicles • Purchase of Non-Expendable Tools, Equipment, and Vehicles • Purchase of Expendable Tools and Equipment • Annual Lease of Tools and Equipment • Salaries - Crew • Salaries – Supervisory
Program Support (Indirect)	• Salaries - Program Staff • Fringe Benefits • Transportation • Program: Other (attach itemized sheet) • Audit Fees

	• Purchase/Lease of Vehicle(s)
Training and Technical Assistance (T&TA)	• Actual Direct Cost
Insurance (Liability)	• Actual Direct Cost
Insurance (Pollution)	• Actual Direct Cost
Financial Audit	• Actual Direct Cost
Health and Safety (Agency)	• Actual Direct Cost
Administration	• Salaries • Fringe Benefits Travel • Other (Attach Itemized Sheet)

The budget plan should also include a narrative that describes the estimated expenditure timeline per category throughout the program year. Planned purchases of capital equipment and/or vehicles should be noted on the Budget Plan.

3.1.4 Budget Amendments

Subgrantees are required to submit a budget amendment to reflect any adjustment to a budget category that is in excess of 10% of their total allocation for the budget period or that includes additions in personnel.

Budget amendments that involve adjustments to budget categories in excess of 10% of the total allocation for the budget period should be realized and submitted 60 days prior to the end of the budget period.

An amendment is required whenever capital equipment purchases are made after the initial budget approval. If funds allocated to capital equipment purchases will not be expended during the annual budget period, a budget amendment will be required to reallocate the funds to the current program year budget categories, which will result in an increase in the contractual unit production goal.

It is the responsibility of the subgrantee to analyze their budget at regular intervals to manage production and expenditures accordingly, and to request budget amendments in a timely manner when necessary.

3.2 Funds Management

The proper administration of funds begins with the quality of the Subgrantees' own internal fiscal controls and accounting procedures. Subgrantees must maintain written fiscal procedures that are periodically reviewed and approved by their governing board. The disbursal of funds must be properly documented and tracked in a systematic, transparent manner.

3.2.1 Program Income

Program income is an amount of money received by subgrantees for activities that are not a part of the grant work but are supported directly by staff, equipment, materials, supplies, and so forth as funded by the weatherization grant. This includes most payments received by subgrantees for work conducted outside the program but utilizing weatherization program resources.

Program income is subject to 2 C.F.R. Part 200. Program income is to be treated as an addition to program funds and is subject to the same rules as appropriated funds. Leveraged utility company funds and landlord contributions are not considered to be program income for purposes of the CT WAP.

3.2.2 Landlord Contributions

Subgrantees are never required to seek a contribution towards the cost of weatherization from the landlord. If the landlord would like to contribute, the funding can be used in single-family dwellings and small multi-family dwellings (up to 4 units), weatherized under the 50% eligibility rules.

According to the WPN 16-5, landlords may “buy-down” measures they prioritize as needs that do save energy but don’t achieve the required SIR of 1 or greater as a stand-alone measure. Therefore, CT WAP allows landlords to buy-down certain ECMs if they choose to do so.

As stated in the WPN 16-5, measures in multi-family projects that did not attain an SIR of 1.0 or greater can be considered for buy-down only if all of the measures that generate an SIR of 1.0 or greater during the initial energy audit are installed.

In accordance with 10 CFR. § 440.22(d), landlord contributions to install weatherization measures in a unit shall not be counted as program income or leveraged funds. The funds contributed by the landlord shall be expended following the agreement between the landlord and the weatherization agency. Such contributions must be applied to the cost of the specific job for which they are made, and the amount must be identified in the Final Installed Measures Report. The subgrantee’s claim for that unit should reflect a credit for the amount paid by the landlord and be reported on the financial report concurrently as the unit is being submitted as a completion to CT WAP.

3.2.3 Leveraged Funds

To the extent practicable, federal weatherization funds should be used to leverage funds that would not

be made available in the absence of federal or state funds for carrying out weatherization activities. DOE permits states to use a percentage of their grant to undertake leveraging activities, which may be used to supplement the program or run a parallel program. Allowable activities include:

- Paying for agency staff involved in leveraging
- Hiring a consultant to explore and develop partnerships
- Holding leveraging meetings
- Preparing technical materials
- Facilitating voluntary match funds from non-Federal resources

Note: DEEP has not set aside funds for leveraging purposes for the CT WAP program

3.2.4 Segregation of Funds

CT WAP is supported by the DOE WAP grant. Funds received from separate sources, even though they may each be used for the same purpose of weatherization, must still be maintained in separate accounts.

In no instance may weatherization funds be co-mingled with funds for any other program sources.

This policy does not preclude the coordinated use of funds from various sources, as allowed by the rules and regulations covering each of those funds.

3.2.5 Supplanted Funds

Weatherization funds may not be used to supplant other state or local funds that may be used instead for the same purpose.

3.2.6 Capital Expenditure

Subgrantees may not use weatherization grant funds for the purchase or improvement of land. Weatherization funds may not be used for the purchase, construction, or improvements of any building or other facility. This does not preclude the use of funds for residential weatherization or other energy-related home repairs.

3.3 Equipment

As defined by 10 CFR 200 equipment is defined as “tangible, nonexpendable, personal property having a useful life of more than one year and an acquisition cost of $5,000 or more per unit.”

A unit generally is an individual item but may also be an aggregation of items needed for the unit to function. The primary example of an aggregated unit is a computer system which requires a central processing unit, a keyboard, a monitor, and a printer to be usable.

Equipment purchased by Subgrantees with funds awarded under the grant is the property of CT WAP. Without written permission and instruction from CT WAP, it may not be used for any purpose other than the defined program activities.

Equipment may not be purchased, transferred, or disposed of by subgrantees without prior written permission and instruction from CT WAP.

In the event that a subgrantee’s contract with CT WAP is not renewed or is terminated for any reason, equipment purchased with program funds must be returned to CT WAP.

For more information on the Procurement of Capital Equipment, see “Section 13.7 Capital Equipment Purchase”

3.3.1 Weatherization Equipment, Tools, and Materials

Specialized equipment, supplies, tools, and weatherization materials purchased by subgrantees with the funds awarded in a contract, regardless of the unit cost or the useful life of the items, are to be considered CT WAP property. Such property shall only be disposed of in a manner prescribed by CT WAP.

Such items include, but are not limited to:

- Blower doors;
- Duct blasters;
- Manometers;
- CO detectors;
- Smoke detectors;
- Refrigerators;
- Insulation materials;
- Laptop computers;
- Specialized software;

- Computer equipment;
- Other software, equipment, tools, and materials purchased with WAP funds.

In the event that a subgrantee's contract with CT WAP is not renewed or terminated for any reason, the specialized weatherization equipment, tools, or leftover materials purchased with program funds must be returned to CT WAP, as property of CT WAP. With the instructions of CT WAP, such items must be delivered to another subgrantee or to an alternative location, as required.

3.4 Inventory

Subgrantees are required to track the purchase, use, and disposition of all inventories acquired with weatherization funds. A physical inventory of parts, materials, supplies, and equipment is required quarterly, and any updates must be reported to the Grantee within 30 days. If discrepancies are identified during monitoring or periodic inventory checks by the Grantee, the Subgrantee will have 30 days make corrective actions to address the identified issues. If the Subgrantee is unable to address the concerns then corrective actions will be put in place by the Grantee to ensure all issues are addressed.

Daily records must be maintained to account for the inventory materials taken in and out of Subgrantees' warehousing facilities. It must be possible to track items used in the weatherization of an individual unit through inventory records, back to the point of purchase.

Subgrantees may not purchase or maintain an inventory that exceeds the amount necessary for the completion of the program activities under the contract agreement.

A specific staff person must be designated as responsible for the following duties:

- Signing authority on purchase orders;
- Maintaining inventory records;
- Overseeing a quarterly physical inventory;
- Authorizing the disposal of obsolete or damaged inventory;
- Reconciling inventory records and authorizing adjustments.

3.4.1 Schedule

Subgrantees must maintain an up-to-date inventory schedule for all items purchased for use in the weatherization program. The following information must be available for review by DEEP and is reported on Subgrantees' closeout report at the end of each contract year:

- Description/Identification: The item's name, brand, brief description, model number, serial number;
- Serial/Identification Number (If Applicable)
- Plate Number (If Applicable)
- Federal Award Identification Number (FAIN);
- Title / Ownership: Who owns the property;
- Acquisition Date: date the item was acquired by the program (with backup procurement forms);
- Acquisition Cost: How much did it cost to acquire the item;

- Estimated Current Value: How much is the item currently worth;
- Quantity: How many of these items are there;
- Percent of Federal Participation: Is the item only used on WAP, or is it used for other programs;
- Program that the item is used for;
- Location: Physical location of the item;
- Condition Code: A description of the condition of the item; and
- Availability for Disposition: Current disposition of the item, including availability of the item for disposal.
- Sale Price (If Applicable)

Inventory must be kept in a facility with clean and adequate space. The building must be accessible, protected, and secure.

The inventory is tracked by funding source. The value of property in inventory is based on the purchase price. Property is reported in two broad categories of expendable and non-expendable.

Expendable Property Purchased with Weatherization Funds: Inventory items are considered expendable when they are intended for use in the actual weatherization of units. This category includes items such as:

- Weatherization materials;
- Parts;
- Building components;
- Installation items (smoke and CO detectors).

Tracking includes:

- Materials in inventory purchased with DOE funds;
- Materials in Work-In-Process;
- Materials ordered but not received.

Non-Expendable Property: Inventory items are considered non-expendable when they are necessary and used to weatherize units. This category would include tools, equipment, and vehicles. Tracking includes:

- Items purchased with DOE Funds;
- Items purchased with non-DOE Funds.

3.4.2 Disposition

Use of weatherization parts and materials from subgrantees' expendable property inventory is to be tracked and recorded by individual weatherization jobs in which the item is used. Jobs should be identified by work order number.

Disposal of Equipment: Since equipment purchased with weatherization funds is considered program property, Subgrantees must notify CT DEEP before disposing of the equipment. Subgrantees will be instructed on how to dispose of such equipment. CT DEEP will assist Subgrantees in establishing the fair market value for which the item must be sold.

In certain situations, equipment may be depreciated over time by subgrantees. Upon request, subgrantees shall submit all relevant depreciation schedules with their independent audit report.

For more information, refer to “Section 3.4.2 Disposition” and “Section 13 Procurement.”

3.5 Subgrantee Fiscal Audit

Subgrantees are required to conduct an annual financial audit of any and all expenditures of weatherization funds. The audit must be performed by an independent certified public accountant selected by an open and fair competitive procurement process. For more information, see “Section 13 Procurement”.

The audit may either be conducted as a part of an agency-wide audit, or as an individual audit of weatherization funds. It is to be performed in accordance with Federal and State single audit standards and applications, including the applicable provisions of the 2CFR 200 Subpart F - Audit Requirements.

The complete audit report, including management letters and audit recommendations, must be submitted to CT WAP by subgrantees within thirty (30) days of the receipt of the completed audit, or the receipt of a notice from the auditor that the audit cannot be completed. The reason(s) for an incomplete audit must be stated clearly by the auditor and Subgrantees.

CT WAP will review the audit for material problems with the accounting systems of the subgrantee, questioned costs, and disallowed costs. Subgrantees will be required to submit a written analysis of the root cause of findings and a written plan for corrective action of findings, within a time frame set by CT WAP. Follow-up on the corrective action will be monitored in CT WAP’s Annual Fiscal Monitoring.

PART 2 | The Weatherization Process

4 Outreach, Application, and Selection

The purpose of this section is to outline the process that subgrantees must follow to identify households and buildings that are eligible for assistance, accept and review applications for assistance, and properly document eligibility. It includes community outreach, applicant intake, income eligibility determination, and collecting required documentation to verify applicants and building eligibility.

The section begins with a description of the full process for soliciting eligible WAP projects, performing required tests and reviews to ensure that the building can safely be assisted in compliance with federal and state rules, completing the work, and verifying that all quality checks have been properly completed. “Section 5 Owner Participation and Tenant Process” and “ Section 6 Building Analysis and Work Standards” provide additional information on the process for determining building eligibility, analyzing existing building conditions, and preparing scopes of work, entering into agreements with building owners, and inspecting completed work to ensure quality.

4.1 Application Process

Subgrantees must complete the following actions to select and complete weatherization projects. While not all of these actions are required for every building that is assisted, each step must be documented to show compliance. The items subgrantees must complete to confirm eligibility, determine work scopes, and complete work on owner-occupied single-family buildings, including manufactured housing, are listed first.

For **owner-occupied single-family buildings**, including manufactured housing:

1. Outreach/intake.
    a. Subgrantee conducts outreach to solicit applications from eligible households.
    b. Households apply, and if demand exceeds available funds, they are placed on the wait list. Applications can be completed through one of the Subgrantees or a local CAA
    c. As assistance becomes available, the subgrantee reviews each household's application and determines the eligibility of both the client and dwelling unit and determines whether additional information is needed.
    d. Subgrantee verifies income and property status and documents eligibility.
    e. Subgrantee notifies client of the eligibility status.
    f. Client certifies eligibility by signing the application.
2. Owner education conducted, and H&S disclaimer forms are signed by owner.
3. Audit/inspection/related tests.
4. Historic preservation review.
    a. Building status determined – is CT Historic Preservation Office (SHPO) review needed?
    b. If no, proceed to step 5.
    c. If yes, building information is sent to SHPO for review.
    d. SHPO comments received and considered in comparison with audit recommendations.
5. Work scope and cost estimate developed.
6. Bid documents prepared for any work that will be subcontracted (note that bids are sometimes conducted on an annual basis, instead of a project basis).
    a. Bids issued.
    b. Pre-bid meeting held.
    c. Bids received.

d. Bids evaluated – work scope changed if necessary.

e. Bids awarded.

7. Weatherization Agreement executed.

8. Subcontractor agreement(s) executed.

9. Local approvals obtained (e.g., building permits, utility connections).

10. H&S clearances obtained.

11. Construction phase.

    a. Work scheduled.

    b. Materials ordered (or requisitioned from subgrantee inventory).

    c. Work begins.

    d. In-progress inspection(s) conducted, if applicable.

    e. **Work Change Order** issued for any unforeseen conditions (must be approved by production coordinator or weatherization director).

    f. Work completed.

    g. Final inspection conducted and documented by subgrantee quality control inspector (10% of completed units will also be inspected by CT WAP Field monitors).

    h. If unit passes inspection, proceed to item #12.

    i. If unit fails, complete additional work, document and re-inspect.

12. Provide warranties to the owner.

13. Subcontractors request payment.

    a. Subcontractor paid.

14. Project presented to CT WAP for approval and payment.

    a. Building included in the Subgrantee Monthly Report and Financial Package that is submitted to CT WAP.

    b. If the monthly packet is approved, payment is released to the subgrantee, proceed to item #15.

    c. If the monthly packet needs review, the subgrantee must correct as needed and resubmit the monthly packet.

15. Provide the owner with additional educational materials.

16. Reconcile final costs with any adjustments needed at the close of the budget year.

The process for **renter-occupied buildings** (where the owner is NOT an eligible household occupying one of the units) is as follows:

1. Owner outreach.
    a. Subgrantee conducts outreach to solicit owners of potential weatherization projects.
    b. Owner submits letter of interest to subgrantee.
    c. Subgrantee issues notice acknowledging to the building owner that the weatherization application process will begin.
2. Owner and tenant education conducted.
    a. Building owner notifies tenants of weatherization project.
    b. Owner schedules tenant meeting, where appropriate.
    c. Educational materials, including information on scheduling and access to apartments, are provided to tenants.
    d. Provide a Tenant Synopsis of the Weatherization Agreement to tenants.
3. Application and eligibility.
    a. Subgrantee determines and documents tenant eligibility. Generally, this will require acceptance of an application from each tenant household.
    b. Subgrantee reviews each application, determines whether additional information is needed.
    c. Subgrantee verifies income and documents eligibility.
    d. Subgrantee confirms tenant eligibility for all units to be assisted and issues a written notice to the owner that the building qualifies for assistance.
4. Audit/inspection/related tests.
    a. Owner signs the Weatherization Agreement to authorize the subgrantee to have an audit conducted.
    b. Building energy use data collected.
    c. Inspection of building by audit team.
    d. Subgrantee or their representative conducts any energy-related H&S testing needed.
    e. Where necessary, the owner conducts additional building tests to identify health or safety issues.
    f. Building analysis completed.

g. Audit report prepared.

5. Historic preservation review conducted.
    a. Building status determined – is SHPO review needed?
    b. If no, proceed.
    c. If yes, building sent to SHPO for review.
    d. SHPO comments received and considered in comparison with audit recommendations.
6. Work scope and cost estimates.
    a. Initial work scope prepared.
    b. Cost estimate prepared.
    c. Preliminary budget prepared.
    d. Budget delineates optional owner contribution and any items that will be paid by other sources.
        i. Owner's optional share of costs finalized.
7. Bid documents prepared for any work that will be subcontracted (RFP issued in some cases).
    a. Bids issued.
    b. Pre-bid meeting held.
    c. Bids received.
    d. Bids evaluated – work scope changed if necessary (go back to #6).
    e. Bids awarded.
    f. Subcontractor Agreement executed.
8. Weatherization Agreement executed.
    a. Written commitment of other optional funding provided by the owner to the subgrantee.
9. Any required local approvals obtained (building permit, etc.).
10. Any required H&S clearances obtained.
11. Construction phase.
    a. Work scheduled.
    b. Materials ordered or requisitioned from subgrantee inventory.
    c. Work begins.

d. Interim inspection(s) conducted by subgrantee.

e. Work Change Order issued for any unforeseen conditions (must be approved by production coordinator or weatherization director and by building owner).

f. Work completed.

g. Final inspection conducted and documented by quality control inspector (10% of completed units will also be inspected by CT WAP Field monitors).

h. If building passes inspection, proceed to item #12.

i. If building fails, correct the cause of failure, document, and re-inspect.

12. Warranties provided to owner (with a copy to tenant if pertaining to in-unit measures).

13. Subcontractor request payment.

    a. Subcontractor paid.

14. Project presented to CT WAP for approval and payment.

    a. Building included in the Subgrantee Monthly Report and Financial Package that is submitted to CT WAP.

    b. If the monthly packet is approved, payment is released to the subgrantee, proceed to item #15.

    c. If the monthly packet needs review, the subgrantee must correct as needed and resubmit the monthly packet.

15. Post-completion educational materials provided to owner and tenants.

16. Reconcile final costs with any adjustments needed at close of budget year.

4.1.1 Client File Maintenance

Subgrantees are responsible for maintaining a complete and unique file on each household whose application is moved off the Waiting list for weatherization services. All paperwork relative to the individual case must be labeled with a unique case number assigned by Subgrantees.

For more information on required documentation for the various stages of the weatherization process, refer to “Section 2.11 Required Client File Documentation.”

4.2 Priorities for Assistance

Subgrantees must have a written policy in their operating policies and procedures outlining how they prioritize and select households and buildings to be weatherized. CT WAP may request to review such policies and procedures at any time.

Service to eligible households must be provided on a first-come, first-serve basis, with priority given to the following types of households:

- Elderly, Persons with Disabilities and Children: Households that include members who are elderly, have disabilities, or have children under the age of 18
- High Energy Burden: see Department of Energy (DOE) Memo 094 and 10CFR 440.3 *Household with a high energy burden* means 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.
- High Energy Use: see 10CFR 440.3 *High residential energy user* means a low-income household whose residential energy expenditures exceed the median level of residential expenditures for all low-income households in the State.

FACTOR	DEFINITION
Elderly	A household in which at least one member is elderly; defined as 60 years and older.
Disabled	A household in which at least one member is disabled: Disability is established by any member(s) receipt of Medicaid, Social Security Disability, Connecticut State Supplement to the Aged, Blind and Disabled, or Supplemental Security Income. Other medically based documentation from a qualified physician, establishing a disabling medical condition may be used.
Children	A household with at least one young child; defined as a child under six (0-5) years old
High Energy Use	A household which is considered a high energy user; defined as having an annual heating cost exceeding $2,500
High Energy Burden	A household which is considered a high energy burden; defined as having an annual heating cost exceeding 6% of the household's income

Other priorities may not supersede or pre-empt those listed here. However, a subgrantee may consider the following special circumstances:

- Households impacted by a Federal or State Declaration of Disaster.
- If leveraged funds are being made available to provide for enhanced work scope opportunities.
- Special Priority Groups – Veterans, Native Americans, Large Households (more than 8 people).

Weatherization subgrantees are not authorized or funded through WAP contracts to provide "no-heat" emergency services, except when the repair or replacement can be completed as an ECM or is authorized by CT WAP. All other emergency repair or replacement of inoperable or unsafe heating

systems must be referred to the Low-Income Home Energy Assistance Program (LIHEAP) or other program or service provider

All subgrantees must maintain a waiting list of applicants who have contacted the subgrantee to apply for assistance. All clients put on a waitlist must be screened to verify that they are eligible to receive services and that the dwelling unit itself is qualified for weatherization services. Once on a waitlist, all eligibility requirements must be maintained until services can be delivered. All clients on the waitlist must be served according to priority and within a 12-month period. Applicants who have completed the eligibility process but are not ready to proceed with weatherization must be removed from the waiting list.

4.3 Weatherization Application

A Weatherization Application must be completed and maintained in the unit file for each household in a building being considered for or receiving WAP assistance. Applications should be noted as eligible, ineligible, or vacant.

Each completed application package must include:

- A signed Weatherization Application. A Spanish-language version is also available.
- Income or categorical eligibility documentation for all household members
- Social Security number of the applicant's head of household

CT WAP uses a single application procedure with LIHEAP. All households certified as eligible for LIHEAP are also income eligible for CT WAP and may elect to be placed on the waiting list for weatherization services. As weatherization slots become available, names are then drawn from the waiting list according to priority and time on the waitlist.

4.3.1 Where to apply

In Connecticut households apply for weatherization services through either the weatherization service providers or the local energy assistance Community Action Agency (CAA). CT WAP has two service providers and LIHEAP has eight CAA's whose service territories provide statewide coverage. Both programs qualify weatherization clients while the dwelling unit is qualified only by the weatherization service provider. The following table provides information on how to apply to CT WAP:

Weatherization Region 1

Weatherization Provider

Organization Name	**Area**	**Contact Information**
Community Renewal Team, Inc. (CRT)	Litchfield, Hartford, Toland, Windham, Middlesex and New London Counties	Hartford area – (860) 560-5800 Middletown area – (860) 347-4465

Energy Assistance Providers

Organization Name	**Area**	**Contact Information**
Human Resources Agency of New Britain, Inc. (HRA)	Bristol/ New Britain	(860) 223-2288

ACCESS, Inc. (ACCESS)	Willimantic/ Danielson	(860) 450-7423
Thames Valley Council for Community Action, Inc. (TVCCA)	Norwich/ New London	(860) 425-6681

Weatherization Region 2

Weatherization Provider

Organization Name	**Area**	**Contact Information**
Center for EcoTechnology (CET)	Fairfield and New Haven Counties	(860) 792-0448

Energy Assistance Providers

Organization Name	**Area**	**Contact Information**
New Opportunities, Inc. (NOI)	Waterbury	(203) 756-8151
Community Action Agency of New Haven, Inc. (CAANH)	New Haven	(203) 387-770
TEAM, Inc. (TEAM)	Derby/ Ansonia/ Shelton	(203) 736-5420
Alliance Community Action Agency of Bridgeport (ALLIANCE)	Bridgeport	(203) 384-6904
The Community Action Agency of Western Connecticut, Inc. (CAAWC)	Danbury/ Stamford/ Norwalk	(203) 748-5422

Note: Intake providers may have additional application sites during the heating assistance season (September 1st – May 31st).

Applications for weatherization may be made at any time while the program is active. Households may apply directly for weatherization with subgrantees regardless of their participation in other income-qualified or federally provided assistance programs.

4.3.2 Right to Apply

A household cannot be denied the opportunity to make a formal application for weatherization services. A scheduling process may be used, but no one may be deterred or unnecessarily delayed in applying for weatherization benefits. Any household member over the age of 18 may apply for Weatherization services. All qualified members of a Native American tribe are afforded the same rights, benefits, and assistance provided to other qualified people within the State.

4.3.3 Uniform Application Process

There is a uniform application process in place so that when a client applies for LIHEAP they are given the opportunity to apply for WAP. During the LIHEAP application process, clients provide the necessary information to determine eligibility, including Income Information, Household Demographics, and utility details. Since LIHEAP and WAP utilize the same qualification criteria, if the applicant qualifies for LIHEAP, they are automatically qualified for WAP. However, this qualification only applies to the clients themselves and not the dwelling in which they reside. To determine dwelling eligibility, LIHEAP clients agree to share their LIHEAP application information with the Weatherization Service Provider, as provided by the LIHEAP service provider. Once the Weatherization service provider verifies that both the dwelling unit and occupants are qualified for WAP, they contact the applicant and begin the process of delivering Weatherization Services.

4.4 Eligibility

WAP is designed to benefit low-income persons, particularly the elderly, disabled, and families with young children. Under DOE regulations, states must set eligibility for participation in the WAP at either 200% of the Federal Office of Management and Budget poverty level or the state's LIHEAP income-eligibility level. CT WAP has adopted a 60% of the state median income (SMI) level as the eligibility threshold for the program.

Some households are considered categorically eligible due to eligibility determinations made by another governmental entity or through participation in another program that has, by definition, eligibility requirements that are as restrictive as or more than the eligibility requirements for WAP.

Any individual or household that is not considered categorically eligible, based on proof that the applicant meets the eligibility criteria, must meet the income-eligibility criteria for WAP, based on proof that the household income is at or below the level set for WAP eligibility. In this case, the individual must submit either Income Verification documentation, or a notarized Statement of No-Income.

A vacant unit may also be considered for WAP service only when the building has been assisted by a federal, state, or local government program that restricts occupancy to households with incomes that qualify for weatherization, and there is a reasonable expectation that the unit(s) will be occupied by such a household within 180 days following completion of the project.

It is the subgrantee's weatherization office's responsibility to verify the household's eligibility for CT WAP.

Per DOE's WPN 25-1, determination of applicant eligibility will remain in effect, and no new documentation will be required, for one year from the initial date of determination, unless the subgrantee receives information that the applicant is no longer eligible. In instances where the time has expired since the household's certification, it will require a complete re-determination of the household's eligibility. The re-determination does not alter the household's position in being drawn from the waiting list.

If an energy auditor or other program staff encounters discrepancies between the energy application and the actual household situation, such information must be reported to the CT WAP representative and the subgrantee must follow up on such discrepancies to ensure that the household is eligible for services. Additionally, if it is established that the applicant intentionally provided false information regarding eligibility, all WAP work must be stopped and closed out at the cost incurred, and the subgrantee should contact the CT WAP representative.

A determination of eligibility for weatherization will remain in effect for one year from the date the applicant was first determined income eligible. If WAP work is not started within one year from that date, all applications that have expired or are expected to expire prior to commencement of WAP work will need to be updated to re-establish eligibility. Recertification of eligibility must occur at least every

12 months. Questions about the eligibility issues must be directed to client or entity that qualified the client. If resolution can not be achieved, then the client must be deferred from receiving services until they have been requalified.

4.4.1 Categorical Eligibility

Low-Income Home Energy Assistance Program (LIHEAP) Eligibility

CT WAP has adopted the LIHEAP eligibility criterion of 60% of the SMI level, adjusted for household size.

Income means all cash receipts earned and/or unearned (benefits) received by all members of the applicant's household. LIHEAP guidelines specify what actual sources of income, including a portion of liquid assets, are included in the eligibility computations, as well as which sources are excluded from consideration. Income computations and verifications are completed in accordance with the guidelines set forth by LIHEAP. Applicants must provide proof of income and assets for all household members who have resided in the household at any time in the thirty (30) calendar days prior to the LIHEAP application date.

A household may also be deemed eligible for LIHEAP if any member of the household receives cash assistance from one of the following programs administered by DSS:

- Supplemental Nutrition Assistance Program (SNAP);
- Temporary Family Assistance/ Temporary Assistance for Needy Families (TFA/ TANF);
- State Supplement for the Aged, Blind, and Disabled (State Supp); and
- Refugee Cash Assistance.

A household with a mix of income, from both DSS programs and non-DSS sources, is considered eligible for LIHEAP only if the combined household income, from all sources, falls within the eligibility guideline.

Supplemental Security Income

A household is categorically eligible for WAP assistance if, at the time of the application, that household receives Code A Supplemental Security Income (SSI Living Alone).

Public Assistance

A household is categorically eligible for WAP assistance if, at the time of application, it has a member who has received cash assistance payments under Title IV or XVI of the Social Security Act or applicable State or local law at any time during the 12-month period preceding the determination of eligibility for weatherization assistance.

Similarly, a household is eligible for assistance under the Low-Income Home Energy Assistance Act of 1981, provided it has an income of at least 200% of the poverty level determined in accordance with

criteria established by the Director of the Office of Management and Budget.

Home Energy Solutions – Income Eligible (HES-IE)

Anyone who is eligible for assistance under Connecticut's Conservation & Load Management weatherization program for low-income persons: Home Energy Solutions – Income Eligible (HES-IE) who has been approved through Options A or B of the 2024 HES-IE application, subject to data availability from the HES-IE program operators, is eligible to receive WAP services provided the income threshold for this program is 60% SMI, the same as the income threshold for LIHEAP.

Households Residing in Certain HUD- or USDA-assisted Multi-family Buildings

Anyone who is eligible for assistance under a HUD means-tested program, is categorically eligible per the guidelines set forth in WPN 22-5 and consistent with 42 U.S Code § 6863(b)(3). Additionally, anyone who is eligible for assistance under a USDA means-tested program is categorically eligible per the guidelines set forth in WPN 25-4.

If a multi-unit building is regulated under an assisted or public housing program and has been designated as income-eligible for the purposes of the WAP by HUD pursuant to the procedure set forth in DOE Program Notice WPN-22-5, then that building shall be considered to meet the income-eligibility requirements of the WAP and also one or both of the CT WAP procedural requirements to protect against rent increases and undue enhancement of the value of the weatherized building, without the need for further evaluation or verification. WAP Memorandum 099, issued November 9, 2022, further extended categorical eligibility to USDA-identified buildings that meet DOE income eligibility requirements as not requiring further verification.

For buildings funded with an allocation of Low-income (housing) Tax Credits, and which are not also regulated by HUD or USDA as stated above, the subgrantee must verify the incomes of each household residing in the building, following the procedures described elsewhere in this chapter.

The DOE provided lists of properties served by the USDA and HUD assistance programs shall be used to inform decisions on whether the property qualifies for the categorical eligibility provisions.

4.4.2 Income Eligibility

When an applicant is not categorically eligible, eligibility for WAP assistance must be determined based on household income. Per WPN 25-3, Household income is defined as total cash receipts before taxes from all sources, including, but not limited to:

- Money wages, commissions, or salaries before any deductions (e.g., taxes and garnishees).
- Income from self-employment or from self-owned farm or business after allowable deductions for farm or business expenses. In the case of dairy farmers, gross income credited from milk companies, not income received, must be considered the base from which allowable business expenses may be deducted to determine eligibility for WAP.

- Regular payments from Social Security including Social Security payments for minors; Unemployment Insurance Benefits; Veteran's Benefits; Veteran's Survivor's Benefits; pensions; regular insurance or annuity payments; or strike benefits from union funds. Current award letters or other documentation must be provided upon request. The net Social Security income after deductions is considered for WAP eligibility. This means that the Part B Medicare amount is not included as income, consistent with the methodology used by LDSS.
- Social Security or Veteran's Survivor's Benefits received by students. Retroactive lump sum payments for Social Security or Railroad Retirement Benefits should be prorated within the specified time frame.
- Alimony and military family allotments or other regular support from an absent family member or someone not living in the household. Alimony paid as in-kind income (e.g., rent) must be counted as income to the recipient. Life use of a dwelling provided through an estate should not be calculated as income.
- Dividends, interest, rents, royalties, or income from estates or trusts which are received during the month of application. If the income covers a time period longer than the current month, pro-rate the interest income by dividing the number of months covered by the check (e.g., quarterly dividend check – divide by 3).
- Housing allowances paid to military personnel.
- The interest-only portion of a mortgage payment or land contract payment made to an applicant, and payments on the principal of a mortgage held by an applicant are not considered income.
- Income from individual retirement accounts (IRAs) for the month of application, whether a monthly payment or a lump-sum withdrawal. Lump-sum IRA withdrawals should be pro-rated on a 12-month basis.

The WAP income eligibility limits are typically updated annually by DOE in a Weatherization Program Notice (WPN-XX-3). When updates become available, CT WAP staff will provide notification the all weatherization service providers of the update and ensure that the new income levels are utilized to determine WAP eligibility.

4.5 Notice of Eligibility

Applicants must receive written notification, on subgrantee official letterhead, of their eligibility status within thirty days of submitting their completed application to the WAP subgrantee. A copy of the applicant's Notice of Eligibility must be placed in the subgrantee's files. In small multifamily buildings where a notification is posted, one copy should be kept in the building's file.

SAMPLE NOTICE OF ELIGIBILITY

[Date]

[Name and address of applicant]

Dear _____:

Your application for weatherization services has been reviewed, and we are pleased to inform you that you are eligible for the Weatherization Assistance Program (WAP) based on the information that you provided.

Your application will remain valid and in our active files for twelve months from the date of this letter. If we are unable to serve you within this 12-month period, we will contact you to obtain updated information and/or documentation for your file, to ensure that you are still eligible for WAP services. You are required to notify us of any changes in the information supplied in your application as they occur and before the start of weatherization services. This includes any changes to your phone number or if you move from this residence.

Due to the number of households already on our waiting list for WAP services, we anticipate that we will be contacting you to schedule an energy audit of your home in approximately _____ [weeks/months/years, whichever applies]. Our staff will contact you at that time to arrange a date and time for our auditor to meet with you and conduct the audit.

Please contact us in the WAP office at _____ [phone number of contact person] if you have any questions or need to update your information.

Sincerely,

[Name and title of person reviewing applications and preparing this letter]

4.5.1 Incomplete Application

In cases where eligibility cannot be determined because applicants have not provided all required documents or have not signed where required, a follow-up letter should be sent requesting the missing information and/or documents.

SAMPLE INCOMPLETE APPLICATION NOTIFICATION

[Date]

[Name and address of applicant]

Dear _____:

Your application for weatherization services has been reviewed by our office; unfortunately, we are unable to make a final determination of your eligibility for the Weatherization Assistance Program (WAP) because you have not completed the application process.

[Examples of items to request]

- You need to provide additional information/documentation, as noted:
- Your application requires signatures.
- You have failed to respond to written notices sent on [date(s)].
- Other:

Please contact us in the WAP office at _____ [phone number of contact person] if you have any questions or to update your application. When you submit the requested information, we will finalize your application and notify you of your eligibility status.

Thank you for your interest in the WAP.

Sincerely,

[Name and title of person reviewing applications and preparing this letter]

4.6 Notice of Ineligibility

Applicants must receive written notification, on subgrantee official letterhead, of their eligibility status within thirty days of completed application submission to the WAP subgrantee. A Notice of Ineligibility must include the reason(s) for denial of WAP services. A copy of the applicant's Notice of Ineligibility must be placed in the subgrantee's files. In small multifamily buildings where a notification is posted, one copy should be kept in the building's file.

SAMPLE NOTICE OF INELIGIBILITY

[Date]

[Name and address of applicant]

Dear _____:

Your application for Weatherization Application Program (WAP) services has been reviewed by our office. Based on the information that you have provided; the application has been denied for the following reason(s):

[Examples of reasons for denial]

- Your income exceeds the WAP Income Limits for this program year.
- Your home was previously weatherized on _____ [date]. According to the WAP Policy and Procedures Manual, a residence that was weatherized after September 30, 1994, cannot be re-weatherized.
- Other _____.

If you wish to appeal this denial, please notify us, in writing, stating the reason(s) for your appeal. Upon receipt of this notification, your letter and application will be reviewed, and you will be notified of the final decision of your eligibility status.

Please contact us in the WAP office at _____ [phone number of contact person] if you have any questions. Thank you for your interest in the WAP.

Sincerely,

[Name and title of person reviewing applications and preparing this letter]

4.7 Appeals of Ineligibility

Applicants have the right to appeal an ineligibility determination. Refer to “Section 2.14 Dispute Resolution” for more information on CT WAP’s appeal policy and process.

5 Owner Participation and Tenant Protections

This section provides information on subgrantee agreements with owners and subcontractors and rules for owner participation in rental properties, including required tenant protections. It also describes procedures for qualifying buildings.

Agreements to install WAP measures, also known as “Weatherization Agreements,” are executed after the building is determined to qualify for weatherization assistance and an assessment has been conducted to determine the most cost-effective investments of WAP and other energy-efficiency funds in the building. The amount of WAP funding that will be invested in the building and any owner contribution must also be determined before the Agreement is executed. Often, health and safety testing and other public approvals are required before work can begin, and those steps generally must also be completed before an Agreement is executed. For more information on building assessments, the allowable level of investment of WAP funds, and related concerns, refer to “Section 6 Building Analysis and Work Standard” and “Section 10 Reporting.”

5.1 Building Qualification

Any building assisted with WAP funds must be qualified before any work is installed. Qualification includes documenting ownership, verifying that the building was not previously assisted with WAP funds, and, for small multi-family buildings, establishing that the building meets the specific requirements established by rule for rental projects. Subgrantees must have procedures in place to ensure that the property to be weatherized is eligible.

Subgrantees may not refuse to weatherize an otherwise eligible rental property. Weatherization services are to be provided to owner-occupied and rental units alike with no priority given to either. Applications from households who are renting should be ranked and verified in the same manner as used with households that own the home in which they live.

5.1.1 Documentation of Ownership

Only the owner of the property or an authorized representative may authorize weatherization work on the eligible unit, and they must approve all weatherization work. Homeownership must be verified through contact by the subgrantee staff with the local assessor's office. If the client is not listed on the deed; or additional individuals (such as a spouse) listed on the deed are not on the energy application, further review is required to verify permission authority (and household makeup). This additional review may take the form of a client interview, followed up by documentation verifying what was said by the client (e.g., in a matter of divorce, the Subgrantee would get verification to that effect). Ownership of the property must be verified in all cases, regardless of who is occupying or managing it.

This step is critical, as weatherization work may not begin until home ownership is verified, proper permission is obtained, and all household information is deemed accurate. If it is discovered that an ineligible client is weatherized, costs will be disallowed by CT WAP.

Verification of ownership must be obtained for all buildings, regardless of whether they are owner-occupied or rental properties. The following documents are acceptable proofs of ownership:

- Copy of deed showing the name of the owner.
- Copy of mortgage, or mortgage payment book, or statement from the mortgage holder.
- Real estate tax bill or receipt for the address being weatherized.
- Written statement from the local tax assessor's office, county or tribal clerk, or deeds commissioner.
- Mobile home bill of sale.
- Copy of a recorded land contract.

The address on the proof of ownership must be the same as the address at which the unit to be weatherized is located.

5.1.2 Proof of Tenancy

If the unit to be weatherized is a rental, proof of the applicant's tenancy must be obtained. The preferable documentation to prove tenancy is a lease, rent receipt or a written statement. Such documents must include the applicant's name; the address of the unit to be weatherized; and the name, date, and signature of the owner, landlord, or other authorized representative.

5.1.3 Small-Family Building Qualification

Single-family buildings are eligible for weatherization if occupied by an eligible household, based on program guidelines, and not otherwise ineligible as detailed below.

5.1.4 Small Multi-Family Building Qualification

Weatherization of small multi-unit buildings (duplexes and buildings with up to four units) requires that at least 50% of the units must be occupied by eligible households, as defined in the program guidelines above.

This also means that an application and qualification determination are not necessary for the other, non-eligible, or empty units.

Once a building has been determined to qualify, any measure that would improve the energy efficiency of the entire building may be installed in any building unit (following the usual procedures from prioritizing cost-effective measures described in "Section 6 Building Analysis and Work Standards"). Subgrantees are reminded that DOE guidance (WPN 22-12) limits average cost-per-unit calculations to eligible units. While this limit is calculated on a contract-wide basis, subgrantees must keep it in mind when determining the investment level for a particular building to meet their budgeted cost-per-unit requirement and avoid disallowed costs.

See 10 CFR 440.22(b) for additional information.

5.1.5 Previously Assisted Buildings

Buildings that received assistance with WAP funds within 15 years from the date of the previous final inspection, are not eligible to receive additional investments of WAP funds except in certain circumstances. Subgrantees must verify that each building applying for funds has not been previously assisted prior to executing a Weatherization Agreement.

5.1.6 Re-Weatherization

Pursuant to 42 U.S.C. § 6865(c)(2), weatherization program funds may not be used to re-weatherize a dwelling until the date that is 15 years after the date such previous weatherization was completed, and DEEP approves the re-weatherization. This applies regardless of who resided in the dwelling at the time,

or since. It is the responsibility of Subgrantees to determine whether a dwelling has already received weatherization services and the date on which those services occurred.

Lookback List: Each Subgrantee is to utilize Hancock to conduct Lookback to determine if an eligible dwelling has been previously weatherized within the last 15 years. At the conclusion of each program year each Subgrantee is to provide an updated list of all dwellings weatherized within the past 15 years. This list is then utilized to update Hancock prior to the start of the next program year.

Funding Note: The re-weatherization of an unqualified, previously weatherized dwelling will result in questioned or disallowed costs to Subgrantees. Since many other dwellings have never received services, preference shall not be given to previously weatherized dwellings.

Reporting Note: All dwellings previously weatherized under a federally funded program have already been counted and reported as a weatherized dwelling. Re-weatherized units shall be reported separately as a re-weatherized unit.

5.2 Weatherization Agreements

Subgrantees must have procedures in place to ensure that written permission is obtained from the actual property owner prior to commencing any weatherization work. The consent to proceed must be obtained using the current version of the Weatherization Agreement.

The Weatherization Agreement memorializes the owner's permission for weatherization personnel to conduct the energy audit and install appropriate weatherization measures. The owner shall agree that such services will be performed within available funding, as cost-justified by the energy audit or as required for H&S reasons, and within other determinations and limitations defined by agency policies and procedures.

The owner shall affirm that the property is not under foreclosure, nor is it for sale, nor will it be for sale within six months of the date the weatherization work is reported as complete.

The Weatherization Agreement must be signed by the owner of the unit and, where applicable, the tenant. If the unit is a rental, additional stipulations apply. The Agreement lists eligible units and rents charged, note any vacant units, and detail the work scope, including the individual work items that the subgrantee is responsible for and any work the owner agrees to complete.

The terms and conditions of the Weatherization Agreement should be thoroughly reviewed with the building owner and tenant prior to signing. It is the responsibility of the owner to understand the Agreement, and the responsibility of the subgrantee to make sure the owner has all information needed to understand the Agreement and to answer any questions the owner has or that arise in connection with the Agreement.

5.3 Tenant Protections

WAP owner agreements place restrictions on buildings that receive investments of WAP funds. These restrictions are in force for a period of not less than two years:

- An owner of a building assisted with WAP funds may not raise the rent of any units in the building based on the investment of WAP fund in the building.
- An owner of a building assisted with WAP funds may not evict or involuntarily remove any tenant in a weatherized unit for the same period, if the tenant complies with all on-going obligations and responsibilities to the owner.

These restrictions are outlined in the Tenant Synopsis (below).

If the owner violates either of these restrictions, it shall be considered an event of default of the Weatherization Agreement, and the owner will be billed by the subgrantee for a share of the amount of the WAP investment in the building.

5.3.1 Tenant Synopsis of the Weatherization Agreement

All tenants in a rental building that is being weatherized must be given a copy of the Tenant Synopsis of the Weatherization Agreement. This is a plain-language explanation of the Weatherization Agreement and notifies the tenants of their rights under the Weatherization Agreement. The Tenant Synopsis should be completely filled in before the tenant is given a copy of the document.

The Tenant Synopsis explains that rent increases are restricted for the term of the Weatherization Agreement, that the restrictions carry forward to new tenants during the term, and that successive owners are bound by the restrictions if the building is sold. It lists the conditions under which the owner may increase the rent and other rights that tenants have, including the ability to file a claim in court against improper rent increases and the right to view a copy of the Weatherization Agreement for the building in which the tenant resides. Subgrantees must provide one copy of the Weatherization Agreement to any tenant that requests it.

5.3.2 Renter Eviction Limitations

The property owner shall agree that once the weatherization work is completed, there will be no eviction or removal of tenants for a period of two (2) years as long as the tenant complies with every ongoing obligation and responsibility owed to the owner.

If such eviction or removal occurs, the owner will be asked by Subgrantees to justify the reason for the action. If no adequate justification (i.e., nonpayment of rent, refusal to agree to fair and equitable rent increases unrelated to weatherization work, illegal use of the property, etc.) for the eviction is provided, the Subgrantee may initiate action against the owner in a demand letter to recover, within a defined period, the full cost of the weatherization work completed on the unit. Follow-up action against the

owner may include necessary legal action for the breach of the signed agreement. Appropriate justification for eviction of a tenant may include factors such as recurring non-payment of rent, destruction of the property, or any legally valid reason for eviction as defined in state or local laws.

If the eviction does not appear to be justified, Subgrantees should also refer the tenant to legal services available in the area for possible action.

5.3.3 Subsidized Units

The weatherization of a unit does not affect the status of a tenant who is in a low-income, federally subsidized unit. No change in the recipient's eligibility or the terms or status of the rental contract or agreement may be made under such programs because of the weatherization benefit. This includes the Housing Choice Voucher Program (Section 8) administered by HUD.

5.3.4 Rent Increase Prohibition

For a period of two (2) years from the date the weatherization work is completed, there may be no increase in the rent charged for the weatherized unit solely as a result of the weatherization work.

The property owner will be asked by Subgrantees to justify any increase in the rent that occurs in the two-year period. Unless increases can be shown to be related to specific matters other than the weatherization improvements, Subgrantees may initiate action against the owner to recover the full cost of the weatherization work completed on the unit. Follow-up action against the owner may include necessary legal action for the breach of the signed Weatherization Agreement.

Possible justifications for an increase include factors that are beyond the value of the completed weatherization work. An increase in the owner's property taxes may, for example, is a justifiable reason beyond weatherization for a rent increase.

Any dispute of the circumstances for a rent increase will be reviewed by the Subgrantee's weatherization management to determine whether the increase is justified. The determination may also be reviewed by CT WAP, if requested by the parties involved.

5.4 Subcontractor Agreements

Subgrantees that use subcontractors to complete work on assisted buildings must follow the procurement procedures contained in "Section 13.8.3 Contractor Agreement for Services" of this manual and must execute an agreement with each subcontractor for the specific work to be completed. Subgrantees that subcontract for work performed with WAP funds must use a subcontractor agreement. This agreement must bind the parties to follow CT WAP rules in completing WAP-funded work and provides for certain rights and remedies in the event of default or non-performance by a subcontractor. Subgrantees are responsible for ensuring that the provisions of the subcontractor agreement are enforced. Subgrantees may not enter into side agreements with subcontractors for work on a project where WAP funds are invested.

6 Building Analysis and Work Standards

The purpose of this section is to detail the requirements and procedures for analyzing buildings to be weatherized, performing energy conservation measures (ECMs), identifying Health and Safety (H&S) measures vs. Incidental Repair Measures (IRMs), and to explain the procedures for quality assurance in assisted units.

6.1 General Weatherization Requirements

All Work performed and reported to DOE as completed must follow WPN DOE's WPN 22-4 and the CT WAP Quality Work Plan requirements, Connecticut Weatherization Field Guide, and the current CT WAP State Plan.

Weatherization program requirements and standards are further detailed in the following references:

- 2 C.F.R. 200;
- 10 C.F.R. Part 440;
- DOE Weatherization Program Notices;
- Connecticut Weatherization Guidance Notices;
- State and Local Housing Codes;
- State Licensing and Certification requirements for weatherization workers;
- DOE Approved CT WAP Plans including: State Plan, Health and Safety Plan, Quality Work Plan, and Weatherization Readiness Funds Plan;
- Permits in alignment with local Authority Having Jurisdiction (AHJ);
- Connecticut Weatherization Field Guide; and,
- Applicable provisions of the National Historic Preservation Act (NHPA), and National Environmental Protection Act (NEPA).

Weatherization measures installed and procedures that do not comply with CT WAP standards shall result in questioned and/or disallowed costs for the weatherization work completed on a unit.

6.1.1 Subgrantee and Contractor Staff Expectations

AS CT WAP representatives, subgrantee and contractor staff must behave professionally at all times. They must also use all required Protective Personal Equipment (PPE) to comply with Federal, State, and AHJ Codes or Program Policies, including, but not limited to, the Occupational Safety and Health Act (OSHA) and the EPA RRP Lead Safe Weatherization Rules.

When contracting work, Subgrantees must contractually require that the weatherization work is completed by contractor employees. This includes a stipulation that the contractor may not further subcontract work without the specific, express permission of Subgrantees.

Contractors installing weatherization measures must have a qualified Crew Chief/Supervisor at the work site at all times.

Prohibited Activities

- Use of alcoholic beverages, illegal drugs, or the inappropriate use of prescription drugs while on the job or in interactions with the client;
- Harassment, including but not limited to, sexual harassment;
- Engaging in any discussion of work, or the performance of work, with the client either at no-cost or at-cost of the client outside of the scope of work with the client;
- Violence against self, other staff, or the client;
- Presence of weapons or firearms at the job site; and
- All other illegal activities not specified above.

6.1.2 Workmanship

Weatherization work, whether conducted by the Subgrantee's crews or by subcontracted personnel, must meet the standards of workmanship established by the program. Standard work practices are detailed in the Connecticut Weatherization Field Guide and the CT WAP Quality Work Plan.

Workmanship standards include the following four basic requirements:

- Use of qualified and trained personnel to conduct weatherization work;
- Use of generally accepted weatherization protocols, methods, techniques, and tools;
- Installation of prescribed materials, parts, and equipment; and,
- Weatherization work conducted in a safe and healthy work environment.

Jobs and job sites will be monitored by CT WAP to ensure that agency crews and contractors abide by these general workmanship standards.

6.2 Single-Family, Small Multi-Family, and Manufactured Housing

While there are many commonalities and shared skill sets for working on the different types of buildings in the CT WAP, some of the processes and program requirements will differ for performing weatherization work on Single-Family, Small Multi-Family), and Manufactured Housing.

CT WAP defines Single-Family as a site built independently functioning 1-2 unit dwellings that are under 10,000 SqFt and 3 Stories or less. Subtypes include: Detached, Townhomes, and Duplexes (Attached).

CT WAP defines a Small Multi-Family dwelling as 3-4 site-built attached units that are 10,000 Sq Ft or less and 3 or fewer stories. Subtypes include: Triplex and Quadplex

CT WAP defines Manufactured Dwelling as a single family detached home that is manufactured entirely in a under a federal building code administered by HUD. Manufactured homes may be single or multi-section and are transported to the site and installed. May or may not be bulit on a foundation.

6.3 Home Energy Audit

It is the responsibility of the Subgrantees to install cost-effective, quality, and effective weatherization measures. The Energy Auditor, through a DOE-approved comprehensive energy audit procedure, will test where appropriate and allowable, record, and document energy-related building characteristics and related Health and Safety conditions, and utilize the collected information to create a CT WAP scope of work. The Scope of work is entered into the DOE-approved energy audit software for the building type. Currently, CT WAP utilizes the following software for energy audit:

- National Energy Audit Tool (NEAT) for single-family and small multi-family (less than 10,000 SF, and no more than 4 units) buildings
- Manufactured Home Energy Audit (MHEA) for manufactured housing/ mobile homes

NEAT and MHEA will assess building energy use and provide a savings-to-investment ratio (SIR) for potential energy conservation measures (ECMs) that could be undertaken in the unit to improve energy efficiency.

6.3.1 Audit Software

CT WAP uses the software Weatherization Assistant Web-Based (NEAT, MHEA) as a tool for the auditor's final determination of the measures to be taken in the unit. This software, produced by the Oak Ridge National Laboratories, is approved by DOE for use in Connecticut.

Every authorized energy auditor in Connecticut has been granted access to NEAT and MHEA, with a personal login to the software that allows for secure operation and effective tracking of the audit for each unit.

The energy auditors are required to personally input their own audit details in order to ensure the accurate entry of the audit details into the NEAT, MHEA system. Logins may not be shared with other local staff. Audits may not be shared with other office staff for their input. Subgrantees must take care to institute procedures that ensure this data integrity and security.

These auditing tools and processes are supported by recurring training sessions for weatherization directors and auditors, as well as for crews and program staff who request or are required to attend.

6.3.2 Preparation for Auditing

Preparation time is important so that the auditor arrives with the proper knowledge of the unit, the requisite paperwork and the equipment needed to properly analyze the unit. Subgrantees should have a standard auditor's packet made up of the information and forms required by the auditor to effectively complete the audit. Some of the common forms in such a packet may include the following:

- Weatherization Eligibility Documentation file copies: Approved LIHEAP application, LIHEAP Award Letter, utility bill summaries, Fuel vendor delivery summaries, building eligibility

determination other owner verification from the Assessor's Office (typically a Unit Parcel Summary from Vision Appraisal or another website)

- A blank Data Collection Sheet;
- Blower Door Air-Sealing Input Sheet/Work Order;
- Weatherization Agreement;
- Brochure: A Citizen's Guide to Radon (EPA);
- Brochure: A Brief Guide to Mold, Moisture and Your Home (EPA);
- Brochure: The Lead-Safe Certified Guide to Renovate Right (EPA);
- Brochure: Energy Savings Tips (HES);
- Smoke Detector & Carbon Monoxide Disclaimer Form;
- Mold Disclaimer Form;
- Notice of Postponement/Deferral of Services;
- Sidewall Insulation Waiver;
- Connecticut Lead Pre-Renovation Form (Lead paint compliance form, as applicable); and/or
- Subgrantee's Forms and Brochures

Once the energy auditor has become familiar with the case, a call is made to the client to initiate the audit appointment. This is a good opportunity to address any questions about the family's circumstances or to obtain information about the condition of the unit. The auditor should begin to explain the audit process with this call.

The auditor will make the appointment at a mutually agreed-upon date and time. Auditors should also confirm the audit visit on the day before the appointment. All scheduling must comply with CT WAP Guidance 25-5.

The auditor should arrive at the home with all specialized tools and equipment necessary to effectively evaluate and determine the required weatherization measures.

H&S Concern: During the initial scheduling contact with the client, any known client H&S concerns must be identified, noted, and communicated with any workers involved with the weatherization prior to the site visit. The auditor must check with the client before running the blower door test to ensure that this test will not exacerbate any health and safety (H&S) issues present in the home. Additionally, contractors should check with the client again before beginning weatherization work so that the work will not create or worsen any H&S concerns. If H&S issues are identified at any point during the weatherization process, all work should be paused until the H&S issue can be remediated.

6.3.3 Fuel Library Pricing in NEAT and MHEA

CT WAP will ensure that the fuel pricing is updated in WAweb annually prior to the start of a new program year. The fuel pricing will be set statewide based on Three Year EIA averages at least two weeks before the start of a new program year. Once the Grantee has determined the new fuel pricing, the time will be scheduled to meet with each Subgrantee to ensure outdated fuel pricing libraries are deactivated and the current fuel pricing is activated. The Grantee will verify the current fuel pricing is being utilized through periodic monitoring.

6.3.4 Energy Audit Process

Before a building analysis is conducted, the subgrantee must meet with the owner and provide the following:

- Weatherization Assistance Program Information
- Weatherization Agreement

For small multifamily buildings, the subgrantee must document the eligibility of the units in the building and collect the building information for the preliminary building analysis, utilizing the following document and information:

- Multi-family Energy Information
- Preliminary Building Weatherization Agreement – Rental
- Two-year fuel data
- Documentation showing that each building qualifies for assistance

The building analysis must include each of the following diagnostic actions/measures:

- For 1–4-unit projects, interview the applicant household(s) and complete a Health and Safety Intake Survey for each occupied unit to assist in identifying any existing indoor environmental hazards for each household; provide appropriate client education as necessary.
- For small multifamily projects, interview the owner, management agent or building supervisor to become familiar with building conditions, characteristics and occupancy or management practices, and complete the Health and Safety Intake Survey; discuss with, or provide client education to, management and/or individual households for any specific concerns that may have been discovered.
- Inspect for existing H&S Hazards, including but not limited to potential Lead Based Paint hazards, Asbestos, Vermiculite, Fuel line leaks, Moisture, Mold or Mildew problems.
- Determine and document with photos the Notice of Postponement form if vermiculite or asbestos is present and friable.
- Determine and document the existence of any other H&S issues, also using the Notice of Postponement form.

- Conduct indoor air quality (IAQ) tests and document results on the appropriate program forms.
- Assess adequacy of ventilation / venting systems for addressing IAQ by measuring an appropriate sample of exhaust fan flow rates (cfm only) relative to ASHRAE 62.2 and CT WAP requirements.
- Blower-door test for air infiltration/exfiltration, except in certain multifamily buildings or where certain H&S hazards or conditions, as identified in this Ops Manual (SS5.07 Health and Safety), have been determined to exist, making blower door testing prohibited.
- Assess overall condition of structure, including the proper identification of the heated envelope; determine condition and document effectiveness of any previous weatherization efforts, if any.
- Identify and record building component materials and features that will be relied on to determine the conductive heat loss estimate.
- Perform steady-state efficiency (SSE) test for heating appliance efficiency when possible.
- Assessment of heating distribution system efficiency and related controls when appropriate (includes assessment and testing for duct leakage per DOE's Standard Work Specifications [SWS]. See Section 8.15 "Evaluating Duct Air Leakage" in the CT Weatherization Field Guide for specific instructions on testing duct leakage. Duct Blasters should be utilized in accordance with BPI Building Analyst training; utilizing pressure pans in manufactured housing to determine leak proximity is a best practice.
- Determine whether any problems may exist with the way the household or building maintenance uses/maintains the heating system.
- Conduct base load usage analysis.
- Perform Fuel analysis.

The NEAT or MHEA data collection forms, the auditor's notes, unit diagrams, and digital photos will all be assembled by the auditor to make recommendations for the weatherization measures. Audit results are entered by the energy auditor who performed the audit into the WAWeb (see "Section 6.3 Home Energy Audit" for more information) to perform the SIR analysis and assist in the formulation of work orders for the unit.

The energy auditor must complete a comprehensive energy audit in accordance with CT WAP policy using the appropriate approved audit format. Health, safety, and repair issues should also be properly addressed.

The completed audit recommendations must always be submitted for further review by a second party. Generally, this would be the Weatherization Coordinator, supervisor or other knowledgeable staff person assigned to the review. This approval also applies to any changes to the Recommended Measures Report (RMR) (see more information on "Section 6.3.5 Recommended Measures Report

(RMR)"). The second-party review is a required step in the process, which must be completed with each audit and documented in the client file. Only after the reviewer has approved the measures listed on the Recommended Measures Report, may the weatherization proceed. It is suggested that the reviewer also be the person who assigns the weatherization work order to the Subgrantee crew or contracted installers.

The reviewer checks the measures to ensure they are entered correctly by carefully examining all data on different screens in NEAT or MHEA. There must not be an error message or a blank cell under the description column. If there is an error message or a blank description on the Cost and Savings Screen - All Item View, the reviewer must double-click into the measure(s) and make the necessary corrections before moving to the next step. The reviewer must be identified, and sign-off must be completed on all reviews conducted.

After the plans are approved, the actual assignment of measures to individual installers should be made by someone other than the energy auditor.

Once the installer has been determined by the subgrantee the audit information is entered in the software using that installer's specific price information.

For additional guidance, see the CT Weatherization Field Guide for best practices.

6.3.5 Recommended Measures Report (RMR)

The audit results and recommendations are entered into the NEAT, MHEA screens from the energy auditor's **Data Collection Form** and other audit notes on the unit. The software will then assist the auditor by analyzing the data submitted and determining the acceptable measures, reject others, and prioritize them by cost-effectiveness. The NEAT, MHEA program will produce the initial audit report as the Recommended Measures Report (RMR). Also referred to as The NEAT or MHEA Recommended Measures Report, the RMR will include:

- Audit data, including key test results;
- Accepted weatherization measures in order of priority, based on cost-effectiveness (including incidental repairs as part of each measure);
- Approved General Heat Waste measures (DOE pre-approved measures not subject to SIR); and
- Approved H&S activities (also not subject to the SIR).; and
- Client energy education or other steps already taken by the auditor must be documented in order to produce an accurate and thorough RMR audit report.

See the Connecticut Weatherization Audit Tool Procedures Manual for additional data entry instructions.

NEAT/MHEA computes the SIR for each measure and the overall SIR rating for each unit's package of measures. If the overall SIR of 1:1 standard is not met, the audit must be completely reviewed, changed according to priority and re-entered.

Anytime the approved measures subsequently change, the entire list of measures must be re-entered in order for the software to prioritize individual ratings and compute the new overall rating properly.

6.3.6 Supply / Measure Cost Library Pricing in NEAT and MHEA

Supply/Measure Cost Libraries are to be updated at least once within each program cycle to ensure the best pricing is provided for completing high-quality and effective weatherization work. A fair and competitive procurement process informs the pricing updates. Each subgrantee is responsible for conducting this procurement process within their respective service territory, following all applicable federal and state rules and regulations. The Grantee will review all procurements once completed to ensure that the selected service providers are providing all measures at reasonable prices that allow for quality and effective weatherization work to be completed. Once the procurement is approved, the Grantee will work with the Subgrantee to ensure all measure pricing is updated correctly and that all outdated pricing is deactivated in WAweb. The Grantee will verify that the correct measure pricing is being utilized through periodic monitoring.

All proposed work screened in the NEAT, MHEA software will utilize the current Program Year CT WAP Setup Library, no exceptions.

As the price of some measures may vary with the assigned installer, once the installer is chosen, the prices must be assigned using the appropriate supply library in the audit software. At this point the RMR is designated as "contracted". The reset, actual price(s) on the contracted RMR could make a difference in the acceptability and priority assigned to the measures.

If the price(s) update results in the package of measures not meeting the overall SIR, the entire audit must be reviewed and re-entered, as explained above.

6.3.7 Energy Auditor Separation of Duties

In no instance may the energy auditor be employed by, or in any way represent, the company that performs any of the weatherization installations, or any other work, on a given unit. Within the Subgrantees' organization, the individual assigning weatherization installation to a given crew or subcontractor must be different than the individual who conducted the energy audit.

6.3.8 Audit Timeline

All applicants eligible for weatherization assistance must have an energy audit completed on their unit within twelve (12) months of the certification of their eligibility. There will be no extensions of

certification given for audits that are unable to be performed within this timeframe.

If more than twelve months have passed, the client must be re-certified by the Subgrantee or referring CAA the original, certifying CAA under the guidelines established for that application period, in order to determine if the energy audit can be performed.

Troubleshooting:

The Connecticut Weatherization Audit Tool Procedures Manual will serve as the primary help resource. If additional assistance is required, Subgrantees are to contact the Grantee, who will coordinate the State Technical Support providers to provide assistance. If after a good faith effort has been made to address the issue has been completed and the issue persists the Weatherization Assistant Helpdesk will serve as a backup resource for NEAT, MHEA use in CT WAP.

6.3.9 Unit Identification

The energy auditor must identify the unit and its occupants using the definitions provided in 10 C.F.R. Part 440. The type of unit being audited, as well as the unit's occupants, can make a difference in the auditor's recommended measures. Unit types and occupant types are also collected for required statistical reporting purposes.

Unit Classification

The energy auditor must identify the type of unit under 10 C.F.R. Part 440. The following DOE defined unit types are to be identified:

- Owner Occupied Single-Family
- Renter Occupied Single-Family
- Owner-Occupied 2-4 Units per Site
- Renter Occupied 2-4 Units per Site
- Multifamily, 5 or more units per Site
- Owner-Occupied Mobile Home
- Renter-Occupied Mobile Home
- Other (specify)

Unit Occupancy Types

The occupancy classification of the client is also identified by the Subgrantee for eligibility and reporting purposes. DOE regulations identify the following unit occupancy types under 10 C.F.R. Part 440:

- Elderly-Occupied

- Disabled-Occupied
- Native American-Occupied
- Children-Occupied (at or under age 5)
- High Residential Energy User (greater than $2,500 annual energy cost)
- Household with High Energy Burden (greater than 10% of household income)
- Other (specify)

6.4 Energy Conservation Measures (ECM), Incidental Repair Measures (IRMs), and Health and Safety (H&S) Measures

CT WAP allows subgrantees flexibility in determining work scopes to enable a more comprehensive approach to serving low-income households. Certain repairs may be completed in the course of providing WAP assistance. The overall goal of WAP is to reduce energy use by improving energy efficiency while ensuring health and safety (H&S); therefore, all repairs provided as part of WAP must be incidental repairs designed to protect or supplement WAP's energy conservation measures over the course of their life.

The incidental repair measure (IRM) category is intended for measures that are not typically part of the installation of an energy conservation measure (ECM) and/or fall outside the manufacturer's or industry standard for installation. WAP funds used to make incidental repairs should not exceed 15% of the total ECM WAP cost for the project.

To be in alignment with program policy, incidental repair costs are only allowable if the cumulative job SIR remains at 1.0 or greater.

H&S measures are those actions necessary to maintain the physical well-being of both the occupants and/or weatherization workers, where actions must be taken to effectively perform weatherization work, or the actions are necessary as a result of weatherization work.

However, there are some instances where, depending on circumstances, the measure can qualify as either a H&S measure or an ECM, such as a heating appliance replacement. According to the DOE, when the measure generates an SIR greater than 1, it must be treated as an ECM. The measure may be considered for H&S repair or replacement only after it is determined that the measure is not cost-effective (i.e., SIR < 1).

The H&S category has its own budget line and, as a result, H&S measure costs are not included in the ACPU calculation, nor are they required to generate an SIR > 1.

Ventilation may be addressed in situations where it is necessary to mitigate H&S problems encountered in a dwelling unit being weatherized. If it is being installed to mitigate an H&S issue or meet the ASHRAE standard, it qualifies as a H&S measure, not an incidental repair.

Replacing a heating appliance or repairing the distribution system is an allowable expense when it is shown to increase the efficiency, improve the useful life of the system, and/ or provides for the proper distribution of heat to living spaces. If the proposed heating appliance and /or distribution system work generates an SIR greater than 1, then it must be completed and charged as an ECM. If it does not generate an SIR of 1.0 or greater, but addresses a documented H&S issue, then it can be charged to H&S.

Chimneys may be re-lined or repaired when the existing chimney condition creates an unsafe or

inefficient condition during the operation of combustion appliances. In situations where an existing chimney is inadequate for the proper venting of combustion appliances, alternative cost-effective methods of venting those appliances must be explored, and the most cost-effective measure utilized. This is typically done as an H&S measure.

Hard-wired lighting fixtures may be replaced when existing fixtures are unsafe and/or to accommodate more energy-efficient light to ensure future energy savings. If the lighting fixture(s) is determined to be unsafe but does not meet the program's protocol for generating an SIR >1, it may be replaced as a H&S measure to remediate the unsafe condition. Otherwise, if lighting meets the established lighting protocols, it can be modeled and should generate a cost-effective SIR, thereby falling into the category of an ECM, not an IRM or a H&S measure.

Ground Fault Circuit Interrupters (GFCIs) may be installed if one is required to ensure the safe installation of a WAP measure. This can be done as a H&S measure.

A roof may be repaired only when this work is necessary to protect a weatherization measure that has been previously installed or is being proposed as part of the work scope for the structure.

Where minor roof repair is necessary to address an existing H&S issue and is not tied to a specific ECM or group of ECMs, it may be done as a H&S measure to remediate the documented H&S issue. Roof replacement using WAP funding is not an allowable activity. When the combined cost of roof repair with insulation drives an SIR of 1 or greater the repair cost can be included as part of the eligible ECM. If the repair cost added to the insulation measure reduces the SIR of the individual ECM below 1, the repair cost can be considered an IRM, as it protects the weatherization measure (insulation in our example) being installed.

In rental properties where the SIR is less than 1, funds provided by a non-income-eligible owner, or another funding source, can be used to offset the cost of the repair. However, all measures that were cost-effective after the initial energy audit is conducted must remain a part of the list of measures to be considered for weatherization.

For more information on H&S, review “Section 7 Health and Safety Testing.”

Measures in multifamily projects that did not attain a cost-effective SIR > 1.0 can only be considered for buy down if all the cost-effective measures in the initial audit are also performed or installed (per WPN 16-5). This is the DOE requirement, regardless of the auditing software used.

6.5 Savings-To-Investment Ratio (SIR)

In the audit process, the work scope is based in part on completing those energy-related measures that have reached an SIR greater than or equal to 1.0. An SIR of 1.0 or more means that over the expected life of the measure the expected energy savings from installing the measure is equal to or greater than the initial cost of installation.

Deciding which energy-related measures to complete must be based first on those measures that have an SIR of 1.0 or greater. Prioritization of measures should be based on the SIR, so that the higher the SIR, the higher the priority. Per DOE WPN 23-6, those measures that meet the SIR, and are selected to be installed in the project, must be selected in order of cost effectiveness; higher SIR (priority or 'major') measures may not be skipped.

In WPN 23-6, Attachment 8, "Measure skipping" is defined as follows: Not selecting for installation, in order of decreasing Savings to Investment Ratio (SIR), the cost-justified Energy Conservation Measures (ECMs) and related Incidental Repairs Measures (IRMs) included in the work scope produced by the approved energy audit tool.

"Major Measure" is defined as follows: A high priority measure, which if skipped, would result in "partial" weatherization of a unit. Major measures are as follows: air sealing, duct sealing of ducts outside the thermal boundary, attic insulation, wall insulation and floor or belly insulation.

In accordance with WPN 23-6, Attachment 8, measure skipping of cost-justified major measures is not permitted at any time. Measure skipping of non-major measures is allowed. In these instances, the energy auditor must include in the client file a comprehensive justification, including background and/ or source documents that support the decision to skip that specific measure.

All weatherization measures installed must be "cost effective" as defined by DOE, except for the cost of measures to eliminate health and safety (H&S) hazards that meet the CT WAP's approved H&S plan.

In accordance with DOE's WPN 23-6, "all weatherization measures must be "cost-effective" as defined by DOE, except for measures to eliminate health and safety (H&S) hazards." "Cost-effective" means that each measure and package of measures installed in a dwelling unit must have a savings-to-investment ratio (SIR) that meets or exceeds 1.0. There is a single exception: blower door assisted air sealing may have an SIR less than 1.0, as long as the cumulative SIR of the package of measures is equal to or greater than 1.0, not including H&S measures.

If all funds available to be spent on the job will not cover the entire work scope, then measures may be removed from the work order starting with the lowest SIR measure, with the exception of major measures, and working up the list from there. The work order must remain overall cost-effective, or the job must be deferred.

Necessary Health and Safety (H&S) measures may NOT be removed from the work scope; however,

ECMs can be removed in the manner described, with the exception of major measures. If a building owner or occupant declines a measure in the energy audit that meets the SIR requirement, first try to educate the client as to why the measure cannot be skipped.

If the client still declines the measure, the auditor must determine if the reason for declining is legitimate.

If the auditor feels that a significant WAP work scope can still be completed, performing only those measures that have an SIR higher than the declined measure, they may proceed after notifying and receiving permission from the Grantee . However, cost-effective major measures and required H&S measures may not be skipped, as this would result in an incomplete, ineffective weatherization work scope.

Prior to work beginning, client education is important in order to inform a client of planned measures and material use. Resistance from a client to install any measures and/or materials planned as a result of an energy audit-directed work order should be addressed with either additional education and/or re-running the energy audit with a different – but acceptable – material to determine if the substitute material is cost-effective.

If no cost-effective option for the material can be identified, the auditor should again explain and discuss the situation with the building owner or occupant. If the building owner or occupant still declines a measure, not defined as a cost-effective major measure, or a required H&S measure, the auditor must include in the client file a comprehensive justification, including background/source documents that support the decision to skip a specific measure. All other weatherization measures must be installed.

If the auditor cannot access background/source documents that justify the building owner/occupant's decision to decline a measure, or the measure is defined as a "cost effective major measure" or a required H&S measure, the situation must be fully documented in the building file and the job must be deferred due to client refusal. Deviating from the audit prioritized list of measures would conflict with the intent of the rules. The situation must be fully explained to the client verbally and in writing when necessary. See Attachment 8 to WPN 23-6 for more information on measure skipping.

A prioritized Energy Conservation Measure (ECM) and any Health and Safety hazard may not be ignored. This is required by 10 CFR Part 440.

Whether or not the problem is pre-existing or might be created by a weatherization measure, deferral of the job must be a consideration until other funding is available for correction (if out of the scope of the WAP).

The weatherization measure may not be skipped in an attempt to avoid a health and safety issue. The only possible exception is if the ECM will cause a health and safety issue, and the ECM has the lowest SIR. Then a full explanation must be documented in the building file and the client must be informed, in writing, that the unit cannot receive additional WAP services after the allowable measures are

completed.

Due to scheduling considerations, lower-priority measures are sometimes installed first. Per WPN 23-6, if, after a job has begun, the client declines a higher-priority measure, work must stop at the time the client declines the higher-priority measure. DOE states no further installation is allowed, and the job must be inspected by a Quality Control Inspector (QCI) and closed out as a completed unit. Again, this should be clearly explained in the building file documentation, and the client must be informed, in writing, that the unit cannot receive additional WAP services after the inspection is completed as a result of their refusal.

Measures proposed for mobile homes and non-rental residential properties must have an SIR of 1.0 or better. In income-eligible, owner-occupied units, energy-related measures with a SIR of less than 1 cannot be completed unless a subgrantee has received non-WAP financing to cover the difference.

In multi-family projects or other projects that incorporate an owner contribution, when an SIR of 1 cannot be achieved, the measure may be completed if owner funds are used to reach the required SIR. The use of WAP funds must be prorated based on a percentage that matches the SIR. For example, if an energy-related measure achieves only a SIR of 0.6, WAP funds will only cover 60% of the total cost of that measure. Owner funds can be used for the additional 40% of the cost.

Per DOE, all measures that were cost-effective after the initial energy audit is conducted must remain a part of the list of measures to be completed on the building. Measures that did not achieve an initial SIR of 1.0 can only be considered for buying down if all the cost-effective measures identified in the initial audit are also implemented.

A Subgrantee's payment for an energy efficiency measure that is not cost-effective, as determined by both the individual and the overall SIR calculations, is not an allowable cost. Such costs will be disallowed in a weatherization monitoring or fiscal audit.

6.6 Weatherization Tools

Weatherization work requires the expert use of a number of specialized tools. The contractor must provide the necessary tools for the job. Subgrantees must require this contractually and periodically monitor the use of proper tools and equipment at the job site.

Some typical weatherization tools include:

- Auditing Tools: Blower Door (with frame, shroud, digital manometer, tubing, probes, smoke bottle), duct leakage performance tester (Duct Blaster), gas leak detector, combustion analyzer, CO detector, draft gauge, moisture meter, exhaust vent flow hood, air flow meter, borescope visual inspection equipment, infrared camera, digital camera, tape measure, flashlight, pocket thermometer, non-contact voltage detector, circuit tester, volt/amp meter, vacuum cleaner with HEPA filter, fire extinguisher, first aid kit, step ladder, calculator, clipboard, paperwork, and audit and notice forms.
- Pressure Diagnostic Tools: Blower Door (with frame, shroud, digital manometer, tubing, probes, smoke bottle), probe (for zonal tests), hose kit, smoke bottle/ stick; duct leakage performance tester, exhaust flow hood, air flow meter, duct mask sheets, flex duct, pressure/flow gauge.
- Insulation Tools: Insulation blower machine, insulation foam sprayer (including two-part foam equipment).
- Combustion Appliance Tools: combustion analyzer with printer, gas leak detector, draft gauge, lighter with a long handle, mirrors (clear flame), soap bubbles, bleed jug and hose, copper tubing for analyzers, jumper wires, and lag bolts or plugs.
- Personal Protective Equipment (PPE): safety glasses, polyethylene-coated suit, safety-toed footwear, work gloves, respirator, hard hat, and full-face shield.
- Other: Tape measures, flashlights, multiple screwdrivers, large pry bar, small pry bar, hammer, cordless drill and various bits, drill bit for sidewall inspection, pen and paper, digital pocket thermometer, high temp silicone, duct tape, tinsnips (right, left, and center), 14-inch roll flashing material, crimper snips, extension cord, trouble lights, coveralls, gloves, dust masks, hard hat, full face shield, respirators, personal protection equipment (PPE), wrenches (open ended and of assorted sizes), rags/hand cleaner, nut drivers (1/4", 5/16" 3/8"), crescent wrench, self-tapping screws, small paneling nails, trash bags, extra batteries, recharging equipment, cleaning equipment, calibration equipment, drop clothes, traps, and a small plastic garden rake.

See Connecticut Weatherization Field Guide regarding the effective use of weatherization tools.

6.7 DOE Material Standards

Weatherization contractors are required to install equipment, materials and parts which meet the standards set forth by 10 C.F.R. Part 440, Appendix A: "Standards for Weatherization Services." This section of the federal regulations details standards for materials and technologies conformance in fourteen specific areas of weatherization, referring the contractor to industry standards for each measure.

For example, insulation installers must meet the guidelines set forth by the American Society for Testing and Materials (ASTM) in the areas of thermal insulating materials for building elements. Similarly, standards for doors and windows are set by the American National Standards Institute (ANSI). The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) sets the standards for work on heating, cooling, and ventilating systems. These examples and standards of conformance are addressed in 10 CFR Appendix A to Part 440 and pertain to:

- Thermal insulating materials for building elements including walls, floors, ceilings, attics, and roofs
- Thermal insulating materials for pipes, ducts, and equipment such as boilers and furnaces
- Fire safety requirements for insulating materials
- Storm windows
- Storm doors
- Replacement doors
- Caulks and sealants
- Weatherstripping
- Heat exchanges
- Boiler/ furnace control systems
- Water heater modifications
- Waste heat recovery devices
- Boiler repair and modifications/ efficiency improvements
- Heating and cooling system repairs and efficiency improvements
- Replacement furnaces, boilers, and wood stoves
- Air conditioners and cooling equipment
- Screens, window films, and reflective materials

6.8 Historic Preservation Review

Services provided under CT WAP must comply with the laws governing alterations of historically significant properties. During client intake, housing provenance documents are collected and reviewed. For any structure with provenance indicating historic significance or homes built fifty (50) or more years ago, Subgrantees must submit necessary information to the SHPO for review as is listed in the Joint **SHPO Programmatic Agreement** and in the next section. That office will conduct a review of the unit to ensure compliance with the requirements of the NHPA.

6.8.1 SHPO Submission

The following information will be needed for the Section 106 historic preservation review by the SHPO.

- At least one recent, clear, digital photograph showing the full front of the property. This photo should be taken recently and may not be a photograph from a website like Vision Appraisal;
- The full address of the property including street number, street name, city, and zip code;
- A completed Section 106 Submittal Form; and
- The date of the unit's construction.

Once collected, the information must be submitted to SHPO for review.

After submittal, SHPO will review the property to determine if weatherization will affect the state's cultural resources. Subgrantees will receive a response from the SHPO stating their findings, which must be kept in the client file along with copies of all documentation submitted to SHPO for review.

Should the non-excluded property be deemed historic by SHPO, Subgrantees must work with CT WAP to create an appropriate weatherization plan for the unit that is both compliant with SHPO and aligned with the policies of the CT WAP.

A Subgrantee's failure to comply with federal historical preservation laws in the weatherization of properties may result in questioned or disallowed costs to its program.

In all instances where activities are exempt from SHPO review, the SHPO Review Exemption form shall be utilized to document that the project was reviewed in accordance with all applicable rules and regulations.

6.8.2 SHPO Exemption

CT WAP and SHPO have entered into a programmatic agreement that specifically provides exemptions to the review requirement. Exemptions include:

- Homes built less than 50 years ago;
- Mobile homes or trailers, regardless of date of construction; and

- Homes that require exempt weatherization measures only.

The exemption for weatherization includes many of the common measures used in the program; however, they must be installed in a certain way. Subgrantees must consult the Programmatic Agreement Between The United States Department of Energy, The Connecticut Office of Policy and Management, the Connecticut Department of Social Services, and the Connecticut State Historic Preservation Office Regarding EECBG, SEP, and WAP Undertakings regarding these specific measure exemptions. Note that these measures exempt the property if they are the only measures being installed.

6.9 Health and Safety Work Standards

The primary goal of the Weatherization Assistance Program is energy conservation; however, installing energy conservation measures sometimes requires subgrantees to address H&S problems that may exist in applicants' homes. If not done properly, those same measures can also create or worsen other H&S conditions. Many of the buildings that are weatherized have serious deficiencies that can affect the H&S of both residents and staff performing weatherization work. CT WAP weatherization protocols incorporate steps to review areas that affect H&S, as well as to take appropriate action during weatherization, where it is allowable and practical to do so. H&S measures may only be installed in units where energy efficiency measures are identified for installation.

CT WAP cannot provide solutions for all H&S issues that may be present in the household. Only H&S activities related to a weatherization measure are eligible. This means H&S activities will generally be conducted in specific areas where energy efficiency measures are identified for installation. Further qualifying factors of H&S activities include:

- The costs must be reasonable as defined by DOE and in accordance with CT's approved WAP State Plan;
- Action must be taken to effectively perform a site-specific energy audit and H&S assessment in accordance with special guidelines (i.e., in the case of a local or federally declared emergency);
- The action must be necessary to the weatherization work that is to be completed; and
- Only those activities specifically defined in the approved **Connecticut H&S Plan** will qualify as H&S activities.

DOE advises that two questions be asked when approaching H&S issues:

- What must we do, within reasonable costs, to get the home to a point where we can go forward with weatherizing, where the weatherization work will be lasting and effective?
- What must we do to ensure that the weatherization work we conducted does not create an H&S problem for occupants or workers?

During the energy audit process, subgrantees should take all reasonable precautions and follow best practices by visually documenting (i.e., taking pictures of) the presence of mold, lead, asbestos, or any toxic or potentially toxic conditions or dangerous situations. Traditional weatherization approaches may need to be modified, delayed, or eliminated to ensure that unintended consequences are prevented. The applicant/household should be informed throughout this entire process and provided a Notice of Postponement form documenting the issues or concerns discovered during the audit along with an explanation that weatherization would be inappropriate, or that the weatherization work scope must be modified or changed when such is the case. The subgrantee must document its concerns in writing along with pictures and other relevant information and secure them in the building file.

The energy auditor is required to complete a full H&S evaluation for each dwelling unit. The energy auditor's H&S recommendations are to be made in alignment with the Connecticut H&S State Plan, utilizing the forms and protocols developed for that purpose. H&S issues must be addressed before the start of any weatherization work. The H&S inspection typically begins with a detailed visual inspection in several key areas of the unit.

There are several situations referred to in this section in which H&S measures require prior CT WAP approval. These include, but are not limited to, heating appliance repair and replacement, domestic water heater replacement, and related fuel and venting systems. In these cases, the subgrantee must submit a **Weatherization Waiver Request** form to CT WAP for review.

CT WAP has established H&S training requirements for weatherization workers. Review "Section 2.10.6 Health and Safety Training" for further information.

6.9.1 Health and Safety Considerations

Per DOE , Health and Safety (H&S) measures are defined as "the actions taken to eliminate a health and safety hazard, the elimination of which is necessary to perform weatherization work, or the actions effectively are necessary as a result of weatherization work." H&S measures do not have to be cost-justified by the energy audit and are not considered in the SIR calculation or the Average Cost per Unit (ACPU).

The initial decision to bill a measure to the H&S budget should be made if the measure is allowable under WPN 22-7 and it cannot be considered a cost-effective energy conservation measure when tested in the DOE-approved energy modeling software. The energy modeling software will calculate the Savings-to-Investment Ratio (SIR) rating for the measure. If the rating meets the minimum threshold of one (1.0 SIR), the measure must be charged as an energy conservation measure and not a health and safety measure.

If the measure does not have the required SIR of 1.0 or more, it should be installed as a Health and Safety measure if it qualifies under WPN 22-7, and to the extent that funding is available.

Additional funding to address health and safety issues that will result in deferral may be paid for through Weatherization Readiness Funds (WRF), provided it meets the parameters outlined in the **Weatherization Readiness Funds State Plan**.

If the H&S issue cannot be addressed utilizing H&S or WRF or some combination of the two then, the unit may need to be deferred until the health and safety measures can be installed utilizing other funding sources.

Subgrantees must maintain an average H&S cost-per-unit that will be established and shared by CT WAP at the start of each program year.

See “Section 6.4 Energy Conservation Measures (ECM), Incidental Repair Measures (IRMs), and Health and Safety (H&S) Measures” of this manual for further information on these measures. Also, refer to “Section 6.5 Savings-To-Ratio (SIR)” and “Section 12.4 Deferral Guidelines.”

Crew and Contractor H&S

Subgrantees are required to comply with all OSHA requirements at all times. Crew and contractor safety issues are integrated into CT WAP training and technical assistance (T&TA) curricula. Additionally, subgrantees are required to ensure that their crews and contractors follow safe work practices regarding lead paint hazards (see below).

Occupant H&S

Subgrantees must take all reasonable precautions against performing work in buildings that will subject occupants to H&S risks. Subgrantees are required to consider the health concerns of each occupant prior to initiating work on a residence. The Health and Safety Intake Survey must be completed to assist in identifying existing occupant or building H&S problems.

When performing an energy audit, the energy auditor is required to meet with a member of the household, or the owner or owner’s management, and accurately complete the questionnaire with them. This questionnaire provides the auditor with information about the dwelling and the lifestyle of its occupants, directing them to areas where energy can be conserved. Additionally, there are pertinent questions about health issues and occupancy practices that can lead the auditor to identify H&S concerns related to the weatherization project. Once identified, these areas can be dealt with through various means, ranging from applicant education to corrective action through the weatherization work scope.

The auditor is also required to complete a visual H&S inspection. Where serious concerns are found, applicants/residents are to be advised of these possible hazards on the Notice of Postponement form in order that they may make informed decisions regarding their safety. Where necessary, residents will be advised to relocate from the unit during the installation of energy conservation materials to ensure the household’s safety.

Potential Hazard Considerations

The following potential hazards are considered prior to providing weatherization assistance:

- **Biological hazards and unsanitary conditions**: Information on biological hazards is obtained through the Health and Safety Intake Survey and by means of the sensory inspection of the dwelling. Certain hazards, such as mold and mildew, are sometimes identified, and applicants are notified on the Notice of Postponement form. If other hazards are present, or hazards cannot be mitigated in the course of routine weatherization, the subgrantee must defer work until funding from other sources is available to address the hazard. Procedures for addressing mold and moisture problems in a unit are included in Subsection 6.03.

- **Fire Hazards:** Potential fire hazards are identified during the sensory inspection. The presence of smoke detectors is noted. Obvious hazards must be corrected before work can proceed. As a direct result of work that is performed in the course of weatherization, such as the reduction of air flow, sealing of thermal bypasses and installation of insulation, weatherization services may reduce the probability of fire spreading in a building.

- **Existing Occupant Health Problems:** Information on existing occupant health problems is collected on the Health and Safety Intake Survey and must be considered in the development of the work scope.

- **Formaldehyde or Volatile Organic Compounds (VOCs):** When these substances are suspected in a unit, issue a Notice of Postponement form to the homeowner. Reference EPA recommendations on air quality levels.

- **Lead Paint:** Information on lead-safe weatherization is contained in Subsection 6.02.

- **Building Structure and Roofing Hazards:** Incidental repairs may only be performed as allowed elsewhere in this manual. Subgrantees should become familiar with housing rehabilitation programs available in their service area. In cases where extensive repairs are needed before weatherization assistance can be provided, work must be delayed until repairs are made (see deferral standards in Subsection 6.01).

- **Electrical Issues:** Subgrantees must ensure that work is performed in accordance with state and local codes and monitor compliance with this requirement during on-site inspections. The sensory inspection of the unit includes an analysis of electrical hazards. Subgrantees must ensure that all electrical hazards that exist in areas where weatherization work is to be done are corrected prior to commencement of work. Subgrantees should avoid insulating any areas of a building where live knob- and-tube wiring is known to exist. Reference T&TA Unit memo dated 5/14/2015 for approved variance from SWS on how to insulate. Knob-and-tube wiring can be replaced if the cost of the rewiring and the cost of the insulation added together results in an SIR that is greater than or equal to one.

- **Fuel Leaks:** Oil tank, piping and equipment will be visually inspected for leaks. If fuel leak in line is minor and can be rectified by tightening of fitting, then it's a H&S eligible repair. If fuel leak is in large, multi-family fuel piping, or is in an oil tank, spill will be reported in accordance with local codes and jurisdictions and owner will be notified via Notice of Postponement of Services form and project will be deferred.

- **Refrigerants:** All refrigerators and air conditioners that are replaced must be de-manufactured and disposed of in accordance with applicable requirements.

- **Other Code Compliance:** All work performed and reported to DOE as completed must follow the Building Performance Institute (BPI) 1100T-2014 Home Energy Auditing Standards, ANSI/BPI-1200-S-2015 Standards, DOE WPN 22-4, DOE WPN 22-7, CT WAP Quality Work Plan requirements, the current Connecticut Weatherization Field Guide, and the DOE approved State Plan for the current program year.

6.9.2 Client H&S Education

The client must be advised that, at the time of completion of the Request for Weatherization document, they will be contacted by the weatherization provider for additional information regarding the site and occupants. The client will be contacted by telephone and surveyed via a scripted “New Client, Job Information" intake form which requires the occupants to reveal any known or suspected health concerns.

A secondary review of this information shall be performed by the local weatherization coordinator and additional screening will be done at the time of the site-specific audit. Prior to the start of work, Subgrantees must provide clients with forms that identify all hazards potentially identified by the audit.

There are several forms, hazard specific for all other potential hazards (Mold/Moisture and Carbon Monoxide, Radon and generic, H&S Disclaimer), that must be completed prior to the start of work. In addition, clients will receive the following publications/documents when applicable:

- EPA Renovate Right (occupants of all pre-1978 buildings)
- EPA A Brief Guide to Mold, Moisture and Your Home
- EPA Asbestos in the Home: A Homeowner’s Guide
- EPA Renovation, Demolition & Asbestos-NHDES 2007
- EPA pamphlet “A Citizen’s Guide to Radon” and obtain a signed copy of the Client’s informed consent to provide weatherization (Radon Disclaimer)
- All paperwork and manuals associated with any installed equipment
- Deferral of Services Notice

When applicable, clients will also be informed concerning:

- The various weatherization services and how they will benefit the occupants of the home through improved comfort, safety, and cost savings.
- Appropriate use and maintenance of all combustion appliances including indications of improper or unsafe operation.
- Proper procedure(s) to address disposal of bulk fuel storage and resources available to address issues not addressed during weatherization activities.
- Deferral of Services Notice

The above documents must be signed by the client and Subgrantees’ representative (e.g., energy auditor) and kept in the client file.

Whenever H&S measures (e.g., carbon monoxide detectors, smoke detectors, thermostats, heating systems) are installed in a home, the energy auditor, the inspector, and the installer must provide

comprehensive instructions relative to the operation and maintenance of the device or appliance.

Deferral: If the client refuses to sign any required document, no work may be done to the home, and the unit must be deferred until such time as the client agrees to sign the appropriate paperwork.

6.9.3 Regulatory References

All Work performed and reported as DOE completed CT WAP sites must be in compliance with the Building Performance Institute (BPI) 1100T-2014 Home Energy Auditing Standard, ANSI/BPI-1200-S-2015 Standards, BPI Healthy Home Evaluator Certification, DOE WPN 22-4, the CT WAP Quality Work Plan requirements, Connecticut WAP Operations and Training Manual, Connecticut Weatherization Field Guide, and the DOE approved WAP State Plan for the current program year.

The primary references for H&S policies are this Operations Manual and the current Connecticut Health & Safety Plan. Regulatory references underpinning the H&S plan are:

- Federal regulations at 10 C.F.R. § 440.16(h) and 10 C.F.R. § 440.18(d);
- 29 C.F.R. § 1910 and § 1926;
- Weatherization Program Notices: WPN 22-7, DOE Memorandums 060, 062, 067; and
- United States Environmental Protection Agency (EPA) Healthy Indoor Environment Protocols for Home Energy Upgrades.

See the Connecticut Weatherization Field Guide for additional technical clarification and guidance on H&S measures.

6.9.4 Licensure Restrictions

Connecticut state law requires state licensing by the State Boards of Occupational Licensing in the several areas relevant to working on combustion appliances, including the following:

- Heating, piping and cooling (HVAC)
- Plumbing
- Electrical work
- Duct work (sheet metal)
- Combustion appliance repairs

Since some analysis of combustion appliances may be considered to involve “alteration,” the energy auditor may be restricted in the types of testing techniques that can be conducted on combustion appliances due to licensing requirements. For example, proper draft analysis involves the drilling of a small hole in the smoke pipe to accommodate the draft probe.

It is the responsibility of Subgrantees to ensure the proper analysis is conducted to ensure the H&S of the occupants with regard to the proper function of the combustion appliances. Subgrantees are reminded that when situations require that a licensed contractor be utilized to conduct efficiency testing, a standard CT Combustion Efficiency Report must be provided and filed with the energy auditor's data collection calculations.

6.9.5 Health and Safety Equipment

All technicians performing diagnostic testing, and any inspections must have access to all necessary personal protective equipment required by OSHA. (Personal safety standards are from BPI's technical standards. See www.bpi.org.)

Required protective equipment includes, but is not limited to, personal CO monitors, fitted respirators with canister filters, dust masks, gloves, protective clothing, safety glasses, and hard hats.

Technicians must be trained in proper use and applications for these devices and must adhere to OSHA regulations when on the job site.

All hand tools, power tools, ladders, and diagnostic equipment must be handled and used in a safe manner and kept in good working condition. Equipment and diagnostic tools must be maintained and calibrated according to the manufacturer's specifications.

A copy of the Material Safety Data Sheets (MSDS or SDS) for all materials used on the job and installed in the unit must be kept on each crew vehicle and made available to all workers and assisted households upon request.

Respirators with filter cartridges must be worn when working in areas where exposure to asbestos, airborne mold, lead, fiberglass, or formaldehyde is a risk.

Where the presence of asbestos, vermiculite, lead, mold, and/or other potentially hazardous material is known or suspected, all relevant state and federal (EPA) guidelines must be followed to ensure technician and occupant safety.

Blower-door equipment may not be used in homes where there is a risk of compromised or friable ('so soft and weak in structure that it can be broken with simple finger-crushing pressure') asbestos becoming airborne and being drawn into the dwelling if damaged. Intact asbestos is not a hazard. It becomes a hazard when damaged or deteriorated, and friable asbestos particles are being released into the air.

Ambient CO shall always be monitored utilizing personal CO monitors, and actions taken per BPI-1200-S-2017. CO levels in the ambient air around the technician must be monitored throughout all combustion safety tests.

Refer to BPI-1200-S-2017 for complete requirements applicable to CO exposure limits and action levels.

6.9.6 Major and Minor H&S Repairs

Per WPN 19-5, incidental repairs are those necessary to allow for the proper function or installation of weatherization measures and must be included in the SIR calculation of the total package of weatherization measures.

Repairs are an allowable health and safety cost when they are necessary to protect the integrity of the weatherization measures and are not cost justified by the audit, included in the SIR or ACPU calculations.

Per WPN 22-7 some minor repairs are allowable under health and safety. In CT WAP, minor H&S repairs are defined as repairs that are less than or equal to $750 and are not typically considered an incidental repair. Examples of minor repairs that could be considered health and safety include, but are not limited to roof repairs, repairing areas of unsafe wiring, removing sections of knob and tube wiring to allow for the installation of insulation in attics and sidewalls, repairs to siding, minor repairs to windows and doors, flashing, and masonry repairs.

Repairs that are more than $750 are considered Major H&S Repairs and do not typically fall into the Incidental Repair Measure category. Examples of major repairs include, but are not limited to replacing roofs, rewiring a home, and correcting structural issues. These types of repairs must be reviewed by the Grantee before work begins with detail being provided on the potential impact the costs will have on the H&S ACPU and H&S budget. In some instances major repairs will have to be addressed utilizing Weatherization Readiness Funding or alternative programs.

If the costs exceed program parameters, then the job must be deferred due to health and safety concerns that cannot be addressed within the program guidelines.

6.10 Weatherization Readiness Funds (WRF)

Weatherization Readiness Funds (WRF) are a portion of the WAP budget that can be used to address the necessary repairs (e.g., H&S issues, structural) in units that would otherwise be deferred from receiving weatherization services. WRF supports the repairs needed to make a home ready for energy efficiency upgrades. DOE allocates WRF to the WAP Grantees to reduce the frequency of deferred units. The usage of WRF shall align with WPN 24-9.

WRF can only be used for necessary repairs, cleanup, and remediation measures that, if left unaddressed, would lead to a deferral under CT WAP's current deferral policy; and if applied, could lead to a WAP completion. When WRF resources aren't enough to adequately address extensive structural or H&S repairs, the Subgrantees must follow the current deferral policy and refer the homeowner to other resources that may be able to help them remediate the issue(s). WRF funds cannot be used to cover expenditures that are allowable with formula funds (i.e., client intake, energy audits, ECMs, final inspections, etc.).

Barriers should be addressed with the available H&S funds whenever possible. Subgrantees may only consider using WRF to address these barriers in instances when H&S funds cannot be used and the unit would have to be deferred as a result.

Additionally, IRMs should be addressed under CT WAP's IRM policy. Subgrantees may only consider using WRF to cover IRMs when IRM funding cannot address the issue and, therefore, the unit would have to be deferred.

Units that utilize WRF must also have WAP work completed. The use of WRF on a dwelling unit that is not weatherized within WAP cannot be reported to DOE as a completed unit and will result in disallowed costs.

WRF prioritization will follow the prioritization criteria used by the WAP program. In addition, WAP will prioritize customers with barriers that do not exceed the WRF Maximum Cost Per Unit (MCPU) and with energy projects that will allow WAP to adhere to its required Average Cost Per Unit (ACPU).

The H&S assessment that is completed by Subgrantees to determine a unit's WRF needs or if the unit must be referred to other resources must use Program Operations funds. Charging the H&S assessment to WRF is not permissible.

At the direction of DEEP, a Technical Field Monitor will monitor at least 10% of all units utilizing WRF per program year.

6.10.1 WRF Maximum Per Unit

The maximum amount spent per unit to cover necessary repairs that might prevent weatherization is set at $30,000. Units requiring more than $30,000 for repairs cannot be served with WRF. Homeowners

should be referred to other programs and resources in Connecticut that may be able to help.

6.10.2 Reporting Requirements

All units deferred from receiving weatherization services due to a H&S or structural barrier are tracked according to the process outlined in DOE's WPN 24-9. CT WAP will utilize the DOE Deferral Tracker spreadsheet to track all jobs deferred from receiving weatherization services, including jobs that are remediated using WRF funding and jobs that are referred to other resources or programs.

The DOE Deferral Tracker report must include the following information:

- The number of completed units receiving WRF;
- Housing type (i.e., single-family, small multifamily (2-4 units), manufactured home, etc.);
- Year built;
- Nature of repairs needed. This is not an exhaustive list and Subgrantees should report on all necessary repairs;
- Roof repair/ replacement
- Exterior wall repair
- Interior wall repair (floor, ceiling, wall, etc.)
- Foundation or subspace repair
- Exterior drainage repair (i.e., landscaping, gutter repair, etc.)
- Plumbing repair
- Electrical repair
- Clean-up or remediation beyond the typical scope of WAP
- Lead paint
- Asbestos (confirmed or suspected, including vermiculite)
- Mold and/ or moisture
- Other – please specify
- DOE WRF expenditure per annual formula unit and building;
- Referral source;
- Status of each project (in pipeline, in-progress, or complete), and;
- Summary of each completed job.

Each client file must contain sufficient information and justification that WRF was necessary to address

issues that, if left untreated, would have resulted in the unit's deferral.

6.10.3 Eligible measures

WRF covers only the materials and labor costs for eligible WRF activities, based on DOE's WPN 24-9. Additionally, subgrantees may use WRF for all measures included in WPN 22-7, as well as roof repairs and replacements. The measure list below is not exhaustive, and CT WAP may approve additional repairs not on this list on a case-by-case review:

- Roof repair;
- Wall repairs (interior or exterior);
- Ceiling repair;
- Floor repair;
- Foundation or subspace repair (i.e., landscaping or gutters);
- Plumbing repairs;
- Electrical repair;
- Clean-up or remediation that is beyond the typical scope of WAP;
- Lead paint;
- Asbestos (confirmed or suspected; including vermiculite);
- Mold and/ or moisture.

Subgrantees looking to use WRF on measures not listed on the list above must submit a written memo to CT WAP that lists:

- The measure(s) required to avoid deferral;
- Why the measures are necessary to avoid deferral, and;
- Why the measures cannot be installed utilizing the WAP health and safety budget instead of the two above?
- The estimated WRF expenditure.

CT WAP and its technical advisors will review these memos and approve them based on available guidance from DOE and CT WAP. Prior approval from CT WAP and its technical advisor is required before the WRF work can begin.

6.10.4 WRF Process

1. Each one-to-four-unit household serviced by WAP is first screened for any necessary repairs (health and safety, structural issues, etc.) that may hinder weatherization activities. If the weatherization Energy Auditor finds a barrier to weatherization, the household is evaluated utilizing the DOE-approved health and safety audit.
2. Once the unit is evaluated, a scope of work is developed based on the weatherization barriers present and barriers addressed.
3. When remediation is completed, the Energy Auditor returns to the home to verify that all barriers have been remediated and to complete the energy assessment. All work within a unit using WRF is expected to be completed within a rolling 12 months to align with the expiration of the client's WAP eligibility notice.
4. When readiness work is done, the home must receive weatherization services, including at least one ECM that has an SIR of 1.0 or greater, to be counted as a completed unit by both CT WAP and DOE. DOE monitoring will validate that WRF activities are resulting in a DOE weatherization completion, in accordance with WPN 24-9.

6.10.5 Monitoring

The proper use of WRF will be monitored in three ways. First, an inspection of all work completed as part of a unit's remediation is conducted by the auditor who initially halted the energy assessment due to an identified barrier. Once that inspection is completed, the household is then served by the subgrantee. Activities conducted utilizing WRF are reviewed as part of the CT WAP's annual monitoring of subgrantee activities.

6.10.6 Funding Restrictions

CT WAP does not place any restrictions on the use of WRF funds outside of the defined allowable scope described in WPN 23-4. WRF will be used exclusively to remediate barriers that prevent the safe and effective installation of weatherization measures identified in the comprehensive H&S audit.

WRF cannot be used to install ECMs regardless of their SIRs. ECMs are to be addressed by CT WAP's energy audit procedures.

WRF cannot be used to address hazardous materials (e.g., lead, asbestos, mold, etc.) that are generated during or as a result of weatherization work. Those must be handled using other allowable WAP funds or resources. WRF can be used to address hazardous materials only if those hazards are pre-existing and would otherwise result in a deferral.

6.11 Post-Inspection and Certification

The subgrantee must conduct and document a post-inspection of each completed dwelling unit before presentation of the work to CT WAP. The post inspection and certification of single-family and small multi-family projects (1-4 units) must be performed by a BPI-certified single-family Quality Control Inspector (QCI).

The following tests and inspections must be performed at post-inspection by the certified QCI. Subgrantees are reminded that failing to post-inspect work in every building and/or unit weatherized in accordance with Quality Control inspection requirements, prior to submission to CT WAP as complete, is a violation of Federal WAP Regulations 10 CFR Part 440 and constitutes a breach of contract that could result in a finding of noncompliance for the subgrantee.

Post inspections/final audits must be documented by including the following in each file:

- All completed Quality Control Inspection documents.
- Annotated review of the audit and work scope to determine that the work authorized was completed.
- Photographs showing before and after worksite conditions of all work conducted that required CT WAP pre-approval or was H&S related.
- Any changes to the work scope must be documented in the file with signed change-orders and be justified with pictures and a written explanation to support each change if prior approval was required.
- A completed **CCR** reflecting the cost and quantity of materials installed.
- Owner and Subgrantee signature on the **CCR** verifying completion of work.
- Final blower-door test results to verify final air flow numbers.
- All H&S tests that were performed, along with test results.
- Copies of all H&S information, including a **Notice of Postponement** form if required, informing residents and owners of unsafe conditions, potential problems, etc.
- SSE test results when possible and necessary for compliance.
- All in-progress inspection reports and interim test documentation must be included in each file.
- Any information including, but not limited to, pictures and written explanations that helps to explain and justify the condition of the dwelling unit when post-inspected.

The subgrantee must maintain a post-inspection log to be presented upon request by the CT WAP field representative.

In addition to the items listed above, all eligibility documentation required in “Section 4.4 Eligibility” of

this manual must be on file at the time the building is submitted to CT WAP for payment and available for inspection by CT WAP staff. No building will be considered complete or pass Quality Assurance review if required eligibility documentation is missing from the file.

Only when the work is fully acceptable and completed, including all materials installed, should the post-auditor and the applicant sign the Subgrantee QCI Form.

Each building submitted by the subgrantee to CT WAP as complete must have been post-inspected, meeting QCI requirements, before being submitted to CT WAP. All work must be fully completed, and all materials installed. Federal program rules prohibit CT WAP from paying for additional work on homes that have been reported to DOE as complete.

Accordingly, subgrantees may not charge CT WAP for work performed on any building or unit after it has been submitted to CT WAP as complete. Subgrantees should not submit a building to CT WAP for payment until they are sure that the building meets all program requirements. CT WAP will disallow costs for any building that is not supported by complete documentation of eligibility and assurance that all work was completed in a quality manner.

It is the subgrantee's responsibility to guarantee that the work performed and materials supplied to be free from defects for a period of one year from the date of final acceptance of all the work performed on the unit, or the building containing the unit, if later. No WAP funds, leveraged funds, or owner-investment funds may be used for this purpose. No WAP funds will be paid for subgrantee costs for any work performed on an unit that was previously accepted by CT WAP as complete.

7 Health and Safety Testing

Tests for unsafe conditions, (e.g., ambient CO, fuel leaks, etc.) must be conducted before any weatherization work is begun. H&S tests are required to be completed for all buildings, regardless of size or number of units, and should contain analytical and quantifiable data. Daily evaluations of CO sources, combustion appliance spillage, moisture sources, etc. are required. These tests are designed to find H&S problems and to ensure that weatherization work does not exacerbate any of these concerns. Subgrantees are also required to conduct periodic inspections of all analytical equipment to ensure accuracy and appropriate calibrations as specified by the manufacturer.

7.1 General H&S Testing

Test for CO

- *Ambient air*: Measure CO in the ambient air where combustion appliances are used for space heating, cooking, and domestic water heating. Eliminate sources of CO that contaminate the indoor air. Personal CO monitors shall be operating at all times while in the work environment. The ambient air in the breathing zone must also be monitored before and during combustion appliance testing.

    If the CO level in the ambient air reaches *70 ppm or greater*, immediately terminate the testing process, notify the homeowner / occupants of the need to evacuate the building, and notify the appropriate emergency services from outside the building.

    If ambient CO levels reach the *36 – 69 ppm* range, cease testing, immediately open windows and doors, turn off all possible CO-producing appliances, and notify the homeowner / occupants that elevated levels of ambient CO have been detected in the work environment, so they can make an informed decision about their safety. When levels drop to *35 ppm* or lower in the now ventilated work environment, the possible source should be investigated, and the problem must be corrected before WAP work can proceed.

    When ambient CO levels are in the *9 - 35 ppm* range, testing may continue but windows and doors should be opened so that the area is ventilated. Notify the homeowner / occupants that elevated levels of ambient CO have been detected so they can make an informed decision about their safety. Subgrantee staff should investigate to identify the source and, whenever possible, the problem should be corrected before WAP work proceeds.

    Always provide a Notice of Postponement form to the homeowner / occupants advising them of the detection of CO levels in the ambient air and, if repairs to rectify the problem are eligible WAP expenses, consult the assigned WAP program field representative, and prepare a work scope that corrects the problem.

- Combustion appliance testing: BPI Reference Standards for Combustion Appliance Safety Inspection for Vented Appliances and CST Procedures for Gas Ovens, Direct, Power-Vented or Vent-Free Appliances can be found on BPI's website.

    Vented appliances refer to natural draft appliances equipped with a barometric draft regulator, or Category I appliances equipped with a draft hood or connected to a natural draft venting system.

    All vented combustion appliances must be tested for CO in *undiluted* flue gas and the results documented. For direct-vented and power-vented appliances, (without atmospheric chimneys or vents), measure the CO level in the undiluted flue gas only if the outlet of the exhaust is safely accessible.

Combustion gas leak test

Gas leak detection tests must be conducted along accessible gas lines throughout the interior and

exterior of the building, and the findings recorded. Test all accessible gas lines and piping for gas leaks. For significant leaks, disable combustion appliances, evacuate and ventilate the area, and notify the fuel supplier for shut-off until repairs are completed. Minor leaks may be addressed at the time of inspection or specified for repair. Test at audit, after any work on the gas piping is complete, and at post inspection.

Heating system testing/SSE test

An SSE test is required on every heating system, where appropriate, except for wood or coal stoves and those positive pressure systems that are rated as Category III or IV appliances that are not outfitted with SSE testing ports. Pre- and post-weatherization SSE test results must be affixed to the heating appliance on a **Heating Appliance Tag**.

Combustion Appliance Zone (CAZ) test

The worst-case CAZ configuration for each appliance zone should be established and recorded in the client project file (See BPI-1200-S-2017). Measure the worst-case negative pressure in all vented CAZs. Any zone or area of the building that contains a vented combustion appliance, including space heaters and water heaters, is considered a CAZ. The CAZ may be defined as the main body of the house or as individual rooms or areas of the main living space. Follow BPI combustion safety test procedures and action levels, taking appropriate actions based on the test results. Combustion safety testing must be done at audit, after any work is done to the building envelope or appliance(s), and at post inspection. Current BPI procedures and testing standards can always be referenced on BPI's website.

Inspect the building for signs of mold and moisture damage

Locate and eliminate/reduce sources of excessive moisture if possible. Limited (incidental) water damage can be addressed. Correction of moisture and mold-creating conditions is allowed only when necessary to weatherize the home and ensure the long-term stability and durability of measures. Install ventilation if necessary and feasible. Where severe mold and moisture issues cannot be addressed, deferral of WAP is recommended. Mold testing is not an allowable cost. If mold or moisture conditions exist within the building, Notice of Postponement form must be completed by the subgrantee, signed by the applicant, and added to the building file.

Identify potential fire hazards

Educate the assisted household about potential fire hazards that are observed in the building. Ensure that adequate smoke and CO detectors are installed and working properly. Inform applicants and building owners of potential fire hazards using the Notice of Postponement form.

I**nspect for unvented space heaters**

Subgrantees must educate owners and tenants about the dangers of CO and fire hazards associated with using unvented space heaters. Unvented space heaters must be removed before weatherization measures can be installed, except for those used as secondary heat sources that conform to ANSI

Z21.11.2. Subgrantees must explain to owners and tenants that significant amounts of combustion by-products, including water vapor, CO, NO2, and particulates, are produced. Complete the Notice of Postponement form, and the applicant must sign the form before proceeding with work.

Assess the building for faulty, inadequate, and dangerous wiring

Inform applicants and building owners accordingly using the Notice of Postponement form. Check for alterations that may create an electrical hazard and test for voltage detection/voltage drop where appropriate.

Verify that pressure relief valves on DHW tanks and boilers are present and not leaking.

Record and properly document all test results and observations.

Blower-door testing

Except where H&S issues are documented (see Asbestos testing below), all one-to-four-unit buildings and mobile homes must be blower-door tested before, during, and after performing air-sealing work (see Subsection 5.11) using the **Daily Test Out** form.

Exhaust fans must be tested or metered for rate of flow, and results/observations recorded, to be used in determining whole dwelling unit ventilation requirement per ASHRAE 62.2 ventilation standard.

Asbestos testing

Asbestos testing may only be conducted with prior CT WAP approval if the subgrantee suspects that asbestos-containing materials may be disturbed by the installation of weatherization materials. Asbestos testing may only be conducted by a certified abatement specialist. If the presence of asbestos is confirmed, care must be taken not to disturb the asbestos (for example, by drilling through asbestos siding). Removal or encapsulation, when approved by CT WAP, can only be conducted by a certified abatement specialist per the SWS and must be conducted prior to blower-door testing. Do not perform blower-door tests when vermiculite that may contain asbestos is known to be present. Always provide the applicant with a Notice of Postponement form and advise him/her of the potential dangers of disturbing the vermiculite and/or the possible presence of asbestos.

Mechanical ventilation testing

Local ventilation should be verified at audit and following installation of any new exhaust ventilation system, for proper exhaust fan flow rate, measured in cfm, in accordance with the manufacturer's specifications. Roof ventilation fans should be inspected for proper operation (broken belts, etc.).

The Notice of Postponement form must be issued to the building owner in the event that the roof exhaust fans are not operational or in need of maintenance.

Knob-and-tube wiring

Subgrantees must avoid insulating any areas of a building where live knob-and-tube wiring is known to exist. Reference T&TA Unit memo dated 5/14/2015 for approved variance from SWS. Knob-and-tube wiring can be replaced if the combined cost of rewiring and insulation exceeds an SIR of one.

Gas Leak and High CO Levels

The subgrantee should contact the local gas company to establish criteria for notifying the company regarding gas leaks or high CO levels.

Whenever there is evidence of a leaking heat exchanger in a furnace or space heater, the subgrantee is required to inspect the heat exchanger for leaks using standard, acceptable diagnostic methods. The result of the inspection must be documented and placed in the building file. Whenever a hole or crack is found in a heat exchanger, the heating appliance should be considered unsafe and the H&S protocols detailed in this Manual should be followed.

Unvented and Ventless Combustion Appliances

WAP funds cannot be used to purchase or install any type of unvented or vent-less combustion appliance (including, but not limited to, unvented kerosene space heaters, unvented natural gas space heaters, unvented propane space heaters, unvented gas fireplaces, and unvented gas fireplace logs). Removal of these units is required, except when being used as a secondary heat source where the unit conforms to ANSI Z21.11.2. Units that do not meet ANSI Z21.11.2 must be removed prior to weatherization but may remain until a replacement heating system is in place.

7.2 Daily Checkout – Testing Out

Because weatherization work can affect the operation of combustion appliances, depressurization and spillage testing is required for all Category 1 appliances pre- and post-weatherization and before leaving the home on any day when work has been done that could affect draft (e.g., air or duct sealing, adding exhaust ventilation, etc.). This process is known as “testing out.” Any appliance that fails a “worst case” test before or after all weatherization work is completed should be made non-operational until the hazardous condition is corrected. CT WAP recognizes that some sub-contractor weatherization installers may not have the training and equipment necessary to conduct “worst case” CAZ testing in accordance with BPI standards. Subgrantees are responsible for ensuring that any required testing is conducted and documented in all cases with no exceptions. In cases where on-site installers do not have the capacity to conduct the required testing, subgrantees must be prepared to dispatch appropriate personnel to the site on demand.

See Connecticut Weatherization Field Guide for additional information.

7.3 Combustion Appliances

Appliances that combust materials can potentially cause H&S issues if not operating properly. Subgrantees must perform analyses of each appliance for operational efficiency and safety. The weatherization itself mustn't cause or worsen the possible dangers posed by malfunctioning combustion appliances. Combustion appliances that require analysis include, but are not limited to:

- furnaces
- boilers
- water heaters
- vented space heaters
- gas ovens/stovetops/ranges
- gas dryers

Combustible fuels used by these appliances include:

- natural gas
- propane
- oil
- kerosene
- wood

All of these materials, when burned, produce byproducts that are dangerous if not properly vented to the outside. Subgrantees have the responsibility to ensure that combustion appliances are operating safely and are properly vented.

In instances where secondary heating sources, such as unvented kerosene space heaters, exist, the energy auditor must inform the occupants that they must be removed before weatherization.

7.4 Comprehensive Combustion Appliance Analysis

Combustion appliances must be individually assessed by the energy auditor to determine the condition, operability, and efficiency of each one. At the same time, the appliances must also go through a comprehensive technical analysis to ensure that they all operate safely together, even under "worst-case" conditions.

Worst-case conditions are established by establishing the maximum depressurization of the zone in which the combustion appliances operate, known as the combustion appliance zone (CAZ).

A comprehensive technical analysis is conducted with all of the appliances in operation, along with any other devices, such as exhaust fans, which may exert a negative pressure, and the most negative pressure configuration of the unit. In terms of H&S, the comprehensive combustion appliance analysis must include:

- **Combustion Appliance Zone (CAZ) Testing:** to establish that an adequate supply of combustion air is available in the CAZ for the safe operation of each appliance, performed under the "worst case" conditions.
- **Worst-Case CAZ Depressurization Spillage Testing:** to ascertain that all appliances are properly venting combustion gases under the "worst-case" conditions, which include analysis of draft pressure in the appliance over fire draft and the smoke pipe connected to the chimney flue draft.
- **Carbon Monoxide Level Measuring:** to ensure that combustion appliances are within acceptable levels. Procedures are performed to measure CO at ambient, "worst-case," and natural conditions.
- **Fuel Leakage Test:** Testing for gas (Natural or Liquid Propane) leaks in the pipes that deliver fuel to the appliances or look for signs of fuel oil leaks in pipes that connect oil storage tank to the oil burner.
- **Fire Hazard Inspection:** Inspecting for clutter, frayed wiring, and location of flammable materials and chemicals.
- **Emergency Shut-Off Switch Function:** Test Emergency Shut-Off Switch(s) for combustion appliances.
- **Electrical Hazard Inspection:** Including observation of grounding connector in face of power outlets, observation of ground wire connected to grounding rod outside, correct polarity of power outlets, use of extension cords, overloading of power outlets, observation of wiring junction boxes missing covers and observe connections inside (do not remove any junction box covers), fuse types and sizes, element amperage [electric furnace], disconnect requirements and conduit requirements.

Gas Ovens/Stovetops/Ranges must be tested for CO levels as well as burner and oven operability and flame quality.

7.5 Combustion Appliance Issues

The danger with a combustion appliance may be attributed to numerous causes which justify H&S work under this category. Causes may include, but are not limited to:

- Non-existent or inoperable heating system or water heating appliance
- Fuel (gas, oil) leak in the delivery pipes leading to the appliance
- Gas oven/stovetop/ranges producing excessive CO due to compromised operating conditions. (See Action/Allowability below)
- Leaking oil tank
- Serious structural damage to the combustion appliance; cracked heat exchanger, missing appliance sections (e.g., plenum, flue)
- Poorly adjusted boiler/furnace parts that cause high levels of dangerous flue gasses
- Non-existent, deteriorated, disconnected, improperly installed flue gas exhaust vents, including chimney and chimney liners.
- Excessive flue gas spillage
- Inadequate combustion air as tested in the CAZ
- Inadequate drafting of flue gasses as tested under the “worst case” scenario
- Unacceptable CAZ depressurization limits

If actionable CO levels are found, the client must be informed of the potential danger and asked to sign a CO Disclaimer Form, which the energy auditor must also sign and date. A copy is to be given to the client and the original is stored in the client file.

If high CO levels are found the energy auditor must take immediate action including evacuation of any people in the building and notifying an HVAC tech or the gas company of the situation needing immediate attention, as well as notifying Subgrantees’ management. Subgrantees must not continue with weatherization work until all combustion appliances are functioning properly.

7.5.1 Other Considerations

Funding: Standard maintenance on or repair of gas ovens/stovetops/ranges is an allowable H&S cost. All proposed costs must be pre-approved by the Grantee prior to service delivery.

Deferral: Repairs or replacement of H&S issues with combustion appliances may be beyond CT WAP's scope, because of budget limitations or the scope of work required. In such case, the CT WAP work must be deferred.

See the “Section 12.4 Deferral Guidelines” for more information.

Restrictions: Replacement of gas ovens/stovetops/ranges is not an allowable weatherization cost utilizing DOE Funds.

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

7.6 Ambient CO Danger – Immediate Response

Technical Reference: ANSI/BPI 1200 S 2015 Standard

Upon first arriving at the unit, the energy auditor must take initial readings for the ambient level of carbon monoxide in the unit. If the ambient air reading is nine parts per million (9 PPM) or more, the following procedures must be followed:

- **9PPM – 35 PPM:** Contact the client's fuel vendor immediately to alert them to the problem. If the appliance uses oil or propane and the client does not have a vendor, or if the vendor does not perform service work, the energy auditor must immediately contact the Subgrantee program manager to inform that individual of the situation. The subgrantee program manager must contact a qualified vendor to make repairs as soon as possible.
- **36 PPM – 69 PPM:** This will be considered a serious situation. The energy auditor will advise all occupants to vacate the building immediately. The steps above should be initiated.
- **Above 70 PPM:** This will be considered an emergency situation. Notify the fire department immediately, then follow the above steps. The Grantee program monitor for that Subgrantee should also be notified of any such instances.

The client must be notified immediately by the energy auditor of any potential or present danger. This notification must be acknowledged by having the client sign the “Carbon Monoxide Disclaimer” form. The energy auditor must also sign and date the form, which is placed in the client's file, with a copy going to the client.

As testing of combustion appliances continues, additional ambient air testing should be conducted to ensure the safety of the environment. If the ambient CO air reading during testing is nine parts per million (9 ppm) or more, the above procedures must be followed.

As testing continues, the cause of the high CO levels will be identified and should typically be addressed as a health and safety issue.

Additional restrictions may apply for secondary heat sources; however, CT WAP does not permit repairs or replacement of any secondary heat sources. If any secondary heat source is generating actionable CO levels, this condition must be addressed by the owner at his expense before weatherization work may begin. A deferral of up to 60 days must be issued; the energy audit may be completed, provided it does not endanger the health and safety of the energy auditor or occupants of the unit.

Subgrantees are strongly encouraged to instruct field staff to document initial ambient CO readings and all subsequent readings in detail in their field notes. Readings should be documented to include the date, time, location, devices used, and calibration dates.

7.7 Combustion Appliance Safety Action Limits

The Grantee requires that Subgrantees use Building Performance Institute (BPI) action limits to determine acceptable levels when testing of combustion appliances. Weatherization limits can be found in the BPI tables and in the Connecticut Weatherization Field Guide . These limits include:

- Combustion passive analysis for Carbon Monoxide (CO) action levels
- Combustion Appliance Zone (CAZ) depressurization limits
- Acceptable appliance spillage limits
- Acceptable draft test ranges

If combustion appliances exceed the action limits repairs must be ordered to correct the hazards. Weatherization work must not commence until such repairs are made.

7.8 Heating and Cooling Systems

7.8.1 Heating Degree Days

In accordance with WPN 22-7, heating system repair or replacement is required when there is a documentable imminent threat to the occupant's H&S for those costs to be allowed as H&S expenses. Heating degree days were calculated through BizEE Degree Days software tool www.degreedays.net for a period of 24 months from the beginning of 2023 to the end of 2024. Based on this information:

- The central part of the State averaged 4,918 (Hartford) heating degree days.
- The southeastern part of the State averaged 4,646 (Bridgeport) heating degree days.
- The northeastern part of the State averaged 6,404 (Norfolk) heating degree days.
- The northwestern part of the State averaged 5614 (Windham) heating degree days.

Connecticut's heating degree days average of 5,396 heating degree days justifies heating system repairs or replacement as an H&S measure.

7.8.2 Heating and Cooling Systems Considerations

Connecticut's climate with over 5,975 heating degree days on average may contribute to dangerous situations for families when heating systems are non-existent or inoperable. Additionally, gas, propane, oil, kerosene, and solid fuel heating systems, if not working properly, can create dangerous air quality issues.

Therefore, CT WAP allows for the repair or replacement of primary heating appliances as an H&S measure if the primary heating appliance is unsafe, not functioning, or inoperable. Repairs or replacement of secondary heating systems are not allowable weatherization measures unless special conditions exist and prior Grantee approval is granted. All CT WAP site-specific home energy assessments conducted utilizing the Weatherization Assistant Energy Audit Tool and all heating and cooling systems must be evaluated as potential Energy Conservation measures, including secondary units.

While this directive is intended to assess energy conservation opportunities, it does not justify or constitute the use of H&S funding for the purpose of repairing or replacing cooling equipment in CT WAP. Cooling equipment repair and replacement with H&S funds will be reviewed on a case-by-case basis.

Primary Heating Systems

CT WAP allows for replacement of heating systems used as the primary heating source as an H&S measure only if it is unsafe, not functioning, inoperable, or where remediation is necessary to perform weatherization and cannot be remedied by repair or tuning, unless these replacements produce an SIR

of one or more. In which case they can be replaced as an ECM following the waiver process. H&S funding may be used to repair or replace the following primary heating systems, following the waiver process for replacement:

- Natural gas and propane s
- Oil-fired heating appliances
- Solid fuel heating
- Primary space heaters, vented combustion
- Unvented combustion primary space heaters (replacement only)
- Electric heating systems

Heating appliances may be replaced using H&S funds if:

- The replacement does not produce an SIR of one (1) or more,
- The heating appliance cannot be repaired,
- The heating appliance is inoperable,
- The primary heating system is non-existent, and/ or
- The primary heat source is an unvented combustion appliance.

Care should be taken to ascertain whether a heating appliance can be repaired. Necessary repairs on inoperable heating appliances are allowable H&S measures.

State approval is required prior to replacing heating systems, including obtaining a minimum of three (3) bids.

Inoperable or Nonexistent Heating Systems: In some circumstances, a heating system may be present in the home, but inoperable. In rare instances, the home may not have a heating system at all. In these scenarios, the auditor should use the following guidance when completing the energy modeling of the unit.

- When the energy auditor is attempting to replace a non-working heating/cooling system as an energy conservation measure, they should enter the system as it was originally designed and installed. This includes the capacity, AFUE, and % of space conditioned.
- AFUE information should come from the data plate or tag on the appliance or may be determined by dividing the design output by the input (e.g., output 80kbtu/input 100kbtu = 80% AFUE).
- In the case of electric furnaces, the AFUE should be entered as 100%.
- If the system uses a compressed refrigerant cycle (air conditioning or heat pump), the derating allowance outlined in WPN 23-06 may be used to determine the SEER/EER/HSPF of the unit

for modeling purposes.

- If the appliance qualifies for replacement as an Energy Conservation Measure (ECM) with an SIR of 1.0 or greater then DOE WAP funds may be used to replace the system.
- If the replacement unit does not meet an SIR of 1 or greater, then the unit must be replaced either as a WAP H&S measure or using funding other than WAP, or the dwelling unit must be deferred from DOE WAP.

Weatherization Readiness Funding: Under limited circumstances and after extensive Grantee review, heating system repair or replacement can be done utilizing WRF. As long as the unit would otherwise be deferred and SIR cannot be achieved with repair or replacement, and no other funding source, such as LIHEAP, is available. The use of WRF for this purpose is the exception to the rules and not the norm. There are extensive documentation requirements that must be met to utilize WRF for heating and cooling system replacement; therefore, WRF is not utilized in most emergency situations.

Deferral: Subgrantees must ensure that expected cost of repairing or replacing a heating system can be done within the H&S per unit average or within the parameters of WRF. If the cost of repairs or replacement affects Subgrantees' ability to stay within available funding limits or parameters of WRF, the job may have to be deferred until those issues are resolved by the owner or other funding source.

If during the Audit or the Clean, Tune, and Test (CTT) process, the technician finds certain conditions that make the system unsafe or inoperable, such problems should be repaired, if possible, under the H&S cost category unless they can produce an acceptable SIR of one (1) or more.

The waiver review process must include documentation used to support cost comparison between replacement and repair and be kept in the client file.

CT WAP has retained technical staff specific to Technical and Monitoring Compliance Support and can assist Subgrantees on a case-by-case basis in evaluating heating system repair and replacement options.

See “Section 12.4 Deferrals” for more information.

Secondary Heating Systems

CT WAP does not allow for the repair or replacement of heating systems used as secondary heating source unless special conditions exist and prior approval is granted.

While this directive is intended to assess energy conservation opportunities, it does not justify or constitute the use of H&S funding for the purpose of repairing or replacing a secondary heating or cooling equipment in CT WAP. Repair and replacement of equipment with H&S funds will be reviewed on a case-by-case basis.

Per DOE guidance, all secondary heating and cooling equipment must be entered into the energy audit tool. All repairs and replacements must be evaluated in WAweb as energy conservation opportunities.

7.8.3 Gas and Oil Fired Domestic Hot Water (DHW) Systems

The energy auditor or licensed plumbing and heating contractor must follow program protocols to determine that the unit's gas or oil-fired domestic water heater system is operating safely by performing technical analysis.

All gas and oil-fired water heaters must be monitored for draft and CO levels as well as checked for gas leaks or oil leaks. Requirements for evaluating gas and oil-fired water heaters can be found in the Connecticut Weatherization Field Guide.

Gas and oil-fired water heaters must be repaired if not properly drafted, have high CO levels, gas leaks, non-functioning venting systems, or are rusted and leaking water. The energy auditor should first consider the possibility of repairing and replacing parts on a malfunctioning water heater before recommending replacement of the water heater.

7.8.4 Other Considerations

Restrictions: Replacement of gas or oil-fired water heaters is an allowable H&S expense if DOE has approved such replacements in the current Energy Audit Tool application. Prior approval from the grantee is required.

Weatherization Readiness Funding: The utilization of WRF to pay for repair or replacement of DHW systems is subject to the same restrictions as heating system repair and replacements and are only approved by CT WAP under special circumstances that must be documented appropriately.

See "Section 6.10 Weatherization Readiness Funds (WRF)" for more information.

Deferral: Subgrantees must ensure that the expected cost of repairing or replacing a water heater can be performed within the current available per-unit H&S average cost. If the cost of repairs or replacement is "unreasonable", as determined by DEEP, and will affect the ability of the subgrantee to stay within available funding limits, then the job may be deferred until those issues are resolved by the owner or other funding source.

CT WAP recognizes that replacement costs associated with repair and replacement of DHW appliances are directly related to site conditions. Subgrantees are reminded to provide documentation of all contributing factors when requesting prior CT WAP approvals.

7.9 Gas Cook Range and Stove

Gas-fired cook ranges can be a CO source if not in proper working order. Interference from food dropping into burners or from aluminum foil placed over air vents in the oven, can produce elevated CO in gas cook ranges. Gas lines can become leaky over time, particularly for ranges that are moved periodically for cleaning. Additionally, gas cook ranges that have electric igniters may have frayed wiring or other electrical problems.

The energy auditor must check gas-fired cook ranges for gas leaks, electrical issues, and excessive carbon monoxide in the oven and top burners.

Technical Reference: Connecticut Weatherization Field Guide recommends limits and action level standards currently used by CT WAP, with the following CO limits for gas ovens:

- CO limits of 225ppm (as measured), (800 ppm air-free) or ambient-air readings above 35 ppm: discontinue testing. Install a carbon monoxide detector and provide the client with written notification/recommendation for service. Standard maintenance and or repair may be paid for as an H&S cost.
- Greater than 225ppm (as measured), (800 ppm air-free) or ambient-air readings above 35 ppm: the unit must be serviced prior to other weatherization work can continue.
- If greater than 225ppm (as measured) after servicing: defer all Weatherization work until this condition has been addressed by the client permanently.
- If gas leaks are found: The client must be informed of gas leaks, improper gas lines, and/or frayed wiring. Gas leaks must also be reported to the gas company by the client for follow-up.

7.9.1 Other Considerations

Restrictions: It is not an allowable expense to replace non-functioning or malfunctioning cook stoves and/or ovens using CT WAP Funding or Weatherization Readiness Funds.

Deferral: Should a cook stove or oven require repair or replacement due to H&S concerns; weatherization work must be deferred until the issue is resolved.

See “Section 12.4 Deferrals” for more information.

7.10 Gas Clothes Dryer

If the dwelling has a gas dryer that is not vented to the outside, it is an allowable H&S measure to install proper venting.

Carbon Monoxide (CO) Generation

Ambient CO must be checked in the space or room occupied by the gas dryer while in operation. This may be done by the energy auditor using his/her personal CO monitoring device while in the dryer area during its operation. If actionable CO levels are detected, shut off the dryer and evacuate the area until CO falls below any actionable levels, notify the client in writing of the condition the gas dryer is generating CO, and alert the client to call for service on the gas dryer at the client's expense or other funding. The dryer must not be used until appropriate action has been taken to prevent the unsafe generation of CO by the gas dryer.

Gas Leaks

Check all gas piping for leaks connecting the gas meter to the dryer. If any leaks are found, notify the client to call the gas utility for repair at the client's expense or with other funding.

7.11 Carbon Monoxide (CO) Detectors

Carbon Monoxide (CO) detectors are required in all locations stipulated by NFPA 72. CO alarms should be placed in the following locations:

- On every occupiable level
- Within 21 ft. of any sleeping room
- In any sleeping room that contains a combustion appliance

Note that the CAZ is not a recommended location for a CO alarm. These requirements apply to all homes, regardless of the presence of a combustion appliance.

- The clients must be educated on the following:
- Proper operation and maintenance of CO alarms
- The hazard and danger signs
- What to do in case of an alarm
- Proper installation of batteries (if applicable)
- How to installation or replace inoperable CO detectors

7.11.1 Other Considerations

Restrictions: Replacing an existing operable alarm with a new alarm is not an acceptable H&S expense. If batteries are required for the alarm to function and the batteries need replacing, replace the batteries.

Deferral: Carbon monoxide detectors are addressed immediately and are not a reason for unit deferral.

Fireplaces: Fireplaces pose specific hazards that can be influenced by weatherization. If the fireplace draft is poor or insufficient under certain conditions, downdrafts may occur, causing smoke or CO to enter the living space.

7.12 Smoke Alarms

The assigned weatherization installer must ensure the unit has operable smoke alarms in the number and in locations as specified in the Connecticut Weatherization Field Guide.

Clients are to be educated on proper installation of batteries. Replacement of inoperable smoke alarms and/or batteries is an acceptable H&S expense.

7.12.1 Other Considerations

Restrictions: Replacing existing operable smoke alarms is not an acceptable H&S expense. If batteries are required for the alarm to function and the batteries need replacing, replace the batteries.

Deferral: Smoke detector issues must be addressed immediately and are not a reason for unit deferral.

7.13 Water and Moisture

Water and excessive moisture in a unit can cause H&S issues ranging from structural deterioration to the formation of dangerous mold and mildew. To the extent that water problems will interfere with effective weatherization or will be worsened by a measure, the underlying problems must be addressed prior to any weatherization work.

High levels of indoor relative humidity (over 60% for an extended time) encourage increased growth of molds and germs. The negative health effects of mold spores can be exacerbated by weatherization because of the reduced air flow throughout the unit, resulting from air sealing activities.

The sources of water and moisture problems vary greatly. They can be caused by excessive groundwater penetration, poor drainage, poorly graded grounds, roof leaks, deteriorated gutters, leaky plumbing, and inadequate ventilation.

Evidence of H&S issues resulting from these problems is determined by the energy auditor conducting a moisture assessment on all units. This assessment will check for the following conditions:

- Water stains or mold in the attic, especially on the underside of roof sheathing
- Evidence of excessive condensation on windows
- Water stains or mold on exterior wall surfaces and roofs
- Standing water in basements or stains indicating periodic flooding
- Damp basements or crawl spaces with dirt floors
- The use of sump pumps in basements or crawl spaces
- Inadequately vented clothes dryers
- Inoperable or inadequately vented bathroom fans
- Inoperable or inadequately vented kitchens exhaust fans

A copy of the EPA publication “A Brief Guide to Mold, Moisture and Your Home” must always be given to the occupants by the energy auditor for the purposes of client education.

In less serious moisture-caused situations, the owner/client must be alerted to the situation. The areas of concern must be documented. The client and the landlord, if applicable, should sign the form before weatherization work can be started. This form will be kept in the client file.

See CT WAP form “Mold Disclaimer Form”

In more extensive situations, Subgrantees should take actions to alleviate the cause of water or moisture damage (Source Control). Such actions are to be taken only as they relate to the weatherization work and can be accomplished at a reasonable cost within the available H&S funding for

the unit. The following actions are allowable H&S measures related to water and moisture under CT WAP:

- Drainage
- Gutters
- Downspouts and extensions
- Flashing
- Sump pumps
- Dehumidifiers
- Landscaping
- Leaking roofs
- Vapor retarders
- Moisture barriers
- Other bulk moisture control

Limited Water Damage

When necessary, work that can be addressed by weatherization workers is allowed to weatherize the home and ensure long-term stability and durability of the installed measures.

Source Control

When necessary, correction of moisture and mold-creating conditions when necessary to ensure the long-term stability and durability of the installed measures.

Surface Preparation

Where weatherization measures are being installed and must be charged as part of the installed ECM.

Drainage

Minor re-grading of the perimeter grounds to correct improper drainage and reduce the excessive water accumulation.

The maximum allowable action is limited to work that can be addressed with hand tools and limited material costs, within a four-hour labor cost limit.

Minor gutter system measures may be taken to correct water accumulation around the home perimeter. “Minor” is defined by the program as the repair or replacement of existing gutters and downspouts, or the installation of non-existent gutters and downspouts.

The maximum allowable replacement under this policy is a length of twenty-five feet of gutter and fifty feet of downspout.

Plumbing

Minor plumbing by a licensed Contractor to fix leaks that are causing water problems.

All actions, including the installation of a sump pump, that are to alleviate moisture problems and plumbing issues require Subgrantees to obtain prior approval from CT WAP. Such approval will require a waiver request by Subgrantees. The request includes a description of the work, a justification connecting the plumbing work to the weatherization, and three quotes from licensed plumbers for the job. The request is submitted to CT WAP program monitor with a copy to the Grantee technical project manager.

Subgrantees must have written approval from the CT WAP before commencing plumbing work.

Clothes Dryer Ventilation

The correction or installation of proper clothes dryer ventilation may alleviate moisture issues in the unit. Venting clothes dryers to the outside of the dwelling, or the correction of existing dryer vents, including ventilation flex ducts installed to the outside, are required H&S activities.

Bathroom and Kitchen Ventilation

Excessive moisture may be remedied by repairing or installing bathroom and/ or kitchen exhaust fans. All installations should follow ASHRAE 62.2 standards. Fans should always be checked for cleanliness and operability. Fans must be vented to the outside to avoid moisture build-up in the house or attic.

Vapor Retarders

Install a ground moisture barrier, which is a piece of heavy plastic sheeting (6 Mil) laid on the ground. Black heavy plastic film works well, but tough cross-linked polyethylene is even more durable. The edges should be sealed to the foundation walls with urethane adhesive and/or mechanical fasteners. The seams should be sealed as well.

Roof Repairs

Reasonable and limited repairs of roof conditions that effectively control the source of water damage and moisture problems are allowable.

Actions to repair a roof for H&S reasons require Subgrantees to obtain prior Grantee approval. Such approval will require a waiver request by the Subgrantees. The request must include a description of the roof work, a justification connecting the roof work to weatherization, and three quotes from roofing contractors for the job. The request is to be submitted to the Grantee with a copy to the Grantee Technical Consultants. Subgrantees must have written prior approval from the Grantee before commencing with any and all roofing work.

Roof repair may be justified as an Incidental Repair (IR) needed to ensure the effectiveness of the measure being installed, such as the installation of attic insulation. Determining how to categorize roof work depends on the reason for the repairs. If the leaking roof is causing moisture and mold, the repair should be considered an H&S activity. If the roof repair is necessary to ensure the integrity of insulation work, the repair should be charged as an Incidental Repair.

7.13.1 Other Considerations

Funding: H&S funds may be used to mitigate the cause of water or moisture conditions (Source Control) where weatherization will further impact H&S risk to occupants or will threaten workers. To the extent that the specific moisture is related to the weatherization work, reasonable mitigation of the causes of the problem may be considered H&S work by the weatherization installer.

Subgrantees must keep in mind that it can be difficult to estimate the scope of work for some of the work under this category due to conditions which can only be identified during the course of the repair, which can result in high costs. That is why roof work and plumbing work, for example, require coordination with and approval by CT WAP. In determining whether to approve such work, CT WAP will consider factors such as the connection with weatherization work, as well as the Subgrantee's current average cost of H&S in comparison with established limits.

In some cases, moisture and water fixes may be necessary to ensure the long-term stability and durability of weatherization measures. In that case, the activities should be considered and charged as an Incidental Repair (e.g., replacement of a dry-rotted windowsill, replacement of gutter or downspouts, roof repair).

Where additional funding is needed to alleviate the effects of moisture damage, the subgrantee should inform clients of other community resources that can assist with the work. For example, mold remediation is NOT an allowable H&S cost. In instances where mold is significant in the living unit and abatement is critical, the client should be referred to other partners such as the local office of the CT Department of Public Health (DPH).

Restrictions: According to the CT WAP H&S Plan, minor (incidental) water damage can be addressed so long as the repairs are less than or equal to $750.

Deferral: Weatherization work will be deferred when evidence of serious water, drainage, or moisture problems can be documented. Such evidence would include excessive mold, mildew, strong odors, standing water, or other unsanitary conditions present such as raw sewage. Weatherization services must be postponed until the problems are corrected. These problems will be documented on the "Notice of Postponement of Services" form and a copy will be provided to the client. In the meantime, every effort will be made to refer clients to other programs that can assist in eliminating these problems. Weatherization services will be deferred if the repairs to mitigate hazards are beyond the scope of the Connecticut WAP either because the cost is too high or the correction is not allowed, such

as major drainage issues or mold abatement.

Weatherization Readiness Funding: Weatherization Readiness Funds (WRF) can be utilized to address water and moisture issues within the parameters of the WRF State Plan. WRF can only be utilized when the cost or scope of the health and safety issues would result in a household being deferred. Additionally, H&S funds are to be utilized first, and then WRF can be applied to address these types of H&S issues.

Notes:

- See “Section 8.13 Incidental Repairs” for more information.
- Mold cleanup is not an allowable H&S measure.
- CT WAP will review special requests for gutter and downspout repairs on a case-by-case basis provided sufficient documentation of need is provided and costs are within program limits for “minor” repair or replacement.
- All roof repair requests must provide photo documentation of the exterior drainage plane and related flashing, interior roof decking and flashing and any interior finished surfaces or insulation materials damaged as a result on existing roof leaks.
- Subgrantees must document all equipment and methodology utilized to conduct analysis of water and moisture conditions including the evaluation of ventilation devices. Field notes should document all subject conditions photographically and indicate date, time, and location of analyses.

7.14 Other Pollutants

The energy auditor must check for the presence of asbestos, vermiculite, radon, and volatile organic compounds (VOCs), which can be disturbed during the weatherization process and increase health hazards to the weatherization workers and the occupants. For instance, tightening a dwelling that has high levels of VOCs can exacerbate an already unhealthy condition. Disturbing friable asbestos when running the blower door may cause asbestos particles to become airborne causing potential health concerns for both the weatherization worker and the household.

7.14.1 Asbestos

Many homes contain asbestos, which was widely used into the late 1970's because of its fireproof quality and excellent insulation properties. In products such as pipe wrap, the material can become friable, meaning it breaks down into microscopic particles when damaged, which, when inhaled, can cause serious health problems, including pulmonary fibrosis and mesothelioma.

Action: The energy auditor may come across asbestos in such components as asbestos siding, ceiling tiles, and insulation wrap on pipes coming from a steam or water boiler, or as insulation on ductwork of a forced hot air furnace heating system. As with other potentially hazardous materials, if asbestos is in stable condition and will not be disturbed by the work, weatherization work can continue in areas away from the asbestos components. In some instances, certain weatherization measures may have to be bypassed or modified to accommodate the presence of the material. Any presence of asbestos in or about the home is to be noted in the energy audit.

Testing: In addition to visually inspecting the interior and exterior of the site, asbestos testing may be conducted in accordance with the Asbestos Hazard Emergency Response Act of 1986 (AHERA), 15 U.S.C § 2641, et seq. All testing must have prior approval from the Grantee. Asbestos should not be disturbed during weatherization work under any circumstances, except asbestos shingles on exterior siding, which may be removed and/or replaced as necessary to properly install insulation. Asbestos siding should never be cut or drilled through.

In cases where conditions prohibit installing side-wall insulation without disturbing asbestos materials, it is recommended that consideration be given, and cost proposals be prepared for insulation being installed through the interior of the home.

Whenever asbestos siding is suspected, the energy auditor must inform the client and discuss all precautions that will be taken prior to the start of work.

If asbestos insulation covering the pipes and boilers is in good condition (not friable) and, in the energy auditor's opinion, the fibers will not become air-borne, it will be safe to work in the immediate area. The Grantee recognizes that the term "good condition" is subjective and requires Subgrantees to photo-document all conditions found prior to conducting blower door testing in all cases and file accordingly.

When the heating piping distribution system, or boiler/furnace wrapping, or ductwork insulation is suspected to contain asbestos, limited removal or limited encapsulation of the heating system by a licensed asbestos professional is an allowable measure under H&S if the heating system is to be replaced. The energy auditor must educate the client about asbestos and the dangers of airborne asbestos fibers. In these instances, clients should be instructed not to disturb suspected asbestos-containing material (ACM).

Funding: CT WAP funding, including H&S funds, may be used for limited removal or encapsulation of asbestos on a case-by-case basis. H&S funds can be used for an appropriately trained AHERA asbestos control professional to perform limited encapsulation and/or limited removal only with prior Grantee approval. Testing for asbestos by an AHERA Certified Tester is an allowable CT WAP expense.

Blower Door Testing Restrictions: If friable asbestos is identified in a home, would be exposed to the direct flow of air and become disturbed during blower door testing, then the blower door depressurization testing cannot be performed, unless that room or space where such materials are present can be isolated from the rest of the building, by closing a door, or other means. If the space where the suspected friable asbestos can be isolated, the blower door test can be performed but at a reduced pressure of CFM 25. In addition, if concerns still remain regarding performing the blower door test at reduced pressure, then a blower door pressurization test must not be performed.

Deferral: In some cases, the presence of asbestos may mean the weatherization work is deferred. If the condition of the asbestos is such that it presents a potential health risk to the worker, or if the weatherization work will worsen the situation for the occupants, the work on the dwelling should be deferred.

The occupant and/or owner must be notified of the conditions that are the deferral reason. To properly identify where asbestos should be addressed, the homeowner should be urged to have an inspection performed, and to have the asbestos removed by a licensed asbestos abatement contractor. This determination should be left to the homeowner and not entered into by Subgrantees or contractors.

When deferral becomes necessary due to asbestos, the occupant must provide documentation that a certified professional performed the remediation before work can continue.

If a heating system is to be replaced as a CT WAP H&S measure, some limited removal of asbestos pipe insulation may be allowable, but just enough to enable the disconnection of the old boiler from the heating pipe distribution system and to reconnect the new boiler. The air testing required after abatement and before re-entry can be made in the space where the abatement took place, but cannot be paid for as a separate cost using CT WAP funding and must only be included within the entire cost of the limited removal associated with the heating system cost as a H&S measure. No CT WAP H&S funding can be expended to verify safe re-entry post homeowner abatement efforts.

General abatement of asbestos siding materials or related replacement materials is not an allowable

H&S cost.

See the Department of Public Health website: http://www.ct.gov/dphStatutes and Regulations (ct.gov) for state regulations regarding the treatment of asbestos.

Weatherization Readiness Funding: Encapsulation and remediation of Asbestos is an allowable WRF expense as long as the issue would otherwise result in the household being deferred and the work falls within the parameters set forth in the WRF State Plan.

Note: CT WAP has developed no specific guidance in respect to installing insulation via penetrations to finished interior surface areas. Subgrantees are advised to examine all potential limitations to interior installation options including, but not limited to, interior hazardous materials testing and excessive installation costs prior to considering this option.

7.14.2 Vermiculite

Although not all vermiculite contains asbestos, some vermiculite products that contain asbestos were made until the early 1990s. Vermiculite is a naturally occurring mineral composed of shiny flakes, resembling mica. When heated to a high temperature, flakes of vermiculite expand as much as 8-30 times their original size. The expanded vermiculite is a lightweight, fire-resistant, and odorless material and has been used in numerous products, including insulation for attics and walls. Sizes of vermiculite products range from very fine particles to large (coarse) pieces nearly an inch long.

Action: Assume vermiculite contains asbestos unless testing determines otherwise.

Weatherization workers are required to take the same precautionary measures as when other suspected materials may contain asbestos.

Do not insulate directly over vermiculite.

Do not perform blower door testing when vermiculite is present.

Clients must be instructed not to disturb suspected asbestos-containing material as part of the energy auditor's client education module about asbestos safety.

Funding: CT WAP funding, including H&S funds, may be used to address encapsulation of vermiculite by appropriately trained asbestos control professionals, provided testing performed by AHERA Certified sampling confirms the presence of asbestos. The CT WAP will review all encapsulation proposals on a case-by-case basis.

Deferral: When deferral becomes necessary due to vermiculite, the occupant must provide documentation that a certified professional performed the remediation before work can continue.

Note: Baseline environmental testing is an allowable cost and must be conducted by an AHERA-certified professional. Prior approval is required from CT WAP in all cases.

Weatherization Readiness Funding (WRF): Encapsulation and remediation of vermiculite are allowable WRF expenses, provided the issue would otherwise result in the household being deferred and the work falls within the parameters set forth in the WRF State Plan.

7.14.3 Radon And Soil Gases

Radon and other dangerous soil gases generally enter homes by seeping up through the ground. Radon is an inert gas, which means that it does not react or combine with the elements in the ground. Because of this, radon gas can move up through the soil into the atmosphere, where it is easily diluted. However, when it enters a building constructed on top of this soil, it can build up and become a health concern.

Studies have shown a link between breathing high concentrations of radon and the incidence of lung cancer. Thus, radon is considered a significant contaminant that affects indoor air quality worldwide. According to the U.S. EPA, radon is the second most frequent cause of lung cancer, after cigarette smoking.

Action: If energy auditors visually identify areas in which radon could be seeping into the home (i.e., exposed crawl spaces, sump pumps without covers, etc.) they are required to take the following precautionary steps:

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

In homes where radon may be present, the work scope may include additional precautionary measures based on the EPA's Healthy Indoor Environment Protocols for Home Energy Upgrades. Other precautions may include, but are not limited to:

- Sealing any observed floor and/ or foundation penetrations;
- Isolating the basement from the conditioned space, and;
- Ensuring that crawl space venting is installed and operable.

These preventative measures can be billed to the H&S category.

Funding: CT WAP H&S funding cannot be used to test or mitigate radon. However, the Connecticut Department of Public Health (DPH) may provide free short-term radon test kits through local health department partnerships while supplies last. Visit the DPH website for details. If radon testing is conducted, the results must be documented and retained in the client's file.

Energy auditors may identify the presence of radon via client inquiry or visual identification of abatement measures or mitigation equipment. Auditors must refer to WPN 22-7 and conduct blower

door testing only after thorough evaluation of existing conditions and equipment operation has been completed. Subgrantees are advised to document all site conditions and file accordingly.

Restrictions: WPN 22-7 indicates that Radon testing may be considered in locations with high radon potential. Current EPA documentation provides a map of Radon Zones in CT in accordance with the Indoor Radon Abatement Act of 1988 (IRAA), 15 U.S.C. § 2661, et seq. The CT map displays 3 color-coded zones of radon potential.

- Zone 1: (Red) is listed as the highest potential area to encounter residential radon exposure. (Fairfield, Middlesex, New Haven, and New London Counties).
- Zone 2: (Orange) is listed as moderate potential (Litchfield, Tolland, and Windham Counties).
- Zone 3: (Yellow) is listed as low potential (Hartford County).

Based on EPA reporting, radon testing should be recommended in any home weatherized in CT Zones 1 and 2. Testing may be recommended in Zone 3 homes if the energy auditor determines that site conditions warrant further examination.

Provide clients with the EPA Consumer's Guide to Radon along with appropriate education and reference materials. Subgrantees must obtain owner signatures on the informed consent form and retain the signed forms in client files.

Do not run a blower door test if radon is identified, unless a radon mitigation system is already in place and verified to be fully to be operational. Air pressure differentials drive radon gases, so work should never be done that creates or increases negative pressures in basements and crawlspaces.

Deferral: When a job becomes deferred due to Radon, the Radon risk must be mitigated before weatherization work can commence.

For state regulations regarding radon treatment, see the Department of Public Health website www.ct.gov/dph.

Note: Other precautions may include, but are not limited to, sealing any observed penetrations, including open sump pump pits, isolating the basement from the conditioned space, and ensuring crawl space ventilation, where applicable.

Weatherization Readiness Funding: Radon mitigation may be an allowable WRF expense if the issue would otherwise result in the household being deferred and the work falls within the parameters set forth in the WRF State Plan.

7.14.4 Formaldehyde And Volatile Organic Compounds (VOCs)

VOCs are emitted as gases from certain solids or liquids. VOCs include a variety of chemicals, some of which may have short and long-term adverse health effects. Concentrations of many VOCs are

consistently higher indoors (up to ten times higher) than outdoors. VOCs are emitted by a wide array of products. Examples include paints and lacquers, paint strippers, cleaning supplies, pesticides, building materials such as plywood, furnishings, new carpets, and craft materials, including glues and adhesives.

The ability of organic chemicals to cause health effects varies. As with other pollutants, the extent and nature of the health effect will depend on many factors, including level of exposure and length of time exposed. Eye and respiratory tract irritation, headaches, dizziness, visual disorders, and memory impairment are among the immediate symptoms that some people have experienced soon after exposure to some organics.

Action: The client must be informed and receive documentation on safety and proper disposal of household pollutants, including household chemicals, paints, and other suspected pollutants.

Testing: In the event that sensory testing indicates that a hazard exists, action to remove the hazard must include proposals to remove the hazard as well as any required testing to ensure that any latent or subsurface contamination has been quantified, addressed and cleared via required documentation as per agency having jurisdiction.

Funding: H&S funds can be used to remove pollutants if they pose a risk to workers and the cost is not prohibitive. Prior DEEP approval is necessary before removal of VOCs may take place. Under certain circumstances, WRF may be used to provide supplemental funding to address this type of issue.

Restrictions: If there is evidence of excessive VOC fumes, no blower door testing can be conducted, and no air sealing work is to be done.

Deferral: If the removal of such pollutants is cost prohibitive, a 60-day deferral may be necessary in order for the owner to abate this condition.

Note: Common fuels used in residential heating (#2 Fuel Oil, Kerosene, and Liquid Propane (LPG)) and recreational fuels such as gasoline and Diesel Fuel, also contain VOCs and must be treated as such.

See “Section 7.19 Fire Hazards and Fuel Leaks” for more information.

7.14.5 Dust

Inhaling any kind of dust can be harmful. During weatherization work, especially when blowing insulation, precautions should be taken to minimize exposure to dust. Workers should wear NIOSH N100 rated respirators, and clients should be isolated from work areas. If this is not possible, or the client has a history of respiratory problems, they should be removed from the dwelling until work is complete.

Weatherization Readiness Funding: If the client has a pre-existing condition that would otherwise result in a Health and Safety Deferral due to cost restrictions. WRF funding may be applied towards the use of extra precautions such as HEPA filtration and Specialized Air Cleaning. This funding can only be utilized to install H&S measures not to repay customers for measures paid for outside the DOE funding sources.

7.14.6 Unsanitary Conditions

Unsanitary conditions may pose a risk to weatherization workers. Unsanitary conditions include but are not limited to odors, mustiness, raw sewage, and rotting wood.

Deferral: In these cases, work must be deferred until the client can address these hazards. WRF may be used to remediate unsanitary conditions in certain circumstances and depending on the availability of funds. If unsanitary conditions are present, clients should be informed and provided with information about maintaining a sanitary home.

7.14.7 Biologicals, Odors, Bacteria, Viruses, Raw Sewage, Rotting Wood, Etc.

It is not an allowable H&S expenditure to address harmful bacteria not normally present in a dwelling unit. In all circumstances where harmful bacteria are present, work must be deferred. If harmful bacteria are suspected to be present, clients should be informed and provided with information about maintaining a sanitary home.

Funding: Remediation of conditions that may lead to or promote biological concerns is allowed and must be proposed and pre-approved on a case-by-case basis by the Grantee.

Testing: Limited to on-site sensory only.

7.14.8 Pests

Pests, such as cockroaches, mice, rats, mites, and others, can be detrimental to the health of the weatherization workers and the client.

Funding: Pest removal is allowed as an H&S cost only when infestation would pose a health hazard to the worker(s) and, therefore, prevent weatherization. The screening of windows and points of access and incorporating pest exclusion into air sealing practices to prevent intrusion is an allowable H&S cost.

Prior CT WAP approval is necessary before funding may be expended to address pest removal.

Weatherization Readiness Funding: WRF can be utilized to address these types of issues when they would otherwise result in a deferral and the scope falls within the parameters of the WRF State Plan.

Deferral: Infestation of pests may be cause for deferral where it cannot be reasonably removed or poses risk for weatherization workers. Clients should be informed in writing of the observed condition and associated risks.

Note: Refer to the National Center for Healthy Housing and BPI Healthy Homes Evaluator credentialing for testing and training protocols.

7.14.9 Refrigerant And Hazardous Materials Disposal

Hazardous materials such as asbestos, lead, mercury, including CFL/fluorescent lighting elements, generated during weatherization work, shall be disposed of according to all local laws, regulations, and/or federal guidelines as applicable. Clients must be informed in writing of hazards associated with waste materials being generated/handled on any weatherization site. Refer to Lead and Asbestos sections for more information.

Refrigerant should be reclaimed per Clean Air Act of 1990, National Recycling and Emission Reduction Program, 42 U.S.C. § 7671g. The EPA requires that removal of refrigerants be conducted by an appropriately licensed party. Subgrantees should remind clients not to disturb refrigerant if it is located in a dwelling unit. A deferral must be issued until the client has had the refrigerant issues addressed. CT WAP dollars cannot be used to address such issues.

Documentation of all disposal requirements must be articulated in all contract language with responsible parties.

7.15 Building Code Compliance Issues

All installed weatherization measures and weatherization-related work must comply with applicable State of Connecticut Building and Fire Codes, as well as any other applicable codes.

Correction of preexisting code compliance issues triggered by weatherization measures being installed in a specific room or area of the home. If the installation of a weatherization measure triggers the correction of a preexisting code compliance issue, and is paid for with WAP funds, the specific code requirements with reference to the weatherization measure(s) that triggered the code compliance issue must be documented in the occupant file.

Testing: Limited to visual inspection during on-site audit. Specific measures related to occupant H&S must immediately be referred to the appropriate licensed contractor or Local Authority Having Jurisdiction.

7.15.1 Other Considerations

Restrictions: Using DOE WAP H&S funds for correction of preexisting code compliance issues not directly related to the installation of specific weatherization measures in the home is not allowable. Prior CT WAP approval is required to expend H&S funds to address code compliance issues, and all proposed measures must include reference to specific code and jurisdiction. WAP funds cannot be used for work on condemned properties and properties where H&S conditions exist that cannot be corrected under the guidance in WPN 22-7.

Deferral: Condemned properties and properties where severe H&S conditions due to code non-compliance exist must be deferred until repaired by the owner or another funding source, for up to 60 days. If issues are not addressed within the 60-day period, the client must be notified in writing that weatherization work will not be performed, the job will be a “walk away’, the client file will be closed, and the client may jeopardize any DEEP assistance for up two years.

Weatherization Readiness Funds: If the issue can be addressed within the parameters of the Weatherization Readiness Funding as dictated in the WRF State Plan and within 60 days, then the client may still be eligible to receive weatherization services.

Note: Identification of some code compliance issues may exceed the limits of training provided within standard weatherization training curriculum. Auditors and inspectors should refer to grantee level training and technical resources for further guidance and state and regional training resources.

7.16 Lead Safe Weatherization

Lead exposure can lead to poisoning, especially in young children and pregnant women. Household paints used before 1978 are presumed to contain lead. Paint chips or dust from lead-containing paints can be inhaled or ingested, which can lead to lead poisoning. Studies have found quantities of lead dust around windows and doors because of the friction created from constant opening and closing. Once this dust is airborne, it can settle anywhere. Crews working within these areas of pre-1978 dwellings must assume that lead paint is present and take precautions to prevent contamination of themselves and clients.

The US DOE Minimum Standards: Must follow the EPA Lead, Renovation, Repair and Painting Program (RRP) when working in pre-1978 dwellings, unless approved, certified testing confirms the work area to be lead-free.

Per EPA rule (40 C.F.R. § 745.80 to 745.92), all window replacements where lead paint exist require RRP practices regardless of the area disturbed.

Documentation in the client file must include certified renovator certifications, on-site training provided, descriptions of actions taken, testing and assessment documents and site photos including containments.

Best practices for on-site work may include:

- Residents, especially young children and pregnant women are to be kept away from the work area.
- HEPA vacuum or wet-clean the immediate work area, before and after work, to remove potentially dangerous lead paint particles and prevent dust from becoming airborne.
- Remove household items within the immediate work area, if possible, or cover them with plastic. Cover the floor in this area with plastic (6 ml minimum thickness) and secure the plastic with masking tape. Keep photo documentation of containment setup in client file.
- When working on exterior surfaces, cover the ground and all landscaping underneath the vertical surface. The area to be covered should extend out to 5 feet for every 10 feet of wall height. Use 6 mil plastic and secure the plastic to the foundation with duct tape. Keep photo documentation of containment setup in client file.
- Thoroughly mist all painted surfaces that are to be disturbed before disturbing them (sanding, drilling, cutting, etc.).
- Workers must remove or clean footwear and remove gloves or clean hands before leaving the work area so as not to contaminate other areas. Disposable coveralls and footwear are recommended.
- At the end of each workday, roll or fold all plastic coverings inward to trap dust and debris, remove them from the job site, and dispose of them along with all other construction waste.

Bag and seal all debris before removal from the job site.

- As a client education service, all weatherization clients living in pre-1978 housing that may contain lead paint will be alerted to the dangers of lead paint as part of the client education process during the energy audit. Prior to any weatherization work being done on pre-1978 housing, owners and occupants will be provided with the EPA Pamphlet "Renovate Right: Important Lead Hazard Information for Families, Child Care Providers and Schools." An adult tenant or homeowner must sign an acknowledgement after receiving this pamphlet. This documentation must be kept in the client file.
- All weatherization workers and Contractors who might encounter or disturb lead-painted surfaces must be EPA certified. To comply with the rule, all CT WAP Subgrantees and contractors must be certified firms as defined by EPA. Certified renovators are required to be onboard with all Subgrantee crews and shall supervise and inspect the weatherization work to ensure that procedures pertaining to the weatherization of buildings built prior to 1978 are met. Firms are responsible for ensuring that a certified renovator is assigned to each job for the purpose of supervising and inspecting weatherization work. Firms are responsible for ensuring that a dust sampling is also performed on each unit to ensure the work area has been cleaned.

7.16.1 Other Considerations

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

Funding: Only costs directly related to the testing and lead-safe practices for surfaces directly disturbed during weatherization activities are allowable H&S costs. Testing methods must be certified, approved, and economically feasible and justified in all cases.

Note:

- CT WAP recognizes that EPA RRP safety rules are triggered when there are more than six square feet of interior painted surface or more than twenty square feet of exterior paint disturbed while installing weatherization measures. These square footage thresholds are based on single area surface disturbances or an aggregate number of disturbances, such as in the case of sidewall insulation penetrations.
- The Subgrantee will verify that crews are using lead-safe practices via on-site and file review monitoring activities.
- Per WPN 22-7, Subgrantees are reminded that testing for lead-containing substances is an allowable cost. All testing and post-completion verification results must be documented and placed in the client file.

7.17 Structural Issues

CT WAP does not allow the use of H&S funds for structural or roofing repairs with H&S funding that does not directly affect weatherization measures. In some instances, minor structural repairs may be made to accommodate weatherization measures. Such minor repairs are funded under Incidental Repairs and included in the overall SIR of the package of measures.

Major repairs must be documented and either deferred or addressed with WRF.

See “Section 6.9.6 Major and Minor H&S Repairs” for more information.

INJURY PREVENTION

Repairing Stairs and Replacing Handrails, etc.

When necessary to effectively weatherize the home, workers may make minor repairs and installations, as defined and approved by the grantee; otherwise, measures are not allowed.

The visual inspection of a home must ensure that access to the portions of the site where weatherization activities will occur is safe for entry and performance of assessment, work, and inspection.

If such conditions are observed, the client should be informed of observed hazards and associated risks, and these potential hazards should be documented and placed in the client's file.

BUILDING STRUCTURE

Building rehabilitation is beyond CT WAP’s scope. Weatherization services should be delayed for homes in poor structural condition, until the dwelling can be made safe for crews and occupants. Clients should be referred to U.S. Department of Housing and Urban Development (HUD) or other programs for assistance with rehabilitation services. Incidental Repairs necessary for the effective performance or preservation of weatherization materials are allowed provided they yield an individual SIR of one (1) or more.

Weatherization Readiness Funding: In some instances, building rehabilitation that would address issues encountered that would otherwise result in a home being deferred from receiving weatherization services is allowable. This is only the case within the parameters of the current WRF State Plan.

See “Section 8.13 Incidental Repairs” for more information.

WINDOW AND DOOR REPLACEMENT

Window and door replacements are not an allowable H&S cost. Provide written information on lead risks whenever issues are identified.

Only those costs associated with lead-safe practices can be considered. Subgrantees are required to

provide photo documentation and written information on lead risks whenever issues are identified and proposed as Incidental Repairs or H&S costs.

7.17.1 Other Considerations

Weatherization Readiness Funding: WRF funds may be used to address structural issues that would result in a home being deferred from receiving weatherization services. The scope and cost are limited to the parameters listed in the WRF State Plan

Deferral: When deferral is necessary, provide detailed documentation of all conditions that must be met in order for weatherization to commence.

7.18 Electrical Safety

A range of electrical issues may arise in the process of weatherizing a house when installing insulation in an attic or in sidewalls, where outdated, overloaded, or deteriorated electrical circuits may pose a hazard. Typical issues to look out for include:

- Uncapped junction boxes
- Frayed or exposed electrical wiring
- Live knob & tube style wiring
- Overloaded circuits
- Improper use of extension cords
- Recessed can light – always consider to be non-insulation contact canned lights
- Other exposed wiring at lighting fixtures, switches and outlets, fans
- Electrical problems with fans, blowers, thermostats on combustion appliances

The owner of the property must be notified immediately of any observed electrical issue that may pose a danger. A licensed electrician is required for any further electrical inspections or repairs.

Weatherization measures such as insulation must be undertaken in such a way as to avoid any contact with electrical systems.

When the H&S of the occupant(s) or worker(s) is at risk, minor repairs, as defined by and approved by CT WAP, are allowable H&S costs.

Evaluation and detailed work scope proposals necessary to provide over-current protection and damming (when required) prior to insulating building components containing knob and tube wiring as required by the local agency having jurisdiction must be completed and provided to CT WAP.

A CT licensed electrician's report, where required, must document that all circuits have over-current protection, either by circuit breakers or type "S" fuses. A copy of the electrician's report must be kept in the Client file. Electrical inspections and minor electrical repairs are allowable H&S measures. Allowable measures can include repairs to prevent circuit overloading, and replacement or elimination of live knob and tube wiring to allow for insulation. If knob & tube wiring is addressed, the client must be provided with information on over-current protection. Anytime electrical issues are addressed, the client should be provided with information (client education) on the dangers of overloading circuits and basic electrical safety.

Only licensed electricians may conduct electrical inspections, repairs, or alterations to the electrical systems. And the work must be documented.

7.18.1 Other Considerations

Funding: H&S funding may be used for CT licensed electrical inspection and repair of electrical hazards if such hazards might be made worse with the installation of weatherization measures, would prevent the effectiveness of the work, or present a danger to weatherization crews. Such costs must be reasonable and are limited by the funds available for each unit and require prior Grantee approval in all cases.

Weatherization Readiness Funding: Electrical issues that pose a barrier to weatherization may be addressed utilizing WRF funds so long as the scope does not exceed the parameters listed in the WRF State Plan.

Deferral: Electrical hazards must be repaired so that weatherization activities can be undertaken safely. Otherwise, the unit should be deferred until the issues have been resolved. Additionally, any cost-effective shell insulation measure that cannot be installed due to live knob-and-tube wiring must result in deferral until the issues have been resolved.

Note:

- Identification of some electrical hazards and electrical code compliance issues may exceed the limits of training provided within standard weatherization training curriculum. Energy auditors and inspectors should refer to CT WAP level training and technical resources for further guidance, and state and regional training resources.
- Subgrantees are advised to refer to WPN 22-7 for additional information.

7.19 Fire Hazards and Fuel Leaks

Checking for fire hazards should be ongoing when the audit is conducted and while weatherization work is underway.

All combustion appliance areas must be checked for fuel/gas leaks. Testing of exposed gas lines should include leak testing from utility coupling into and throughout the home. Sensory inspection of bulk fuel storage and supply lines must be conducted as well.

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

Fuel leaks that are the responsibility of the client (as opposed to the utility) must be repaired before weatherization can commence.

Notify utilities and temporarily suspend all weatherization work when leaks are discovered that are the responsibility the utility to address.

Other fire hazards that must be considered during the audit are as follows:

- Adequate clearance between combustion appliances, flue pipes, and any combustible materials
- Frayed electrical wiring
- Overloaded or misused electrical wiring
- Excess creosote and or soot built-up in flues and chimneys connected to primary heating appliances

Clients must be informed in writing of any fuel leaks that are detected.

7.19.1 Smoke and Carbon Monoxide Alarms, Fire Extinguishers

During the initial audit, technicians are reminded to:

- Check existing alarm for operation.
- Verify operation of any devices installed during the audit.

Provide the client with written and verbal instruction on the use of any installed devices. Allowable H&S Measures:

- Smoke Alarms may be installed when not present or inoperable.
- CO Alarms must be installed where alarms are not present or are inoperable.
- Where solid fuel burning equipment is present, fire extinguishers may be provided as needed, in accordance with manufacturer's instructions.

7.19.2 Other Considerations

Funding: Costs related to fire hazard and detection are directly included in the initial energy audit fees. Fire extinguisher installation is not an allowable CT WAP expenditure in homes where solid fuel equipment is not present.

Note: CT will provide specific guidance with respect to fire extinguisher specifications during prior approval of all fire extinguisher measures.

See “Section 7.15 Building Code Compliance Issues”, “Section 7.18 Electrical Safety”, and “Section 8.10 Heating Systems” for more information.

7.20 Ventilation and Air Sealing

Major air sealing should be done, and then ventilation should be installed to meet the calculated ventilation requirement per the standard. CT WAP has adopted the ASHRAE normative Appendix A and when an existing fan is being replaced or upgraded to meet whole house, and when an existing fan is being replaced or upgraded to meet whole-house ventilation requirements, actions must be taken to prevent zonal pressure differentials greater than 3 Pascal across a closed door, if one exists within the ventilated space.

CT WAP recognizes the Addendum to ASHRAE 62.2-2016 as approved on 1/24/2018.

CT WAP recognizes the revised definition of floor area as defined in ANSI Standard Z765 1 that includes below grade unfinished spaces in the calculation of floor area if they are within the pressure boundary of the home.

Post weatherization installation inspection, including the scientific assessment of ventilation requirements, must be conducted.

If needed, the two system requirements of ASHRAE 62.2 2016 standards are:

- Whole-Building Ventilation – installation of a fan, or a combination of fans, which will provide the minimum ventilation needed for proper air flow as calculated by the standards.
- Local Ventilation Exhaust – installation of local, intermittent exhaust fans in each kitchen and bathroom, as specified by the standards, to reduce the possible levels of contaminants and moisture in each of unit.

Note: Subgrantees are advised that on the initial site visit, energy auditors must conduct indoor air quality analysis consistent with ASHRAE 62.2 2016 standards to develop projected H&S cost estimates to determine feasibility to comply or defer the unit. Based on those findings, weatherization may proceed.

CT WAP technical personnel will closely monitor and adapt to any changes to the standard and training requirements to remain in compliance with US DOE ventilation standards.

See Connecticut Weatherization Field Guide (083021) for more information.

7.20.1 IAQ Funding

When installed to comply with ASHRAE 62.2 2016 standards, the materials, supplies, and labor needed for systems including electrical circuits, devices and ducts to the outside - for whole house ventilation, kitchen exhaust, and bathroom exhaust installations qualify as H&S measures.

7.20.2 Blower Door Restrictions

Here are recommended blower door safety protocols:

- Do not conduct a depressurization test with a wood stove or fireplace burning. Close flue dampers and cover loose ash in the fireplace.
- Do not conduct a depressurization test when any other combustion appliance is operating. Shutoff power or gas before the test is conducted, and make sure appliances are turned back on when testing is completed.
- Do not conduct a blower door test if friable asbestos or suspected asbestos like material is present in the dwelling unit.
- Do not conduct blower door testing when mold, moisture or other potential health risk conditions prohibit creating conditions that may disturb harmful substances that may impact occupant pre-existing or potential health conditions as a result of air movement within the home.

8 Implementing Weatherization Measures

The purpose of this section is to outline the processes and procedures related to the installation of weatherization measures.

8.1 Weatherization

The following sub-sections establish policies for the core of the weatherization program services which may be called for by the energy audit. The list of measures is applied in priority order according to their cost-effectiveness, and a coordinated work plan is devised and approved by subgrantees. The goal of the work plan for the unit is to safely and effectively enhance energy efficiency within the unit, thereby saving money for low-income clients.

Weatherization measures may require ancillary items or activities such as allowable H&S measures or incidental repairs. Ancillary items are defined in WPN 19-5 as those necessary for the proper installation of weatherization materials, as required by material manufacturers, general construction, and/or WAP field standards, to achieve a finished product in a typical installation where no unusual or extensive repairs are needed. Ancillary items typically refer to small components (e.g., hardware, fasteners, adhesives, sealants, etc.). The costs of ancillary items and their installation shall be included within the cost of an individual ECM when calculating the SIR for the individual ECM.

All weatherization activities, including the occupant's role, must be fully explained to the client.

This manual details the operational policies that govern the various weatherization measures available to Subgrantees. Written technical protocols, on the other hand, are only contained in the Connecticut Weatherization Field Guide, which is the authoritative resource for how to properly install weatherization measures.

8.2 Measures

Typical weatherization measures include the following areas:

Section	Measures	Locations
Air Sealing* (*Blower Door Directed)	• Stuffing • Sealing • Caulking • Foam Board • Weatherstripping • ASHRAE Compliant Ventilation	• Windows • Doors • Attic • Basement • Rim Joist • Mud Sills • Rubble Foundations • Penetrations • By-Passes • Top Plates
Insulation	• Fiberglass • Cellulose • Wrap • Foam Board	• Attic • Sidewall • Basement • Crawl Space • Knee Wall • Pipes • Ducts
Doors and Windows	• Glass Repair and Replace • Caulk • Weatherstripping • Locks • Limited Replacement	• Exterior Doors and Windows
Heating System	• Clean, Tune, & Test (CTT) • Parts (Replacement & Retrofit) • Duct Sealing • Repair & Insulation • H&S Concerns	• Combustion Appliance Zone (CAZ)
Domestic Hot Water Systems (DHW)	• Clean, Tune, & Test (CTT) • Parts (Replacement & Retrofit) • Vent Repair • Plumbing • Insulation	• Combustion Appliance Zone (CAZ)
Other Measures	• Baseload Reduction • GHW Reduction • H&S (No SIR)	• Entire Household
Incidental Repairs	• Component Repairs • Limited Replacement • Carpentry • Painting • Cleanup	• Where necessary to protect the integrity and ensure the proper function of the weatherization measure
Manufactured Housing (Mobile Homes)	• Air sealing • Insulation • Repair/Sealing • Windows and Doors • Mechanical Systems • Ductwork	• Entire Household
Client Education	• Client Education by Worker • Client Education by Auditor • Client Education by Installer • Client Education by Inspector	• Entire Household

Final Inspection	• Quality Control • Inspection • Testing • Quality Assurance • Evaluating the installed measures against the Work Order and Audit	• Entire Household

8.3 Air Sealing

Air leakage can account for 25-40% of the heat loss in a typical unit. The location of major air leakage and air sealing solutions should be given high priority by the energy auditor, as well as the air sealing installer. Measures are inexpensive and cost-effective. If done correctly, major air sealing has a relatively large SIR ratio.

Using air sealing techniques guided by pressure diagnostic methods, air sealing activities, in tandem with proper mechanical ventilation, will ensure that the optimum volume of airflow and good air quality are maintained in the finished, weatherized unit and within the established pressure boundary.

DOE's WPN 23-6 states that all measures must be cost effective, meaning that each measure and package of measures installed in a dwelling unit must have a savings-to-investment ratio (SIR) which meets or exceeds 1.0. Blower door guided air sealing is the one exception and may have an SIR less than 1.0, if the cumulative SIR of the package of measures is equal to or greater than 1.0, not including H&S measures.

Air sealing must be conducted using techniques, tools and diagnostic protocols prescribed by the **CT WAP Field Guide**. Techniques such as zonal pressure diagnostics, as well as tools like the blower door, duct blaster, and infrared camera, are mandatory as they are crucial to proper air sealing. Installers must be thoroughly trained in their use for satisfactory air sealing.

Air Sealing Target: The determination of a realistic and achievable target, while maximizing the air sealing measure, is the first step in achieving a CFM target. The goal must always be to ventilate right and tighten a house as much as possible using the infiltration funds that have been justified for the house. Reaching a minimum target number alone is not a sufficient reason to stop infiltration reduction work if there are additional opportunities to air seal. Air sealing efforts must be maximized in every unit weatherized. Evaluating for cost-effectiveness will be the determining limit to air sealing. If the evaluation indicates additional air sealing would continue to be cost-effective because it will improve the tightness of the building, the subgrantee must continue with the energy conservation measure until their budgeted amount for the measure is exhausted. Monitoring will ensure reasonable and sufficient amounts are initially budgeted.

If a determination is made that continued air sealing would not improve the tightness of the building, the subgrantee will have to justify this determination in the building file, explaining why remaining funds initially budgeted for air sealing will not be expended.

Determine whether to continue or cease air sealing based upon your budget and your results. For example:

- Typically, if the technician is getting infiltration reductions around 100 CFM@50 Pa per technician hour, the air sealing should continue.
- If the technician has confirmed that the setup is correct, some measurable infiltration

reductions are still being recorded, and there are budgeted hours left, the technician should continue air sealing until budgeted hours are exhausted or infiltration reductions are no longer being achieved, as reflected by several interim blower door readings showing no change.

- If several consecutive interim readings reflect that infiltration reductions are no longer being achieved and there are budgeted hours still left, note that the measure was no longer cost-effective to pursue.
- Documentation must be provided, noting the blower-door location(s), building characteristics, interim blower-door readings, budgeted hours, and number of hours expended on air sealing to that point.

Air sealing should continue until it is demonstrated to be no longer cost-effective (i.e., budgeted hours have been expended or several interim readings indicate that infiltration reductions are no longer being achieved). The home should be tightened as much as it is cost-effective and then ventilated to the ASHRAE 62.2-2026 standard.

The blower-door target must be met for the measure to pass the final inspection and/or QCI. The result can be lower than the target. There is no established upper limit for air sealing.

Air Sealing in Multifamily - 2-4 Units: For those units that are addressed under the 50%, where an eligible unit may have an adjoining ineligible unit, only the building shell of the adjoining unit may be addressed as part of the whole-house weatherization of the eligible unit(s). Building shell measures may include basement and attic air-sealing.

Exceptions to Blower Door Use: The blower-door requirement can only be waived if there is a justifiable health or building safety concern (e.g., friable asbestos that cannot be encapsulated). In such cases, these concerns must be documented on the BWR.

When the blower-door cannot be run due to a health and safety concern, the SIR's must be modeled utilizing calculated savings as described in the Prescriptive Air Sealing Table. This table is used temporarily to determine the viability of the weatherization project before addressing the health and safety concerns.

Once all the health and safety concerns that prevented the blower-door from being run are addressed, a blower-door must be utilized to accurately model all air sealing measures and the SIR's must be adjusted accordingly.

Procedure: All test results are entered into the applicable home check data screens and must be documented on the audit data input sheet in the client case file.

Health & Safety: H&S issues within the home can be worsened by certain air sealing measures. Air sealing should only be completed after any such issues have been successfully addressed, particularly issues concerning possible indoor air quality hazards such as carbon monoxide and moisture.

Ventilation work done in conjunction with air sealing may be charged to the H&S cost category in accordance with “Section 7 Health and Safety Testing.”

8.4 Blower Door

The CT WAP policy requires that a pre- and post-weatherization, single-point blower door test be conducted in all single-family units (including mobile homes) and in all small multi-family units. The testing must document the infiltration rate with a house to outside pressure differential of 50 Pascals negative or equivalent. Multi-point tests are not necessary.

Although the energy auditor will identify areas where air sealing is needed, ongoing air sealing using the blower door, the duct blaster, or other tools must be done by the installer, along with standard pressure diagnostics techniques that effectively guide the work.

The installer may need to use more sophisticated techniques such as zonal pressure diagnostics or an infrared camera to locate less obvious, though major leaks, as the air sealing continues.

The air sealing installer must re-test and record progressive blower door readings after each step of major air sealing. A final installer reading must be taken and recorded at the end of the weatherization job.

The pre-weatherization blower door test infiltration rate represents the beginning point for the air sealing installer.

All readings are to be expressed in cubic feet per minute at a pressure of negative fifty (50) Pascals (cfm 50) or equivalent.

8.4.1 Proper Blower Door Setup

- Preparation
- Verify the blower door equipment is complete.
- Check the condition of all components.
- Identify the test location and ensure access to exterior doors/windows.
- Assemble the Blower Door Frame and Panel
- Assemble the frame sections.
- Insert the panel into the doorway.
- Secure the panel tightly to the frame.
- Install the Fan
- Attach the fan to the panel.
- Connect the fan power supply.
- Make sure fan blades are clear of obstructions.

- Set Up the Pressure Gauge and Sensors
- Mount the gauge on the panel or suitable surface.
- Connect pressure sensors to the fan and building interior.
- Calibrate the gauge per manufacturer's instructions.
- Prepare the Building for Testing
- Close all exterior windows and doors (except the test door).
- Turn off combustion appliances.
- Open interior doors to allow airflow within the building.
- Seal intentional openings (e.g., vents, fireplace dampers).
- Basement Door Positioning
- Generally, the basement door should be closed during testing to isolate the test zone unless the basement is part of the conditioned space being tested.
- If the basement is conditioned and intended to be included in the blower door test, the basement door should be open to allow airflow and accurate measurement of the entire building envelope.
- For unconditioned basements, keeping the door closed helps to focus the test on the living areas and prevents skewed results.
- Confirm the program or test protocol requirements for specific guidance on basement door positioning.
- Conduct Pre-Test Checks
- Verify fan rotation direction.
- Ensure no obstructions around the fan.
- Confirm all equipment connections.
- Perform the Test
- Turn on the fan and slowly increase speed.
- Monitor pressure readings to reach target depressurization (e.g., 50 Pa).
- Record airflow rates at target pressure.
- Identify Air Leaks
- Use smoke pencils or thermal imaging around windows, doors, and other penetrations.
- Document major leaks for repair.

- Post-Test Procedures
- Turn off the fan.
- Remove blower door equipment.
- Restore building to normal operation.
- Data Recording and Reporting
- Record all measurements and observations.
- Prepare the blower door test report per program requirements.

8.5 Air Sealing Measures

Subgrantees must ensure that a thorough and complete air sealing job is done by its crews and contracted installers. Major air leakage areas, both those pinpointed in the energy audit and ones that appear as air sealing continues, must be addressed within CT WAP funding restrictions. The installer should not pursue ineffective, minor air sealing.

Generally speaking, because of the high exfiltration pressures in the upper areas of the building due to the stack effect, the attic/living space interface is the area that should be addressed first. Many leakage areas in the attic are part of a serious leak that may begin in the basement or living area. In most cases, these leaks can be sealed in the attic, and there is no need to seal the other areas. If one cubic foot of air cannot leak out of the house, then one cubic foot of air cannot leak in. Potential leakage areas include attic access-ways, open top plates in interior partition walls, balloon-framed buildings, chimney and plumbing chases, knee-wall/floor junctions in finished attics, and drop soffit ceilings.

There are significant opportunities for air sealing around leakage areas in foundation walls, interior bulkhead doors, and basement windows. Plumbing chase-ways and bathtub cutouts are of particular concern. Leaking ductwork can also significantly affect the overall air leakage of a dwelling.

Opportunities for air-sealing within the living space of a dwelling, besides the obvious, include the following: draft-stopper kits for fireplaces, repairing large holes in walls and ceilings, especially those that may be hidden by a suspended ceiling, openings behind built in counters and cabinets, leaky wall outlets and light fixtures.

Materials used must be appropriate for the area being sealed. For example, chimney chases must be sealed with fire-retardant materials such as flashing and high-temperature caulk. Large openings should be covered with solid material such as plywood, sheetrock, or rigid foam board. These materials must be fastened in place and sealed along the edges. Smaller cracks and holes can be filled with expanding or non-expanding urethane foam or caulk.

8.6 ASHRAE 62.2 2016 Ventilation Standards

DOE and the CT WAP have adopted the ventilation standards set by ASHRAE in its handbook section ANSI/ASHRAE Standard 62.2-2016, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings ("ASHRAE 62.2").

Effective September 1, 2016, Subgrantees are required to use ASHRAE 62.2 – 2016 ventilation standards to determine the amount of mechanical ventilation that may be required in a unit.

To determine the proper level of air flow in the unit, the energy auditor must perform a pre-blower door test before any weatherization measures are installed. The final ventilation need will be calculated using the actual post-blower door reading, after all weatherization and air sealing measures have been installed, to calculate the actual ventilation airflow needed. Air sealing and ventilation work should be completed with the "air seal tight, ventilate right" principle in mind. If this calculation is negative, then no mechanical ventilation is necessary. If this calculation is positive, then consideration must be given as to how best to provide the required additional ventilation.

There are many ways to address the need for additional ventilation if the ASHRAE 62.2 – 2016. DOE REDcalc software indicates that more ventilation is required. Below are three examples of providing mechanical ventilation:

- Whole-Building Ventilation: installation of a fan, or a combination of fans, which will provide the minimum ventilation needed for proper air flow as calculated by the standard.
- Local Ventilation Exhaust: installation of local, intermittent exhaust fans in the kitchen and each bathroom, as specified by the standard, to reduce the possible levels of contaminants and moisture in each of those rooms and the living unit.
- Health & Safety: Air sealing particularly affects the ventilation rates through the unit; therefore, any existing or future indoor air quality issues are likely to be made worse by the weatherization work. Thus, correcting this through mechanical ventilation is considered a H&S activity. The details of utilizing the ASHRAE Standard may be found in § 400, "Health and Safety."

ASHRAE 62.2 requires that buildings be air sealed as tightly as possible as the required approach to ensuring good IAQ, with ventilation added when necessary to provide sufficient fresh air without wasting energy.

Therefore, CT WAP cannot establish an air sealing "goal" or a "building tightness limit". A different approach must be utilized to determine when to stop blower-door guided air sealing. The subgrantees must evaluate cost-effectiveness to determine the limit to air sealing. ASHRAE 62.2 will guide the ventilation strategy.

For more information, see CT WAP Operations Manual, § 413, "Indoor Air Quality (IAQ) / ASHRAE 62.2 – 2016" and Connecticut Weatherization Field Guide.

8.7 Air Sealing Funding

Air sealing is an allowable energy conservation measure that may be charged to the Program Operations cost category. As such, the cost is a part of the average cost per unit.

Air sealing conducted by unqualified installers or that does not utilize required techniques and tools is likely to be ineffective in reducing air infiltration in the unit. Costs may be disallowed for ineffective air sealing, as measured in final or other inspections the Grantee. Subgrantees are allowed to bill up to three (3) hours of air sealing per dwelling without prior approval from the Grantee. If more than (3) hours are necessary, the Subgrantee must contact the Grantee for approval.

Reimbursement for blower door guided air-sealing is unlike other measures that are reimbursed based on actual cost. Rates for air-sealing are determined by a competitive Request for Proposals (RFP) process and then coordinated with Connecticut's utility programs. Air-sealing will be based on an hourly rate of that will include both material and program support.

Of that amount, an hourly will be allocated to the material cost of the job, and a separate hourly rate will be allocated to the support cost of the job. The audit will determine the maximum amount that can be spent on each job.

The following materials will be included in the material hourly rate:

- Urethane foam
- Interior caulking
- Miscellaneous materials for covering large holes such as sheetrock, plywood, flashing, insulation board, cardboard, nails, screws and other hardware.

Subgrantees should be aware that DEEP intends to closely monitor the CFM reduction and hours billed during desk and field monitoring activities to ensure that they are acceptable for what a two-person crew can accomplish within that time period. Air sealing that produces little to no reduction in a large time period will result in disallowed or reduced costs. Therefore, it is essential that agency auditors and air sealing contractors attend training regularly to improve their skills, and that agency staff be available to provide technical assistance on an as-needed basis for those contractors who are unable to produce appropriate CFM reductions.

8.8 Insulation

Insulation is a critical measure for making a home energy-efficient and a major priority for CT WAP in nearly every unit.

Insulation comes in several different types which are used according to the need and location within the unit. The three most common insulation materials are fiberglass, cellulose, and foam (sprayed closed cell and rigid board). Fiberglass may be used in a batt form which can be laid in the attic, attached to an open wall, or attached under a floor. Cellulose insulation is blown in using an insulation blowing machine and may be used over an attic or in dense packing the space between wall studs. Other applications are available for specific needs, and minor insulation measures may also be effective when the budget permits.

Subgrantees must consider attic, sidewall, and other insulation measures as a part of its overall approach to all single-family units.

Air sealing must be completed in a given location prior to the installation of insulation in that area.

Safety or repair work (i.e., electrical repairs, roof repairs, fire safety barriers, air leak repairs, recessed light box covers, etc.) must also be done first.

Small Multi-Family Units: Units eligible under the small multi-family rules (2-4 units, 10,000 square feet or less, and 3 stories or less) must also have insulation considered as a measure. In this instance, insulation choices such as attic, sidewall and other locations will be approached for the entire building shell.

Ineligible side-by-side duplex units may not be eligible to receive sidewall insulation; this will depend upon the location of the eligible unit, within or amongst the ineligible units. The state monitor must be notified of this condition.

Funding: All insulation measures are considered energy conservation measures, which are charged to Program Operations costs, and are considered a part of the average cost-per-unit

Health & Safety: Due to fire hazards, care must be taken to ensure that insulation is installed safely. Although addressed elsewhere, two specific areas are important to address here:

- Clearance: Never install insulation against any building component that presents a fire hazard. A three-inch (3”) clearance must be left around all masonry chimneys, metal flues, and ceiling recessed light fixtures. If loose-fill insulation is used, metal blocking must be permanently attached around the component, to a height of at least four inches (4”) above the height of the insulation. Mineral fiber blocking may be substituted if it is at least equal in height to the loose fill insulation and it extends at least twenty-four inches (24”) in all directions.
- Wiring: Never install insulation against live knob and tube wiring. Open junction boxes and frayed wiring, present a significant fire hazard. Such wiring may be dammed off, but that only

bypasses the root problem, and makes the insulation less effective. The fixing of wiring circuitry, including the replacement or disabling of live knob and tube wiring, is an allowable H&S measure. Subgrantees should attempt to establish standardized pricing for this work during contractor procurement. If that is not done, three quotes must be obtained from electrical contractors that are currently licensed in Connecticut, and with the approval from the State monitor prior to the start of work for each job. If wiring / circuitry issues are resolved, insulation may then be installed.

8.8.1 Attic

Installed correctly, at proper depth, evenly, with no voids, gaps, misalignment, or compression issues, attic insulation provides a thermal barrier that effectively prevents loss of valuable heat from the unit. Insulation must be installed to bring the attic to the R-value level recommended by the energy modeling software. Proper vents or baffles must be installed in each rafter bay at the soffit area to prevent the blocking of the soffit vent and/or to prevent the insulation from touching the underside of the roof sheathing.

Other specific attic characteristics may exist that will require a different approach to insulation than what was identified in the audit. A walled stairway up to the attic must be sealed and insulated. A partially finished attic may be formed by the construction of knee walls, which will require additional batt insulation on the attic side (as well as additional air sealing), and insulation in the collar beam and the open areas formed by the cathedral ceiling. In the case of cathedral ceilings, the insulation of the smaller cavity between the ceiling and the roof may require other special techniques. These additional insulation measures vary from unit to unit.

Prior Attic Measures

Several important measures must be addressed in the attic prior to the insulation. Access to the attic is needed for the effective installation of insulation. An attic door or a hatch is required for access. A structurally sound surrounding dam that is able to support the weight of weatherization workers is required, with a hatch to contain cellulose insulation. Existing or installed attic hatches and doors must also be sealed and insulated. Air sealing of the upper pressure boundary in the attic, usually the attic floor, prior to insulation will ensure its maximum effectiveness. Sealing and insulating duct runs through the attic should be completed before insulation is installed. Attic ventilation is required in the number and configuration called for in CT WAP protocols.

8.8.2 Foundation

Additional savings may be made by installing insulation at the base of the unit's base, adjacent to the lower air barrier(s), such as rim joist, mud sills, and 3” of foundation walls. An important step for the energy auditor is to determine the lower-level thermal and air boundary, below the first floor. Zonal pressure diagnostics can help identify the current connection between the unit and areas underneath.

8.8.3 Basement

Basements are usually considered a part of the conditioned space of the unit. A basement ceiling is insulated only if it is outside of the desired thermal boundary. The location of the thermal boundary is determined by several factors. The location of which is determined by the location of heating appliances, water heaters, plumbing, and heat ducts. In most instances, the basement is considered to be inside the thermal boundary..

In some circumstances, the auditor may determine that the basement is outside the thermal boundary or should be adjusted to outside. For example, a basement that does not contain the heating appliances, is not used, and has an outside entrance may be more appropriately considered outside. The ceiling areas of the basement would be air-sealed and insulated to the R-value indicated in the program policies. In this case, it is important that any ducts or pipes underneath that do exist are carefully insulated and sealed.

Rim joists: Air sealing and insulation should also be done in conditioned basement to fill in the sill "box" (formed where each end of the floor joists meets the rim joist, sill plate, and 3" of foundation wall below the sill plate to seal any air gap between the sill plate and the foundation it sits on).

See Section 6.1 "Thermal-Boundary Decisions: Floor or Foundation" for more details on how to determine if the basement is considered inside or outside the thermal boundary.

8.8.4 Crawl Space

If there is a crawlspace, the auditor should define the crawlspace walls, or the floor above the crawlspace as the thermal and air boundary and call for air sealing and insulation accordingly.

Where a combination of basement and crawlspace exists, the auditor must decide whether to establish the boundary where the two meet. The auditor should use the same criteria for basements when determining where to establish the thermal boundary. For example, the extension of heating pipes or ducts through the crawlspace will help to determine the plan to establish the thermal and air boundary.

Vapor Barrier: If insulation is installed above a crawlspace or basement with dirt floors, a moisture barrier must be installed, provided there is no evidence of moisture, water flow canals in the dirt floor, or the use of a sump pump.

8.8.4.1 Sidewall

The program requires insulation in most sidewall cavities, wherever it can result in significant savings. To be effective, sidewall insulation must be uniformly dense packed in the exterior side walls of the unit. Insulation is to be tube-blown in all wall areas, into wall cavities with a depth of at least three and one-half inches (3 ½") and considering building framing features to ensure uniform coverage. Because of its superior air sealing qualities, cellulose insulation is to be used to the minimum per cubic foot density

called for in The Connecticut Weatherization Field Guide.

Sidewall insulation may not be installed if live knob and tube is present. It is allowable to disable knob and tube wiring as an H&S measure. Subgrantees must establish standardized pricing for this work during contractor procurement. If that is not done, three quotes must be obtained from electrical contractors currently licensed in Connecticut, and the proposals must be reviewed and approved by the Grantee Technical staff, prior to the start of work. If knob & tube wiring is then de-energized, sidewall insulation may be installed in the unit.

Batt insulation is to be used where there is an open wall cavity to fill. In this instance, the wall must be insulated to the R-value called for in program policies (see chart above).

Preparation for Sidewall

Since the pressure of dense-packed sidewall insulation is significant, several procedures must take place before considering this measure. Prior to insulating, the auditor and installer must assess numerous areas, including: the structural integrity of the walls, the locations of possible electrical hazards, existing gaps in the interior walls, moisture problems, and hidden areas where insulation will blow through.

All necessary corrections must be made before proceeding to insulate the unit's walls. Possible leakage areas may be sealed or blocked to prevent the escape of insulation. If there is a danger of an area giving way to the pressure of the insulation, the area should be insulated but not to the dense pack standard. Areas that are not densely packed must be clearly noted by the installer on the work order.

Client Refusal of Sidewall Insulation

There is a slight possibility of damage to the structural integrity of a home when sidewall insulation is installed. The energy auditor is responsible for informing the homeowner of this risk. If the homeowner declines the installation, this will be considered a client refusal of a certain measure. The client’s refusal of sidewall insulation is a reason for deferral.

The energy auditor is responsible for documenting the client’s refusal. This refusal can be documented on the “Notice of Postponement of Services” form.

Care must be taken by the energy auditor and other agency staff to educate the owner on the benefits of sidewall insulation, prior to the signing of the refusal form. The signed refusal form must be kept in the client file, and the frequency at which sidewall insulation is refused will be monitored by DEEP if it becomes an issue.

See “Section 12.2 Measure Skipping and Client Refusal of Certain Measures” for more information.

Water Pipe

Insulation should be recommended for heating and domestic hot and cold-water pipes in unconditioned basements and crawlspaces. If the ceiling is not to be insulated, pipe insulation is not recommended.

8.9 Windows and Doors

Traditionally, a common weatherization measure, air sealing around doors and windows, is no longer considered as effective as other such measures. Still, these measures are another means of limiting the infiltration of air in the unit. Such measures may include air sealing, component repair, and, on a very limited basis, component replacement.

As with all other air sealing, window and door measures must be done in accordance with the work order. They must meet the SIR threshold. And they are conducted using intermittent blower door directed techniques.

Health & Safety: Weatherization work, including the repair or replacement of windows and doors, does not qualify as an H&S measure. However, secondary work may qualify when it is needed to make the weatherization safe. Specifically, window and door work in areas that are laden with lead-based paint will require extra steps to ensure the H&S of both the crew and the occupants.

Incidental Repairs: Window and door work is one of the more likely areas to require incidental repairs to ensure optimal energy performance and structural integrity of the weatherization measure. This policy supports the reframing , where existing frames compromise energy efficiency or hinder the installation of upgraded door systems.

Examples of Allowable Justifications include:

1. Air Leakage Mitigation:

Gaps between the door and its frame can result in significant air infiltration, leading to increased heating and cooling demands. Reframing ensures a tighter seal, reducing drafts and improving thermal control.

2. Insulation Enhancement:

Older or damaged door frames may lack modern insulation materials or exhibit warping that prevents proper sealing. Reframing allows for the integration of contemporary insulation standards, contributing to overall building envelope performance.

3. Structural Realignment:

Environmental factors such as moisture exposure and temperature fluctuations can cause frame warping or misalignment. When a door no longer sits flush due to frame distortion, effective air sealing becomes impractical. Reframing restores structural alignment, enabling proper sealing and functionality.

4. Upgrade Enablement:

Reframing provides the necessary structural support for the installation of modern, energy-efficient fenestration. These often feature advanced sealing technologies and improved insulation properties, which cannot be fully utilized without a properly aligned and insulated frame.

State Historic Preservation Office (SHPO): Window and door replacement is an area that may have more obvious impact on compliance with the SHPO rules. SHPO information must be submitted with a window/door waiver request.

Funding: In accordance with WPN 19-5, window and door replacement can be considered conduction measures. Only window and door repair can be considered air sealing. Both may be charged to the Program Operations cost category. Thus, it is included in the average unit cost calculations. Repairs to make the weatherization work effectively, must be charged as incidental repairs and must fall within limits on those costs. Ancillary activities to make the work safe can be charged as H&S and must fall within limits of such costs.

There are more specific funding procedures and restrictions on charging for all work on windows and doors under the CT WAP.

Disallowed Costs: Failure to comply with procedures for the repair or replacement of windows and doors may result in Subgrantee disallowed costs. Requirements include:

- Meeting SIR, cost-effectiveness thresholds (on reset prices when called for);
- Obtaining prior DEEP approval for replacements;
- Use of required H&S measures when working with lead-based paint;
- Obtaining proper clearance by SHPO; and,
- Charging for window and door measures within specific CT WAP guidelines.

8.9.1 Window and Door Repairs vs. Replacement

The CT WAP expectation is that the majority of existing windows and doors are in good enough condition that they can be successfully weatherized. Subgrantee protocols must ensure that every effort is made to weatherize existing primary windows, storm windows, primary doors, and storm doors in their current condition or with repairs, only when necessary.

Replacement windows and doors may only be installed if they are primary, meaning that they separate the conditioned living space from the exterior.

The replacement component should not be superior in style or quality to that being replaced. All replacements should fit within the cosmetic look of other existing unit components inside and outside; come in white or another harmonizing color; or, be appropriately stained or painted on both interior and exterior sides, including tops, bottoms, and jambs.

The replacement of primary windows and doors should only be considered when the item is actually missing or when the existing window or door is beyond repair. Often when the item is missing, the space has been filled in with wood. In such cases, treating this like a wall may be more beneficial than

replacing it as a window or door. Repairing the item must be demonstrably more costly than replacing it.

Procedure: Replacement doors and windows should always first be entered into the energy audit tool to see if replacing them is cost-effective. If window/ door replacement generates an SIR of 1.0 or greater, then the replacement(s) must be considered ECMs and be billed to the Program Support budget category. If the door/ window replacement does not return an SIR of 1.0 or greater, then it cannot be replaced as an ECM. In accordance with DOE's WPN 22-7, H&S funds cannot be used to replace doors or windows. Window and door replacements shall not be included in the air sealing ECM. Window and door replacements are allowable as IRMs if they will preserve the integrity of the associated ECM(s), when they meet the definitions and requirements of IRMs. IRM costs for any measures that do not meet the definitions set forth in regulating language and this WPN will be questioned and potentially disallowed costs.

8.9.2 Primary Window Measures

Exterior window air sealing weatherization includes any work that will reduce the infiltration of outside air into the unit. Such measures include traditional work such as caulking and weatherstripping but may also include other measures to make the window fit tighter.

The energy auditor must use the blower door and visual inspection to locate and diagram window areas to be addressed that will have a major benefit. As with all air sealing, further minor work should only be completed after other weatherization work and considering the continued availability of budgeted funds for the job.

Funding: Window air sealing measures are considered Program Operations costs. They are part of the average cost per unit calculation. Certain measures that have the effect of air sealing may not be charged as such under the current program cost definitions. For example, the replacement of sash locks, while having a tightening affect, are charged as incidental repairs with the justification that they are necessary to enhance the effectiveness of other window air sealing measures and have received an SIR of 1 or more within the package of measures.

Window Sealing Measures

Exterior Windowpanes: Re-glazing the perimeter of the glass pane is an effective measure to prevent air infiltration and increase comfort inside the unit. Broken or significantly cracked glass should be consistently replaced. Please note that glazing must be done by a licensed professional in the State of Connecticut.

Air Sealing: Air sealing may be needed between the stop and the jamb or around the perimeter casing.

Window Weather-strip: Weatherstripping the windows between the sash and the sill, or the sash and the jamb using nailed or stapled strips, which permit the window to operate. The installation of a permanent weather-stripping product which has a minimum effective life of at least five (5) years is

required when doing this measure. Weatherstripping of windows should not take place until primary windows have already been otherwise sealed, repaired, and properly adjusted.

Sash Repairs and Replacement: The sashes in an exterior window may be repaired or replaced as an air sealing measure. When doing so, the installer should make every effort to ensure the new sash kit or sash repair fits cosmetically with the existing window(s) including paint and stain colors (charged as Incidental Repairs).

Sash Locks: All exterior windows must operate tightly to ensure an airtight fit. Loose sash locks should be tightened or reset in a different location.

Window/Storm Window Replacement: Replacement may only be made if the window/ storm window replacement is cost-effective (SIR of 1.0 or greater). Windows and storm windows cannot be replaced with H&S funds as stated in WPN 22-7.

8.9.3 Primary Door Measures

Air sealing weatherization around exterior doors includes any work that will reduce the infiltration of outside air into the unit. Such measures include traditional work such as replacing sweeps and weather stripping; but may also include other measures, such as thresholds, to make the door fit tighter. For example, a door that "rattles" may need to be re-hung or may require a new lockset and strike plate to pull it tighter in the frame.

Funding: Door air sealing measures are considered Program Operations costs. They are part of the average cost of the unit. As with windows, some door measures that have the effect of air sealing may not be charged as such under the current program cost definitions. For example, the replacement of door locksets and striker plates, while having a tightening affect, are charged as incidental repairs with the justification that they are necessary to enhance the effectiveness of other door air sealing measures and have received an SIR of 1 or more within the package of measures.

Door Sealing Measures

Sweeps: Sweeps, made of aluminum and vinyl, must be installed on exterior doors, as needed.

Thresholds: Deteriorated and worn thresholds must be replaced, as needed to ensure a tight fit for the door to the door framing.

Door Window Panes: See windows measures (above).

Air Sealing: Air sealing may be needed between the stop and the jamb or around the perimeter casing.

Locksets: New locksets should be installed on any exterior door where the lockset is loose and not able to securely hold the door closed and tight. A new lockset has the added advantage of increasing the security of the unit (charged as incidental repairs).

Door/Storm Door Replacement: Doors may be replaced if they are deemed cost-effective (SIR of 1.0 or greater) by the energy auditing software. Doors may not be replaced with H&S funds as stated in WPN 22-7.

8.10 Heating Systems

A comprehensive evaluation of the heating system is a required part of Subgrantees' weatherization energy audit. Subgrantees are responsible for having the system fully tested and evaluated, both in terms of its efficiency and its safe operation. Based on the audit findings, the weatherization program may cover a range of measures related to heating systems, including:

- Comprehensive testing to ensure proper operation, venting, and combustion air for all combustion-fired appliances;
- Cleaning and tuning of heating appliances to ensure safe and efficient appliance operation;
- Repair and retrofits of heating appliances and heating system components (ducts, pipes, thermostats, burners, pumps, fire chambers, etc.); and
- Replacement of heating appliances and system components, when justified.

Subgrantees must have procedures in place to determine that the heating system is in safe running order prior to the commencement of all other weatherization work. Weatherization work on the building shell should not be done until H&S issues are corrected, including, gas leaks, high CO readings, venting problems, or moisture issues.

Mobile Homes / Manufactured Homes- Special Considerations:- All fuel burning, heat producing appliances in mobile homes, except ranges, and ovens are to be vented to the outside. Clothes dryers, solid fuel fireplaces, and solid fuel stoves must be installed to provide for the complete separation of the combustions system from the interior atmosphere of the manufactured home. (i.e., to draw combustion air from outside the unit)

All work on heating appliances and systems must comply with the material and installation standards of the manufacturer, the HVAC industry standards, and DOE regulations. DOE materials standards are detailed in 10 C.F.R. Part 440, Appendix A, "Standards for Weatherization Materials." In addition, per State standards, only energy star-rated combustion appliances are to be used.

ENERGY STAR® Appliance Exception Protocol

In instances where a subgrantee is unable to procure an appliance that meets ENERGY STAR® certification requirements due to constraints such as limited availability, sizing, or other substantiated factors, the following protocol must be observed:

- The subgrantee shall conduct and document a comprehensive market assessment to demonstrate due diligence in sourcing compliant equipment.
- A formal justification outlining the specific limitations encountered must be submitted.
- An alternative appliance recommendation, including technical specifications and rationale for selection, must be provided to DEEP for evaluation and approval.

All exception requests are subject to review and must be supported by verifiable documentation. Approval is contingent upon DEEP's determination that the proposed alternative aligns with program objectives and energy efficiency standards to the greatest extent feasible.

Testing Specifications: Unless otherwise called for in the standards, all evaluations and settings are to be completed on heating systems in conformance with the latest standards from the Building Performance Institute, Inc. These standards are published in the "Standard Practice for Basic Analysis of Buildings" (ANSI BSR/BPI-1200-S-201x).

Licensure: Connecticut state law requires state licensure by the State Boards of Occupational Licensing in several areas relevant to working on combustion appliances systems. These requirements must be maintained in choosing contractors for heating system work.

In most instances, heating systems will require tuning, repairs, or retrofits to operate efficiently and safely. In some instances, a full replacement of the heating system can be considered an ECM. Prior approval by the Grantee is required for all heating system replacements.

Funding: Heating system appliance work will frequently have the effect of both improving energy efficiency and making the appliance safer.

All work on a heating system must first be screened for its SIR ratio as an energy efficiency measure. If it generates an SIR or 1.0 or greater, then it should be installed and billed as an ECM. If it fails to meet the SIR threshold, it may qualify as a measure conducted as H&S. All Heating system replacements that do not return and SIR must get prior approval from the Grantee. The cost category for charging heating system work depends on how it is classified by this procedure.

For the technical aspects of testing and servicing heating appliances, the BPI 1200 standard must be utilized.

8.10.1 Energy Audit

The work ordered on the heating appliance will depend on the inspection and testing results. In some instances, the energy auditor's evaluation may be incomplete because of Connecticut licensing restrictions. In such cases, subgrantees must coordinate with the heating contractor to ensure all required testing is completed.

The complete energy audit will provide information and recommendations based on the evaluations of the heating system in the following areas:

- The condition and operability of the appliance: gas or fuel lines, burners, valves, power supply, other electrical, heat exchanger, fan, thermostat, blower operation, and combustion air analysis;
- The condition of combustion gases venting systems: chimney and flue;

- The condition of the air distribution system: ducts, pipes, supply, and return;
- Safety factors: CO evaluation, draft, heat exchanger, clearance from combustibles, gas leak, oil leak, water leak, and other appliance disrepair or deterioration.

During the initial audit, the auditor must identify the type of heating system based on system documentation and equipment labels, and categorize it as a furnace, boiler, electric resistive (space heater), or heat pump.

The auditor must also identify the efficiency of the heating system. He/she must document the AFUE rating of the appliance based on the manufacturer's information. When the AFUE rating is not available, the auditor must calculate the AFUE by dividing the output capacity by the input capacity and multiplying it by 100. If the heating system is a functioning electric resistive, assume that it is operating at 100% efficiency. If the appliance is a heat pump, the auditor must document the equipment age or if available Heating Seasonal Performance Factor (HSPF) for entry into WAv10.

The efficiency of the system must also be input into the energy auditing software. The following guidance must be utilized when doing so:

- AC and heat pump efficiency should be entered as Year Manufactured. This will automatically derate the unit by age.
- All other heating systems should be input by Name Plate Efficiency or Site Measured (if steady state was measured).
- Electric resistance will automatically be set to a default of 98% efficiency and should not be changed.
- Inoperable or untested appliances may be modeled with their original manufacturer-rated efficiency only. It is not permitted to reduce this value without an accurate tested result.

Finally, the auditor must also determine the capacity of the heating system during the initial energy audit. Heating system replacements require an ACCA Manual J load calculation performed by the subgrantee or mechanical contractor before the installation of the equipment.

Work on the systems will be ordered from a licensed contractor based on the findings of the audit. In some instances, subgrantees may have to enlist the contractor in detailed testing to fully determine the needs of the appliance(s).

8.10.2 Clean, Tune, and Test (CTT)

The efficient operations of primary heating appliances including gas or oil-fired furnaces, boilers, water heaters, and space heaters is essential to a successful weatherization program. The efficiency of a heating system can be affected by numerous factors including: the blower operation, duct leakage, duct insulation, the balance between supply and return air, proper flue venting, oil nozzle size, oil pump pressure, and much more.

In conjunction with any CTT, the heating technician must complete a Burner Combustion Efficiency Report documenting the steady-state efficiency of the system. The goal of the CT WAP is to achieve the

highest possible steady-state efficiency with all heating appliances. A heating system can only be replaced if the system is inoperable or “red-tagged”. All heating system replacements must get prior approval from CT WAP.

A CTT should always first be screened in WAweb to see if it generates an SIR of 1.0 or greater. If it yields the required SIR, then it should be billed to the Program Support category. If the CTT fails to yield the required SIR, then it may be categorized as an H&S measure. A CTT must be conducted by a licensed contractor on primary gas- and propane-fired central heating systems if the process has not been done within the past two (2) years. A CTT is required for all oil-fired central heating systems if the process has not been done within the past year. All Heating System “Tune Up” or CTT must first be screened for SIR as an ECM. In the event that adequate SIR cannot be achieved, the CTT may be completed for an H&S reason if health and safety concerns are identified.

During the CTT process the technician may find certain conditions that make the system unsafe or inoperable. For example, the fuel pump or the circulator may be faulty, or the tank may be leaking. Such problems should be discussed with the Grantee to determine the best course of action..

Photographic evidence must be made by the HVAC technician to document the problems found with the heating system to share with the Subgrantee or Grantee before any repairs are made. Additional materials and labor involved must be documented separately on the combustion efficiency report.

8.10.3 Duct Insulation and Sealing

All duct runs and connections are to be repaired as specified in the energy audit, according to CT WAP protocols. See Section 8.15 “Evaluating Duct Air Leakage” for guidance on how to test for duct leakage.

Duct Repair: Duct sealing may be needed at any point on the run, especially where there is a joint. Duct sealing must be done before installing insulation. There may be a benefit to sealing ducts in areas within the thermal envelope, as sealing affects the proper ventilation of the heating system. Duct sealing is done on existing duct joints with mastic.

Heating Distribution Ducts: While there are no explicit DOE guidelines that prohibit the use of flexible ducts, it is best practice to use rigid ducting for optimal performance. However, flexible ducting can be appropriate in certain situations. To ensure efficient airflow and system performance, it is critical that flexible ducting is installed without kinks, excessive length, or bunching and that the duct is properly supported throughout. Improper installation can lead to increased resistance and reduced system efficiency.

Dry Vent: H&S funds can be used to replace flexible ducting with rigid pipe.The Standard Work Specifications and Connecticut Field Guide state that primary dryer ducting material that is 28-guage metal with a smooth interior should be selected.

Duct Insulation: Insulation is required on any section of a supply or return duct that runs outside of the

thermal barrier. Ducts are insulated with fiberglass sheets with a foil, vinyl, or other type of facing, and to the minimum R-value recommended. The insulation is attached and sealed with a quality reflective duct tape or other suitable fastener.

It is important to note that in Connecticut sheet metal work requires a licensed contractor.

8.10.4 Hydronic Systems

Hydronic systems that heat with the circulation of hot water or steam may need additional system checks for leaks and service of additional parts that regulate the heat medium circulation. Baseboard fins may need cleaning. Radiators may leak or need adjusting and balancing, steam traps, or air vents may need to be rebuilt or replaced.

8.10.5 Primary Space Heaters

Subgrantees are required to replace, repair, or install primary heating systems when existing primary heating systems are unsafe, inoperable, or nonexistent. Due to Connecticut's climate zone, no home may be left without a safe primary heating system after weatherization.

WAP funds cannot be used if the completed dwelling unit will be heated with an unvented combustion space heater as the primary heat source. Unvented primary heat sources must be replaced with a vented unit prior to or by weatherization. The replacement unit must be sized to heat the entire dwelling unit. If using DOE funds, replacement space heaters must be Energy Star per State policy.

Gas- and Liquid-Fueled Space Heaters: This policy also applies to gas- and liquid-fueled space heaters, and wood, coal, or pellet fired furnace and boiler systems. These systems should be treated the same as other combustion furnaces in terms of safety testing, repair, and replacement.

For more information on ENERGY STAR® Appliance Exception Protocol, see "Section 8.10 Heating Systems".

Deferral: If unable to repair, replace, or install a vented heating system that is sized to heat the entire dwelling unit, the unit must be deferred.

If permits are required for the heating system work, they must be secured. The cost can be considered a program operation cost if the installation is an ECM. The cost can be included in the H&S budget if the system is installed as an H&S measure.

All Manufacturer's recommended initial start-up procedures must be followed and documented before any replacement unit is put into operation.

All space heater replacements must be fully reviewed and inspected by local agency program staff to include, but not be limited to adequate floor protection, and code-compliant clearances to walls and other combustible materials.

See WPN 22-7 Table of Issues, which explains how to best address eligible dwelling units containing space heaters, for more information.

8.10.6 Electric Space Heaters

DOE allows minor repairs on electric space heaters as defined by the CT WAP Health and Safety Plan. In the unlikely event that an electric space heater is the primary heat source in the unit, CT WAP funds may be used to replace the appliance with a direct vented, sealed combustion gas space heater or another heating system as determined in the waiver request process.

8.10.7 Secondary Heating Systems

The CT WAP does not repair or replace secondary heating systems.

Only secondary units that meet ANSI Z21.11.2 Standards may be allowed to remain as back-up heating sources.

Where vented, secondary heating systems exist, Subgrantees must test the system to ensure that it is properly working and not creating an H&S problem such as high CO or improper drafting. If properly working, no additional consideration is required. If malfunctioning, Subgrantees must inform the client that the system must be repaired or removed prior to weatherization. Walk-away is required if the client refuses to repair or remove the malfunctioning secondary vented heating system. The reason for the walk-away must be documented and signed by the auditor and client and kept in the client file.

Where secondary heating systems exist that do not align with ANSI Z21.11.2 Standards, Subgrantees must recommend the system's removal and proper disposal prior to weatherization. If the occupant intends to keep this heating system, weatherization services must be deferred until the unvented heating system is removed. If the client intends to replace the secondary space heater, the recommendation should be to use only a unit that is compliant with ANSI Z21.11.2 Standards with an oxygen-depletion sensing safety shut-off system.

8.10.8 Heating Appliance Thermostat Retrofit

CT WAP protocols call for the replacement of the existing thermostat with a new, more efficient type only if the change would migrate the home from a manual thermostat to a programmable one, the existing thermostat is inoperable, or in conjunction with a new heating system. The replacement thermostat must be a double-setback programmable thermostat.

The CT WAP serves a variety of clients, from young children to senior citizens. Care must be taken to ensure that clients receive an energy efficient thermostat that also complies with their lifestyle and understanding of technology.

While, in most cases, programmable thermostats are recommended, there are cases when they would

not be energy-efficient (or welcome in a client's home). Successful programmable thermostat replacement will only be possible with proper client education, instruction on the new unit and an evaluation the client's ability to utilize the device.

Training is critical to receive a cost-benefit from the device and to ensure proper use, especially in homes with clients who have never used a programmable device. User error may result in situations where the home is accidentally programmed to be at a higher than desired temperature, which would render the measure inefficient.

Even after being educated about the device, some clients, especially those with limited technological abilities, may still require a traditional mechanical thermostat.

Funding: Replacement may only be done if it will realize an SIR of 1:1 or better. Then the device can be charged in the Program Operations cost category. Programmable thermostats are never to be charged as a health and safety measure.

8.10.9 New Thermostat Installation

A new thermostat is to be a standard part of any new heating system installation. In the case of heating system replacement, thermostat selection and installation are the responsibility of the contractor that is replacing the heating system. In these cases, Subgrantees must ensure that the same training and product selection standards are met, so as to not create an additional expense. In no case should thermostats be claimed separately from the heating system on units where a heating system is replaced.

8.10.10 Other Heating Appliance Retrofits

Oil Burner: When replacing an oil boiler/furnace burner the type of burner should be changed from an existing gun burner to a more efficient retention burner, only if it will not damage the existing heating system.

8.10.11 Heating Appliance Replacement

Replacement of the heating appliance must first be evaluated as an ECM in the energy auditing tool. If a replacement is not a cost-effective ECM, or is inoperable or red-tagged, it may be replaced with H&S funds. Inoperable or even red-tagged units may still only require repairs to function properly. When needed, the subgrantee should enlist the assistance of CT WAP technical advisory and monitoring staff, along with an HVAC Contractor to assist in making this determination.

The replacement of a heating appliance may be done as an energy efficiency or H&S measure, as follows:

Energy Efficiency: Because Connecticut's energy costs are some of the highest nationally, the replacement of a heating appliance may be found to be cost-effective. Even if the energy audit calls for

replacement of the heating system on the basis of H&S, Subgrantees must first complete the cost-effectiveness analysis for heating appliance replacements where possible, through the NEAT or MHEA audit tool software, to determine if the replacement meets the individual savings-to-investment ratio (SIR) of 1, or greater. If the system achieves an individual SIR of 1 or greater, the replacement should be classified and reported as an ECM and paid for using funds from the Program Support budget category.

Modeling Heating Systems: Decisions to model heating systems should always be based on "like for like" comparisons (e.g., AFUE to AFUE). Where appropriate, all existing systems should always have an SSE test performed; however, when modeling for heating system replacement, AFUE ratings should be used for both existing and replacement systems. The AFUE rating accounts for inefficiencies that happen in normal operation. As a result, it would be expected to be lower than the steady state efficiency of an appliance. The AFUE is like the miles per gallon a car gets driving in a mix of normal, everyday traffic conditions, while steady state efficiency is more like the miles per gallon a car gets driving just on the highway. For this reason, it is important to compare the AFUE of appliances when modeling for replacement as it is a better reflection of actual performance. However, the accuracy of all efficiency ratings is dependent upon the quality of the installation and operating conditions. Presently the AFUE value is only applicable to smaller units. For larger units (>300,000 Btu/hour) you would use the thermal (Et) or combustion (Ec) efficiency as provided on the manufacturer's nameplate data in accordance with nationally recognized standards and testing agencies. It may require some research to find the manufacturer's AFUE on older or discontinued small units. If the AFUE of the existing system cannot be determined, try to identify the system's efficiency by using the chart below for pre-values when modeling for replacement.

Default AFUE for Modeling Replacement Heating Appliance: For existing heating appliances whose AFUE cannot be determined via manufacturer's nameplate data or website information, utilizing the chart below becomes necessary. The appliance must be evaluated in its current state, not its originally manufactured state. For example, if an old system manufactured in the 1950s was retrofitted in the 1970s with a new high-speed burner, it should be evaluated as a system from the 1970s. The AFUE

Default AFUE for Modeling Replacement Heating Appliance*							
Fuel/Appliance Type Pre-Weatherization: Estimated AFUE is to be no lower than:							
Fuel / Heating Appliance Type	**Year Manufactured**						
	Pre-1960	1960 - 1969	1970 - 1974	1975 - 1983	1984 - 1987	1988 - 1991	1992-
Nat Gas / Propane Furnace	72	72	72	72	72	76	78
Nat Gas / Propane Boiler	60	60	65	65	70	77	80
Oil Furnace	60	65	72	75	80	80	80
Oil Boiler	60	65	72	75	80	80	80
*Chart values based on ANSI/RESNET/ICC 301-2014 (republished January 15, 2016)							

ratings below are the minimum acceptable pre-weatherization values when the manufacturer's AFUE rating isn't available because the unit is too old to have the rating listed on the manufacturer's nameplate or website. They are approximate values whose intent is to avoid overestimating program energy savings.

Note: Functioning electric resistance heaters of any type or condition must be considered 100% efficient for modeling purposes.

Health & Safety: A new heating appliance may be installed as a matter of the H&S of the occupants due to the high number of heating degree days in the region.

When the heating appliance is inoperable or red tagged it is may be an allowable H&S cost. Heating appliances must always be entered into NEAT or MHEA first to determine if the replacement will generate an SIR of 1.0 or greater. If the replacement does not generate an SIR or 1.0 or greater, H&S funds may be used to cover the cost of replacing the unit.

Replacement of the heating source for the purpose of H&S must be fully justified by subgrantees. This justification must be documented in the client file.

Funding: If the replacement is justifiable as an energy efficiency measure, it must be completed under the Program Operations cost category. In any instance where the replacement meets the required Savings-to-Investment Ratio (SIR), the measure should be treated as a weatherization energy efficiency measure, and the measure would be included as a part of the average cost-per-unit calculation.

Otherwise, if the replacement qualifies as being replaced for H&S reasons, it may be charged accordingly to that cost category.

CT WAP may question the cost of an incorrectly sized appliance.

Prior Approval: Heating appliances and systems may only be replaced after the Subgrantee has received prior approval from CT WAP using the Connecticut Heating System Waiver Packet.

8.10.12 Heating System Specifications

The replacement heating system must meet or exceed current Energy Star requirements. In addition, all heating system replacements require an ACCA Manual J load calculation to be performed by the subgrantee or mechanical contractor before the installation of the equipment.

The energy auditor's recommendations and justifications are to be considered when the Subgrantee formulates the work order. If the unit is to be replaced, Subgrantees have the responsibility to see that the correct size unit is used, that duct work is appropriate, and that an overload of the electrical system does not occur.

Proper sizing of the heating system must be performed using a standardized method or software, one

approved by CT WAP, such as the Residential Load Calculation, which is based on Manual J. Per SWS 5, the load calculation must be performed using the post-retrofit characteristics (e.g. insulation, air tightness, etc.) of the unit.

NEAT, MHEA utilize Manual J calculations.

Subgrantees are also encouraged to work with the State Technical Consultants, as well as the HVAC Contractor, to determine the proper procedures and appliance to order.

Warranty: Replacement heating appliances and connected systems must have the following minimum warranty:

- One (1) year on installer parts and workmanship
- Five (5) years on all OEM parts of the appliance (Original Equipment Manufacturer)
- 20 years or more OEM on the heat exchanger

The cost of a replacement must include the cleaning of any operational integral central air unit that already exists.

The cost of replacement must include the disposal of the existing appliance and the disconnection of any humidification system. Under no circumstances will a humidification system be reinstalled into a new heating system.

The owner must be provided with information and education by the HVAC Contractor/installer, including all manufacturer materials for the appliance, the local contractor's contact information (name, address, phone, email), and verbal instructions on the proper operation of the unit (thermostat, filter replacement).

Subgrantees should refer to the Connecticut Weatherization Field Guide to ensure that the installation is properly made and that all hazards associated with the installation are considered.

For more information on ENERGY STAR® Appliance Exception Protocol, see "Section 8.10 Heating Systems".

8.10.13 Utility Fuel Switching

If Subgrantees feel that the switching of utility types is warranted, a written justification to do so must accompany the Subgrantee's waiver request and be approved by CT WAP.

8.11 Domestic Hot Water Systems (DHW)

It is the responsibility of Subgrantees to ensure that appropriate evaluation is conducted to ensure that the domestic water heater (DWH) is operating in a safe and efficient manner.

8.11.1 Energy Audit

The work ordered on a DWH will depend on inspection and testing. In some instances, the energy auditor's evaluation may be incomplete because of Connecticut licensing restrictions. In such cases, Subgrantees must coordinate with the DWH Contractor to complete testing.

Connecticut state law requires that most activities associated with the repair and replacement of DWH are conducted by licensed contractors.

The energy audit will provide information and recommendations-based evaluations of the domestic water heating system, in the following areas:

- Determination of fuel type (oil, gas, electric)
- Visible inspection for rust or corrosion
- Inspection and testing of gas lines for leakage inspection of sediment trap, if so equipped
- Check the water temperature for safe level
- Check to see that the temperature pressure relief valve is properly installed, with a safety discharge pipe
- Check tank and water lines for leakage
- Evaluation under worst-case configuration for spillage, improper draft, high carbon monoxide levels
- Check the electrical cable for frayed or damaged insulation
- Assessment of the need for pipe insulation and tank wrap

8.11.2 Measures

Water heaters may require measures ranging from cleaning out obstructions in the vent, to repairs/retrofits and to full replacement.

Clean & Tune: If the water heater has not been serviced in the previous five (5) years a contractor should be called to clean and tune then appliance.

DHW Tune Up or CTT for water heaters can be considered a H&S measure and will be performed when Carbon Monoxide levels in the flue exceed the standards indicated in BPI 1200 or by the AHJ, whichever is more stringent. In some cases, replacements may be considered for cost effectiveness as well. H&S

funding can be used where applicable as well. A clean and tune is also required if the DWH:

- Is failing to operate, but does not meet criteria for replacement
- Is missing a component such as a venting assembly
- Fails to draft within acceptable limits under worst case
- Shows evidence of spillage
- Has a CO level that exceeds acceptable limits
- Has evidence of burner malfunction or disrepair

See Connecticut Weatherization Field Guide for steps in the standard CTT protocol for DWH.

8.11.3 Repair and Retrofit

Repairs or retrofits, along with further testing, may be made by licensed contractors at the same time as a standard clean and tune on the appliance. Measures may include:

- Oil or gas Burner retrofit
- Venting repair or replacement
- Electric heating component replacement
- Repair or replacement of water lines
- Pipe insulation, tank wrap

DWH Insulation (gas, oil, electric): The DWH tank should be wrapped, and the connecting water lines insulated, if they are in an unconditioned area where there is a possibility of freezing, and certainly if the appliance is outside of the thermal boundary. Some newer insulated models should not be wrapped.

See Connecticut Weatherization Field Guide for additional instructions and restrictions on the installation of DWH insulation measures.

Health & Safety: A malfunctioning water heater is dangerous both from the standpoint of a combustion appliance and from the fact that pressure builds up in the appliance. Repair and replacement can be considered an H&S measure if it poses hazard.

If the appliance fails the worst case CAZ depressurization test even after clean and tune measures further investigation must be performed to determine the reason for failure. For example, the contractor should check to see if the flue or chimney is blocked. The contractor should also determine whether the failure is due to a confined space that is lacking combustion air.

If an unvented gas unit is found, it must be vented by a qualified contractor, as an H&S measure before proceeding.

If the water temperature exceeds 120 degrees adjust water to a medium temperature. Always obtain occupant permission before reducing hot water temperature setting to 120 degrees Fahrenheit.

8.11.4 Replacement

Domestic Hot Water Heaters (DHW) may only be replaced in an owner-occupied unit. The replacement requires prior approval from DEEP. Fuel switching will be considered on a case-by-case basis if cost-effectiveness can be demonstrated.

If the unit is to be replaced, the Subgrantee has the responsibility to see that the correct tank size unit is ordered. Subgrantees may work with DEEP, as well as the water heater contractor, to determine the proper tank to order.

Health & Safety: Hot water heaters may only be replaced on a case-by-case basis if they have failed and are inoperable or if they are red-tagged, following the established replacement procedure listed below.

Funding: The cost of a replacement DWH may be disallowed by DEEP if it has not been approved prior to installation, if the appliance is not correctly sized, or if it is installed by an unqualified contractor.

8.11.5 Procurement

The replacement of a water heater appliance requires prior approval from CT WAP. The waiver packet submitted to CT WAP will include three supplemental bids from among the subgrantees' list of approved contractors. A minimum of 1 year installer parts and labor warranty and a 6-year Original Equipment Manufacturer (OEM) warranty are required.

8.12 Other Measures

In addition to the measures discussed so far, the CT WAP program offers several other measures that will improve the efficiency and safety of the household.

See the Connecticut Weatherization Field Guide for technical guidance on the installation of these various measures.

8.12.1 General Heat Waste (GHW) Reduction Measures

In DOE's WPN 23-6, DOE determined that certain General Heat Waste (GHW) measures, also referred to as deemed or presumptively cost-effective measures, are cost-effective. These measures do not require a site-specific energy audit to be deemed cost-effective. GHW measures are relatively low-cost and quickly installed. In most cases, they would cost more to evaluate than to purchase and install.

Those DOE-approved, presumptively cost-effective materials include:

- Water heater wrap (i.e., insulating blanket);
- Water heater pipe insulation (on the first six feet of hot water pipe exiting the water heater);
- Faucet aerators;
- Low-flow showerheads;
- Limited weather stripping and caulking to increase comfort (does not include major air sealing work, which should be guided by blower door test); and
- Furnace or air conditioner filters.

Funding: Total GHW measure costs (including labor) may not exceed $250.

8.12.2 Smoke Detectors

In accordance with WPN 22-7, the energy auditor must verify the operation and age of installed smoke detectors. The auditor must report any absent or non-operational smoke detectors on the work order an H&S issue. WAP H&S funds can be used to:

- Install smoke detectors where the Authority Having Jurisdiction (AHJ) requires them if alarms are not present of inoperable;
- Replace functional smoke detectors if they are beyond the manufacturer's stated lifetime (usually 10 years);
- Replace functional smoke detector batteries if designed to be replaceable.

Smoke detectors will be placed where the AHJ requires them. The occupants must be educated on proper operation and maintenance of smoke detectors including battery replacement, if applicable.

WAP funds cannot be used to replace functional smoke detectors if they are within the manufacturer's stated lifetime.

8.12.3 Carbon Monoxide (CO) Detectors

In accordance with WPN 22-7, the energy auditor must verify the operation and age of installed Carbon Monoxide (CO) detectors. The auditor must report any absent or non-operational CO detectors on the work order as an H&S issue. If a CO detector is not present or inoperable, WAP H&S funds must be used to install or replace alarms where NFPA 72 requires them. This means there must be a CO alarm:

- On every occupiable level
- Within 21 ft of any sleeping room
- In any sleeping room that contains a combustion appliance.

WAP funds can be used to:

- Replace functional CO alarms if they are beyond the manufacturer's stated lifetime (typically 10 years);
- Replace functional CO alarm batteries if designed to be replaceable.

The occupants must be educated in the following:

- Proper operation and maintenance of CO alarms
- The hazard and danger signs
- What to do in case of an alarm
- Proper installation of batteries (if applicable)
- How to install or replace a CO detector

8.12.4 Baseload Reduction Measures

Typically, addressing only the heating and/or cooling costs of a dwelling unit accounts for only about half of that unit's energy expenditure. The addition of cost-effective electric base-load measures gives Subgrantees greater flexibility to help low-income households reduce their energy costs and to partner with sources of leveraged funds. DEEP, in partnership with the utility companies Eversource and Avangrid, addresses base load measures.

8.12.4.1 Refrigerators

Refrigerators are not currently listed in Appendix A of CFR Part 440 "Standards for Weatherization Materials". However, WPN 23-6 lists refrigerators as a measure that has been approved by some Grantees upon written request to DOE.

8.12.4.2 LED Lamps and Fixtures

LED lamps and fixtures are not currently listed in Appendix A of CFR Part 440 “Standards for Weatherization Materials”. However, WPN 23-6 lists LED lamps and fixtures as a measure that has been approved by some Grantees upon written request to DOE.

8.13 Incidental Repairs

DOE's WPN 19-5 defines an Incidental Repair Measure (IRM) as "a repair necessary for the effective performance or preservation of newly installed weatherization materials, but not part of a standard installation." To be funded by WAP, IRM installations must be associated with a specific ECM or group of ECMs. IRMs must be justified by written and photo documentation that is saved in the client file. IRM costs must be included in the SIR calculation of the total package of weatherization measures.

Weatherization funds may be used for IRMs when those minor repairs are necessary for effective performance or preservation of ECMs or package of ECMs installed. The category is not meant for all repair costs. It is expected that the cost of IRMs will be reasonable, and the need will be infrequent.

In order for WAP funds to cover the cost of IRMS, the justification for each IRM and why it is necessary for the effective performance or preservation of an ECM must be documented in the client file with photos and written explanation. Additionally, the total cost of the package of weatherization measures including all IRMs must have a calculated SIR of 1.0 or higher.

The cost of the IRMs must repairs not prevent the installation of weatherization measures that would otherwise have been installed.

As the expenditure of DOE funds on IRMs is limited, so is the scope of activities that can be done within a given unit. For example, minor necessary roof repairs may qualify, but the size of such repairs will be small. Roof replacement is not possible. Subgrantees must maintain controls over the expenditures in this category. Some examples include:

> **Example #1:** An incidental repair (IR) may include the repair of some components of a window needed to ensure the effective installation of weatherstripping. Likewise, the newly installed component on that window may require the application of matching paint.
>
> **Example #2:** An IR may include minor repairs to the roof of a house made with multiple purposes; the repair may prevent moisture accumulation in the basement while also protecting the integrity of the insulation in the attic.

Funding: IRMs are charged to the Program Operations cost category. The need for each repair must be fully documented by Subgrantees and maintained in the case file for review by program monitors and auditors. Failure to document and comply with the definition or funding limits on incidental repairs may result in disallowed costs.

Health & Safety: In some cases, the IRM may have a coincidental effect on H&S issues. In Example #2 above, for instance, the roof repair may prevent moisture and mold issues. In this case, the repair could only be charged under the H&S category as if so defined by DEEP. DOE has required that the state plan identify any IR activities that will be charged to H&S. Furthermore, these activities must be consistently charged on all jobs, throughout the state.

CT WAP Subgrantee contracts for services with weatherization contractors must also include an acknowledgement of the receipt of communication of links to the CT WAP Field Guide, Standard Work Specifications and Standards as outlined in WPN 22-4. § 1.

8.14 Manufactured Housing (Mobile Homes)

Most of the information contained in this Manual, regarding measures, applies to the weatherization of mobile homes. However, manufactured homes present variations in approach that are detailed in this section.

Manufactured homes are common in some areas of Connecticut and Subgrantees will find that weatherizing such units presents unique circumstances. Due to their elongated design and frequently loose construction, manufactured homes are usually inefficient, relatively high energy users. Thus, manufactured homes present many opportunities for air sealing, the installation and improvement of insulation, and improvements in the efficiency of mechanical systems.

Manufactured home refers to a structure that is transportable as a single unit, is built on a permanent chassis, and is designed to be used as a dwelling without a permanent foundation. The manufactured home may or may not actually be placed on a permanent foundation.

See Connecticut Weatherization Field Guide for instructional and technical information regarding weatherization of manufactured homes.

8.14.1 Energy Audit (MHEA)

The energy auditor will typically address the following areas in the evaluation of the needs in a mobile home:

- H&S issues;
- Client use issues;
- Structure soundness;
- Air infiltration;
- Existing insulation and needs (belly, wall, roof);
- Window and door repair;
- Water heating;
- Heating appliance, ventilation systems; and
- Indoor air quality tests and installation of smoke and CO detectors where applicable.

All standard audit testing is conducted with mobile homes. The following additional testing must be a part of Subgrantees' audit procedures, as applicable:

- A blower door (@50 Pa) used in conjunction with a pressure pan test to locate duct leaks and;
- Zonal Pressure tests on belly, water heater room, and attic.

The data collection sheet, which is also used for non-mobile units, is to be used by the auditor to document the needs of the unit.

8.14.2 Doors and Windows

Like all air sealing measures, caulking and weatherstripping around doors and windows can be effective weatherization measures for mobile homes. If necessary to ensure the effectiveness of the air sealing, the repair of doors and windows may be completed within the policy on IR.

Replacement Limitations: The replacement of doors and windows is not cost-effective unless the existing component is severely deteriorated to the point of being a major source of heat loss. The energy auditor must justify any recommendation for replacing doors and windows with a qualifying computation of the SIR. Prior approval by CT WAP is required for replacement.

8.14.3 Reflective Measures

Reflective roof coatings provide both insulation and air sealing qualities as applied to mobile homes. The use of these coatings is limited to jobs where the auditor has demonstrated it to be cost-effective, with an SIR rating of more than 1.0.

8.14.4 Deferral

The weatherization worker's health and safety are important, especially when the work scope requires the worker to be under the mobile home. Any dangerous or unhealthy conditions in, about or under the mobile home - trash, broken glass, animal feces, sewage, etc. – must be addressed before any work begins. If working conditions in a specific area cannot be made acceptable, work should be deferred until the situation is remedied. Weatherization measures may not be applied to dilapidated mobile homes where extensive repairs are necessary.

8.15 Final Inspection

A final inspection must be completed on each dwelling before it is submitted to the CT WAP for payment. It is a crucial part of the weatherization process, as it provides subgrantees with the ability to correct installation errors and identify measures that may have been missed.

Once the contractors report the weatherization work as complete, subgrantees will arrange for a final inspection. One hundred percent (100%) of the weatherized units must pass the final Subgrantee Quality Control Inspection.

8.15.1 Final Inspector Qualifications

Subgrantees are responsible for the final quality of work accepted. CT WAP requires that all inspectors hold a current BPI/HEP Certification of Quality Control Inspector (QCI). Inspectors are expected to maintain their certification as a condition of employment with Subgrantees. The final inspector must be an employee of the Subgrantee. The function may not be subcontracted unless approved by CT WAP. The final inspector may not be the same individual who conducted the Energy Audit, on any given unit. The final inspection may not be conducted by any individual who has worked directly as part of the installation personnel on the unit.

8.15.2 On-Site Final Inspection Steps

After all measures are installed, Subgrantees should print two (2) Completion Certificates that will be signed by the client and inspector during the final inspection process. See the Connecticut Subgrantee Documentation Page for a sample of a Completion Certificate.

The inspector should schedule the inspection with the client at a mutually convenient time for both parties and confirm with the client before arrival at the dwelling. The appointment date and time should be entered in the current web-based tracking system that the Grantee has selected. Before the visit, the inspector should compare the data collection sheet to the installed Client Completion Report, making note of any measures that were called for but not installed in the dwelling. Per WPN 22-4, the inspector must also assess the energy audit to confirm the accuracy of the field site data collection and the energy audit software inputs. The inspector should arrive at the home on time, with all appropriate equipment (i.e., blower door, IR camera, digital camera, CO monitor, gas leak detector, etc.) and paperwork (i.e., completed data collection sheet, completion certificate, additional notes on the site, etc.). The inspector should introduce themselves to the client and ask them about their experience with the contractor and/or crew that completed the work. It should also be mentioned to the client that the Grantee Monitor may contact them to conduct an independent Quality Control Inspection after the work is complete. The inspector must conduct a walk-through of the dwelling, including the attic, with both the data collection sheet and the Client Completion Report in hand, to verify if the listed measures are present in the home as specified on the data collection sheet and if any oversights have occurred. At this

time, and before using the blower door, the inspector must ensure that all health and safety (H&S) concerns have been addressed by the auditor and installer. The inspector must complete CAZ testing, test all gas lines for leaks, and monitor ambient CO levels at all times while in the home in accordance with current ANSI/BPI-1200 standards. After completing all safety testing, the inspector must inspect and evaluate all new heating appliances and water heaters to ensure that they are correctly sized, have been properly installed, and are working properly.

All new and existing combustion appliances must be evaluated for CO and draft to ensure that they are working properly prior to using the blower door. The inspector should set up a blower door and conduct a blower door test in accordance with current ANSI/BPI-1200 standards. If there are H&S barriers present in the home, the blower door test should not take place. While the blower door is running, zonal pressure testing and an infrared camera inspection should be performed to ensure all air sealing and insulation opportunities were addressed.

8.15.3 Final Inspection Process

The final inspection will include a visual examination and verification of parts and materials used, as well as the workmanship of the installations. The inspector will also conduct technical testing and/or evaluation to assess the effectiveness and safety of the work.

During the final inspection process, the final inspector will assess the range of weatherization work completed on the unit, including whether:

- The auditor considered all energy efficiency measures and H&S issues;
- The energy audit called for comprehensive weatherization measures;
- H&S problems detected by the auditor, or others were remedied or mitigated prior to the weatherization steps, as appropriate;
- All energy efficiency measures called for in the original work order, or as modified with Subgrantees' approval, were conducted, and done in the order of priority assigned to each;
- Air sealing and other energy efficiency measures were completed correctly using standard program protocols with approved materials and parts;
- The inspection of the insulation work and review of the certificate of insulation show that insulation was properly installed within the manufacturer standards and at the levels, locations and types called for by weatherization program guidelines;
- Based on the inspector's pressure differential analysis the proper alignment of the unit's thermal and pressure (air) boundaries were achieved;
- Based on blower door guided pressure testing, air sealing was effectively completed;
- Optimal ventilation rates in the house were achieved in conformance with ASHRAE 62.2-2016;

- Based on the evaluation under 'worst case' configuration of the house the combustion appliances are operating safely in the weatherized unit;
- Based on Combustion Air Zone (CAZ) testing methods adequate combustion air is available for all combustion appliances;
- Based on testing with a gas detector, there are no gas line leaks;
- Based on the inspector's own testing, and/or the inspector's review of the test out results from the installer on any heating system or water heater replacements in the unit; such appliances were properly installed, properly sized, and test within acceptable energy efficiency standards;
- Based on testing, heating system energy efficiency levels were improved to at least a 70% level;
- Based on all testing and visual inspection all appropriate measures were considered and reasons were documented when measures were not installed;
- Based on a client interview the occupants have no complaints about the work completed and the occupants understand the actions needed to maintain the efficiency of the unit;
- If all measures were done satisfactorily, the inspector and client should sign the completion certificate; and
- If one or more measures were not installed to standard, the Inspector is required to arrange to fix measures prior to signing of completion certificate by either client or inspector.

Procedure: If measures were not called for that should have been, the inspector must make note of them and re-run the software audit with all appropriate measures called for in the software audit. If these measures are matters of H&S or screen at an individual SIR of one (1) or more, Subgrantees will arrange for the further installation by Subgrantees' crew or by the appropriate contractor. Once additional work is completed, the inspector must conduct another complete final inspection, following procedures outlined above.

8.15.4 Final Inspection Tests

Subgrantee Final Inspection procedures must include the performance of the following tests. Note that these tests should be completed in all units, unless specifically stated otherwise.

General Tests:

- Blower Door @ 50 Pa or equivalent;
- Attic and Crawl Space Zonal Pressures;
- House-to-garage wall assembly leakage tests on attached garages (garage door open and closed);
- Test Smoke & CO Detectors;

- Pressure Pan Test (if work was done on ducts outside the thermal envelope); and
- Exhaust Fan Flow Test (CFM) (on units that have been repaired or replaced).

Heating Appliance:

- Combustion Analysis/CO in Flue;
- Combustion Spillage Test;
- Natural Draft Test;
- Clocking the Gas Meter (Natural Gas on clean and tune);
- Test for Fuel Leaks;
- Heat Rise Test on Furnace (on units that have been repaired or replaced or if ducts have been sealed or filters have been added);
- Ambient CO Test throughout the entire dwelling;
- Smoke Test on Oil Furnace/Oil Water Heater (on units that have been repaired or replaced);
- Worst Case CAZ Depressurization Test;
- Test heating system emergency Shutoff Switch;
- Test for proper function of thermostat;
- Recheck Room Balancing (on forced air heating plant;
- Space Heater (includes gas fireplaces) Combustion Analysis/CO in Flue;
- Space Heater (includes gas fireplaces) Combustion Spillage Test;
- Space Heater (includes gas fireplaces) Natural Draft Test;
- Space Heater (includes gas fireplaces) Worst Case CAZ Depressurization Test;
- Solid Fuel Fired Appliances-(Includes Wood, Coal, Pellet Stoves) Per NFPA 211 or in accordance with agency having jurisdiction. (Pre-and Post- Weatherization); and
- Fireplaces- Conduct (Pre- and Post- Weatherization).

Water Heater:

- Worst Case CAZ Depressurization Test;
- Natural Draft Test;
- Combustion Analysis/CO in Flue (on units that have been repaired or replaced); and
- Combustion Spillage Test.

See full list of required tests in WPN 22-7 and recommended procedures outlined in BPI 1200 standard.

8.16 Re-Work and Warranty

Subgrantees are responsible for ensuring that all weatherization work is completed to the level of quality that will pass the final inspection. This responsibility applies to work conducted by the agency's own crews as well as that performed by agency contractors.

Any measures that do not pass final inspection must be addressed immediately. If problems are discovered after the unit has been reported as passing final inspection, additional work may not be conducted, and CT WAP should be notified for instructions.

8.16.1 Final Inspector Ordered Re-Works

It is the responsibility of Subgrantees to have procedures in place to effectively and promptly address problems found in the final inspection.

At any point when the work does not pass the final inspection or discrepancies between what was ordered and what was delivered cannot be reconciled, the subgrantee's final inspector should fail the unit and order necessary re-work.

At this point, any payments invoiced by the contractor involved are to be withheld, and subgrantees should immediately notify the contractor of the need and reason for a re-work. The return to the unit for the rework of the weatherization measure may be given a reasonable amount of time to accomplish.

If the contractor submitted the work to subgrantees as "complete", the cost of any subsequent rework needed to pass inspection is to be the responsibility of the contractor. An additional final inspection of a unit required from a rework will be charged to the subcontractor by subgrantees as a re-inspection fee of $150.00 to $300.00, depending on the extent of the re-inspection. The fee will be deducted from the subcontractor's invoice. If the re-work is the responsibility of the subgrantees' crew, it should be rescheduled immediately.

Re-works or additional measures may require a modification in the work order and resets in the NEAT, MHEA Audit Software.

Rework Dispute: If the subcontractor refuses to rework a rejected measure, subgrantees should re-order the specific work by another subcontractor. The original company's invoice for that measure should be rejected. Other acceptable work would be paid for, but the company should then be disqualified from subsequent work in the program.

In the instance that a technical dispute over passing a measure cannot be resolved, Subgrantees should call for a third-party inspection by CT WAP QCI, a monitor, and a technical expert of the Grantee. In the Grantee's decision will be binding on the resolution of the dispute.

8.16.2 Go-Backs on Reported Complete Units

Any units reported to CT WAP as completed must:

- Have all measures properly installed;
- Have all work completed as required;
- Pass the inspection conducted by the Subgrantee, and;
- If selected for State inspection, pass the inspection conducted by the Grantee monitor.

These requirements must be met before the unit is reported to CT WAP as completed. Paying for additional work on buildings already reported to DEEP and DOE as completed is not a permissible use of WAP funds. Once a unit is presented to CT WAP for payment and the final inspection indicates that all applicable work performed has been performed in alignment with DEEP and DOE standards, no additional WAP funds may be expended on this unit. This regulation pertains to all measures, including heating system and water heater replacements. Using DOE funds for performing activities such as routine maintenance, repairs, or warranty type work is not permitted for work beyond those costs already invoiced. Subgrantees may use other funds that are not included as part of their WAP budget plans to pay for the costs associated with these activities.

If a unit that has been reported as complete needs additional work or corrective action, it must be brought to the attention of the Grantee. The Grantee will work with Subgrantees to correct the situation.

In any instance where a contractor failed to conduct work in conformance with program policies, the contractor should be contractually required by Subgrantees to re-work the measure at the contractor's expense.

The limits on go-backs and reworks do not necessarily apply to measures that were not charged to DOE.

8.16.3 Warranty

Subgrantees must contractually require all contractors to provide a warranty against defects in materials, manufacture, design, or installation of work performed under contract for the period of one (1) year from the date the unit passes the final inspection. Any warranty made by a manufacturer must be passed along to the owner of the unit.

8.16.4 Completion Process

Subgrantees may not report the unit as completed until it has passed the Final QCI Inspection. Before submitting the unit for claim, Subgrantees must reconcile the work completed by matching the following information:

- The weatherization measures called for in the work order (based on the audit and including

subsequently approved modifications), with

- Grantee approval of waivers submitted where required, with
- The weatherization measures conducted by Subgrantees, and the weatherization measures invoiced by each subcontractor, with
- The weatherization measures were reviewed and passed in the Final QCI Inspection.

Subgrantees must match the cost for each measure on the Subcontractor invoice to one of the following sources:

- The Subcontractor's pre-approved proposal, if applicable;
- A weatherization program price list, or;
- A specific price negotiated between the Subgrantee and the Subcontractor

Subgrantees may not report the dwelling as completed until every discrepancy in the measures or the costs has been reconciled. After all discrepancies have been addressed, the unit is closed out in the software audit and submitted to the Grantee for payment.

After the final inspection by the Subgrantee, no more work can be done on the home as it is considered closed. However, a completed dwelling is still subject to monitoring by the State Monitor. Therefore, it is crucial that Subgrantees consider and install all eligible energy efficiency and H&S measures available and within funding resources. Subgrantees should also ensure that the completed work is of high quality. Once closed out in the system, Subgrantees will be unable to complete additional work on the dwelling. When the dwelling is completed and ready for close-out, the following steps should be taken:

- After work is inspected by the final inspector, each measure must be flagged as installed in the NEAT, MHEA system;
- When entering installed dates into the NEAT, MHEA software, the dates must be the specific date that the particular subcontractor installed the individual measures;
- Log the event by entering the final QCI inspection date; and
- Flag the unit completed by entering the date, and then print the installed BWR.

8.17 Subgrantee Final Responsibilities

With the receipt of the Final QCI Inspection, it is an ideal time for Subgrantees to review the entire case for its quality, compliance and accuracy. Subgrantees are responsible for the quality of every aspect of the weatherization work completed on each unit, including:

- Processing the application & accurately determining eligibility;
- Arranging for an effective energy audit of the unit;
- Devising an effective work order within program priorities and fiscal bounds;
- Obtaining CT WAP approval where required;
- Performing an analysis and writing a corrective action should the process fail to fulfill the requirements of the program CT WAP; and
- Overseeing the actual weatherization work; and conducting a final QCI inspection that ensures the work is complete and correct and submitting it to CT WAP for approval.

8.18 Weatherization Work Safety

Weatherization workers have a right to work in an environment that does not jeopardize their health and safety. Occupants of the unit also expect that work be performed in a manner that will not endanger them and other household members.

Subgrantees must have written policies and protocols in place that require all standard precautions to ensure a hazard-free workplace. These precautions apply to the subgrantee's Staff and their subcontractors. Such safety policies, as well as the subgrantee's subcontractors, must explicitly cite the requirement for compliance with federal regulations on worker health and safety, including DOE and OSHA requirements, applicable state law, and local codes.

To maintain a safe work environment, Subgrantees must enforce CT WAP deferral policies that require work postponement until H&S hazards are mitigated. Procedures must be in place to authorize program staff, energy auditors, and weatherization workers to call for possible deferral whenever potential hazards are identified.

Subgrantees are responsible for weatherization workers' H&S throughout the implementation of weatherization services at offices, warehouses, and jobsites.

It is expected and required that crews, directly employed or subcontracted, are adequately trained and possess valid state licensure to perform all work associated with their contract. Other requirements include, but are not limited to, the use of proper protective gear, safe and well-maintained machinery, tools and equipment, safety data sheets (SDS) for all hazardous items, and worker safety training.

For more information on Regulations and Training, review "Section 2 Weatherization Program Administrative Requirements."

For information on Training Funds, refer to "Section 10 Reporting."

8.18.1 Occupant Safety

Subgrantees are responsible for ensuring that occupant H&S is considered and documented prior to and throughout installation of weatherization measures. This is especially important if one or more of the occupants has an identified sensitivity or medical condition.

If it is determined that any of the work activities would constitute an H&S hazard, the occupant at risk will be required to leave the home during these work activities. If that is not possible, then the work must be deferred until an alternative solution can be determined.

To ensure household safety, the ideal worksite will be set up so that occupants are not in any danger of injury while work is underway. Children in particular should be shielded, either by the family removing them from the area or by an arrangement that keeps them away from work areas.

Weatherization activities that can present an H&S issue for occupants include, but are not limited to:

- Blower door, duct, and combustion appliance zone testing.
- Air sealing using foam spray
- Insulation blowing and installation
- Sanding, planning, or removing lead-painted building components
- Working with solvents, paints, caulks, and sealants containing VOCs
- Using EPA approved cleaning and disinfecting materials.
- Using power tools, staple guns, other tools that could present an H&S Issue
- Installing certain potentially hazardous materials, such as glass, fiberglass, and plywood
- Operating the blower door under hazardous configurations
- Leaving ladders unattended
- Monitoring activities around combustion appliance(s) which may cause CO spillage
- Using caution tape, cones, and signage to demarcate where work is being performed in potentially hazardous areas, such as where lead safety is required. Workers must be cognizant of the presence of occupants and appropriately warn them of hazards.

8.18.2 Worksite Guidelines

Jobsite H&S: On-the-job safety begins with a well-organized worksite where tools and materials are neatly and handily arranged. Refuse/debris should be packed up and discarded at regular intervals during the job. Workers should be responsible for safety in their work areas. Supervisory personnel should be aware of the overall operation, watching for potential hazards to workers and occupants. In areas where lead safety is applicable, the work must be isolated and conducted according to EPA lead-safe weatherization practices.

A supply of potable water must be kept in all work areas and job sites. Portable water containers must have taps, and each worker must have their own drinking cup.

Tool Safety: The safe use of powered and manual tools is an important component of crew worker safety practices. Crews must be trained in the proper use of tools. Crews are required to utilize appropriate PPE when using tools or exposed to certain hazards where wearing appropriate PPE affords them personal protection. Power tools and equipment must be protected with Ground Fault Circuit Interrupter (GFCI) circuit breakers. Damaged or worn electrical cords must be discarded. All workers must be trained in the safe use of ladders.

Vehicle Safety: All weatherization vehicles must be properly maintained and inspected regularly to ensure safe operation. A maintenance log documenting all service and repairs must be kept for each

vehicle. The vehicle used for weatherization and/or insulation equipment should be well-organized, clean, and packed so that equipment and materials are secure and not likely to fall on the weatherization worker(s) or occupants. Trucks should have an ample supply of potable water, a first-aid kit, and a fire extinguisher.

On-site Documentation: Subgrantee and subcontractor crews must comply with OSHA HAZCOM training and requirements. Containers of hazardous materials must be labeled with appropriate warnings. SDS for all materials being used at the job site must be available at all job sites in case of an emergency.

It is the responsibility of all Subgrantees to ensure that worksite guidelines are enforced for all personnel and Sub-contractors performing CT WAP service delivery and/ or inspection services.

8.18.3 Personal Protective Equipment (PPE)

Subgrantees shall ensure that all worksite personnel have available and use PPE appropriate to the task undertaken. All Subgrantee personnel policies and sub-contracts with weatherization auditors, installers and inspectors must explicitly require the use of PPE.

Specific PPE required at a typical jobsite includes, but is not limited to:

- Safety glasses or protective eyewear
- Noise reduction ear plugs
- Polyethylene- coated suit (Tyvek)
- Safety-toed footwear
- Work gloves
- Respirator, properly NIOSH rated for the job
- Hard hats as necessary

See 29 C.F.R. § 1910.132, ANSI Z-87.1-2003, and 29 C.F.R. § 1926.102 for more information.

8.18.4 Lead-Safe Weatherization

Subgrantee protocols must designate that any house built before 1978 that has not been cleared by an official lead inspection contains lead paint hazards. The personnel on-site and the work practices must reflect this designation. All work that potentially will disturb existing lead paint must follow proper EPA RRP Practices. The Client education materials on the EPA Lead RRP must be included in the client file. The client file must also contain client sign off and acknowledgement of the risks associated with lead paint.

Roof repair may also be justified as an Incidental Repair (IR) needed to ensure the effectiveness of the measure being installed, such as installation of insulation. Determining how to categorize whether to

charge roof work depends on the reason for the repairs. If the leaking roof is causing moisture and mold, the repair should work would most likely be considered an H&S activity. If the roof repair work is necessary to ensure the integrity of insulation work, the repair job should be charged as an Incidental Repair.

9 Monitoring and Quality Assurance

CT WAP, in accordance with the State Plan and Quality Work Plan, conducts periodic monitoring and ongoing quality assurance. Through regular monitoring and quality assurance, the grantee and subgrantees identify and resolve issues to ensure that weatherization services are managed and delivered following best practices, agency policies, program rules, applicable regulations, and laws. Monitoring and quality assurance inspections promote the overall improvement of the program, ensure higher quality measure implementation, and provide better service to CT communities.

Monitoring and quality assurance activities are fully documented, and written reports are sent to subgrantees, detailing all recommendations, concerns, and findings. The reports include guidance, corrective actions, and training opportunities. The subgrantee must respond to these reports in writing, outlining the actions taken to address all items. The grantee will repeatedly follow up with the subgrantee on open issues and track them until resolution.

CT WAP will evaluate subgrantee performance through monitoring activities extending over each contract period, including:

- **Annual Programmatic Monitoring (APM):** A review of the subgrantee's overall administration of the weatherization program. CT WAP staff conducts this process, which includes file reviews and site visits.
- **Annual Fiscal Monitoring (AFM):** A review of the subgrantee's fiscal operation and utilization of weatherization funds, completed simultaneously with the APM, by CT WAP's fiscal staff.
- **Technical Field Monitoring (TFM):** Reviews are conducted by CT WAP's technical consultants on a percentage of individual cases; TFM includes visits for both in-progress and completed projects.
- **Comprehensive Desk Monitoring (CDM):** Reviews are conducted by CT WAP desk monitoring consultants and include the review of production reports, agency claims, and other regular subgrantee submissions as required.
- **Ad-Hoc Quality Assurance:** Subgrantees visit or additional reviews by CT WAP's monitoring and technical consultants may occur when CT WAP identifies a need for additional evaluation, training, or technical assistance.

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9.1 Annual Monitoring

9.1.1 Annual Programmatic Monitoring (APM)

APM is the main monitoring conducted by CT WAP during each contract year. The APM, conducted by the CT WAP staff, will include a comprehensive program management review of subgrantee's overall administration and implementation of the weatherization program.

CT WAP staff utilizes the Connecticut Weatherization Assistance Programmatic Monitoring Tool to complete the APM. This tool is designed to obtain a comprehensive picture of the organization and its weatherization implementation, as indicated by the following general areas from the current form:

- Agency Profile
- Program Operating Procedures
- Client Files/Compliance Monitoring
- Training and Technical Assistance
- Inventory Control/Vehicles/Equipment

The sources of information for the APM may include documentation on subgrantee policies, case file materials, as well as interviews with the day-to-day program manager, upper-level subgrantee management, and the fiscal officer(s).

Subgrantees are expected to make available for review all weatherization files and paperwork as requested, including program case files, administrative files and fiscal files. Other required subgrantee documents that may be requested for the Grantee's review include, but are not limited to:

- Current subgrantee agreement with CT WAP;
- Most subgrantee Fiscal and Programmatic Monitoring Report from the Grantee
- Most recent Subgrantee Policy and Procedures Manual
- Copies of file of homes to be reviewed and/or visited containing:
- Income eligibility documentation
- Owner/Renter materials (proof of ownership or signed rental agreement)
- Deferral and/or Weatherization Readiness Funds documentation
- State Historical Preservation documentation
- The final work order(s), including any change orders
- Invoicing records for all measures, including the final invoice paid by the Grantee
- Subcontractor contracts

- Inventory tracking system and materials
- Procurement documentation to verify competition
- Inventory records for materials and equipment;
- Subgrantee and contractor Insurance certificates and other evidence of current coverage;
- Subgrantee's copy of the currently approved DOE State Plan;
- Subgrantee's copy of the current CT WAP Operations Manual;
- Subgrantee's copy of the current Connecticut Weatherization Field Guide; and,
- Other relevant documentation as requested by CT WAP staff.

9.1.2 Annual Fiscal Monitoring (AFM)

In addition to the program aspects of the APM, CT WAP staff will conduct an Annual Fiscal Monitoring.

CT WAP's AFM tool has the following general divisions:

- Legal and Regulatory Compliance
- Financial and Contractual Review
- Funding and Cost Categories
- Workforce Management
- Subcontractor/Vendor Management
- Project/Client Management and Communication

The AFM will involve all areas of the fiscal management of the weatherization program, such as program budgets & expenditures, invoices for weatherization materials, subgrantee payroll records, subgrantee purchases, and paid contractor invoices. Grantee staff will review all subgrantee fiscal documents and policies necessary to complete the AFM, including but not limited to:

- The subgrantee's most recent annual fiscal audit that covers the weatherization program
- The subgrantee's current fiscal policy manual
- The tracking systems utilized track payments from and issue claims for weatherization work.

Additionally, CT WAP staff will:

- Track jobs from start to finish, ensuring that proper timelines are met with paying contractors.
- Perform a verification of payroll to ensure that all subgrantee staff were paid appropriate wages

Review procurement records and procedures to ensure that materials and labor costs are reasonable, spent in the most cost-effective manner, and meet program specifications. See “Section 10.3 Cost Categories” for definitive information regarding allowable program cost categories, expenditure limitations and eligible program activities.

9.1.3 Exit Meeting

A formal closing interview will be conducted on the final day of the APM and AFM. The interview will be conducted between the CT WAP's monitoring staff and the Subgrantee's weatherization program managers and additional personnel as designated by each Subgrantee, such as subgrantee executive staff and a fiscal representative.

During the meeting, grantee staff will review the findings, concerns, and recommendations from the APM and AFM, and discuss the corrective actions. Emphasis will be placed on any findings, concerns, and corrective actions that need to be implemented immediately. All findings, concerns, and recommendations, even if they seem to be resolved in the exit interview, will appear in the final written report and must be responded to by the Subgrantee within the timelines provided in the report. The written report is kept in the official records, and all issues are followed up with until fully resolved.

9.1.4 Final Report

The State’s APM monitoring will result in the issuance of the APM and AFM reports to Subgrantees within thirty (30) calendar days of the exit interview date. These annual monitoring reports will be based on success, best practices, recommendations, concerns, and findings from the following sources:

- Annual Programmatic Monitoring (APM)
- Annual Fiscal Monitoring (AFM)
- Client File Reviews
- Onsite Technical Monitoring reports
- Desk Technical Monitoring Reports
- Review of Subgrantee monthly reports
- Corrective action items from previous monitoring activities.
- Findings and requirements from the U.S. Department of Energy (DOE)
- Other reports or documents with issues noted by the Grantee.

The APM and AFM monitoring reports, addressed to the Executive Director of the Subgrantee, will include the Grantee’s recommendations and requirements for the Subgrantee and its contractors. The structure of the written report will provide a clear, specific, and concise list of areas for the Subgrantee to address. All of the areas reviewed will be listed with a statement about any issue, followed by the CT

WAP's recommendations or requirements. If best practices and/or no issues were found in an area reviewed, that will also be stated. Matters referring to a specific case or unit will be identified by a unit number.

The monitor will address each of the areas of the review and state one of three determinations:

Conclusions	Issues and Required Response
Best Practices and Success	**Issue:** During a monitoring visit, a "Best Practice" is identified in an area that addresses a matter of compliance, which is worthy of being applied with other Subgrantees is considered a success.
	Response: Subgrantees may be asked to write up the process in more detail or prepare a short training document to present to other Subgrantees or to be presented by DEEP staff.
Recommendations / Concerns / Findings	**Issue:** An issue was identified in this area, which is not a matter of regulatory compliance but is based on DEEP's or monitor's knowledge of sound program practices. Includes suggestions for program procedures, protocols in the weatherization work, or other recommendations by DEEP for the improvement of the local program.
	Response: Subgrantee action on DEEP recommendations is optional, but a response to the item is required.
Corrective Action	**Issue:** A problem was identified, which is a matter of compliance with the legal, regulatory, or contractual obligations of Subgrantees. A problem was identified, which is a matter of unacceptable weatherization workmanship. Here, the report must cite a specific source for the requirement by number and title, which may include Subgrantees' contract, the approved DOE State Plan, federal or state laws, regulations, program technical protocols, program policies and procedures (manual citation).
	Response: Subgrantee must respond with corrective action. The response must be detailed, and a time frame for compliance is required. Subsequent monitoring will ensure the requirement has been implemented.

9.1.5 Subgrantee Response

Subgrantees must provide the written response to every Finding, Concern or Recommendation listed in the APM and AFM Reports within 30 days of the receipt of the reports. In the written response the subgrantee must include a Corrective Action Plan. The Corrective Action Plan must be reviewed and approved by the Grantee and subsequently implemented by the Subgrantee within the timeframe specified in the report. Once in place, CT WAP staff will follow up with the Subgrantee regularly until the finding or concern is fully resolved.

In some instances, Subgrantees may request an extension to respond to the APM and AFM reports. Such action does not mitigate the timeframe for the response; instead, the response should detail the specific steps to be implemented and provide time frames for the resolution of each issue.

Where longer terms are required, particularly with solutions that are going to take more than forty days, it is up to the subgrantee to report progress on the issue to the grantee on a monthly basis.

The grantee will follow up on any overdue monitoring report responses with a reminder letter to subgrantee's Executive Director, with a copy to the Weatherization Manager. If the response is still not

received within an additional ten (10) business days from the date of the letter, further action will ensue, including additional correspondence, delay of payments, and, in some situations, suspension or termination of the subgrantee's weatherization contract with the grantee.

Subgrantees are encouraged to have procedures in place for the review of all APM and AFM documents by its governing board of directors. Communication with the Grantee regarding monitoring issues is important as outstanding issues will have a negative affect when the APM and AFM reports are used to determine any future contracting arrangements with subgrantee. The grantee will also follow up on outstanding issues in subsequent monitoring.

9.2 Technical Field Monitoring (TFM)

The CT WAP Quality Control Inspector (CT WAP QCI) conducts on-site inspections on a minimum of 10% of the dwelling units that are presented for certification during the budget period as well as a minimum of 10% of In-Progress dwelling units as part of TFM.

When a Subgrantee QCI has completed inspection of 100% of the work reported as completed for a reporting period, the Subgrantee must arrange for 10% of the reported completions to be inspected by the CT WAP QCI prior to CT WAP issuing payment for the reporting period. If this is not possible, the CT WAP may withhold payment on 20% of the jobs reported as complete until arrangements have been made for the Quality Control Inspection.

9.2.1 Inspection of Completed Work

The QCI will contact the Subgrantees to coordinate and schedule the on-site TFM reviews. These reviews will be conducted to observe all or part of the weatherization work being completed. The Subgrantee must also make the appropriate weatherization staff available, as well as specialized equipment needed for the technical monitoring. CT WAP QCI will coordinate the on-site visits with the Subgrantees and their contractors so any work interruption is kept to a minimum. The appointment time and place of monitoring will be verified by CT WAP QCI with the Subgrantee prior to the visit. However, the CT WAP QCI reserves the right to inspect any work site without notice. In instances where scheduling conflicts prevent alignment between the CT WAP QCI and the Subgrantee, the CT WAP QCI may proceed with conducting the on-site technical review independently.

9.2.2 Inspection of Ongoing Work

The CT WAP QCI may also observe installation occurring in a project that is in progress, such as blower door guided air sealing, the installation of insulation, combustion appliances service or replacement, or any other part of the job that is occurring and work being completed that is deemed meaningful to the review. In some instances, the CT WAP QCI may observe testing as Subgrantees' staff or a subcontractor conducts it. It is within the CT WAP QCI's purview to request that testing that has already been completed be repeated for instructional purposes, to address concerns about the accuracy or appropriateness of the initial test, or for any other reason deemed necessary to support quality assurance and program compliance.

9.2.3 Process for Monitoring

The CT WAP QCI will further investigate the weatherization work by comparing the measures installed against those called for in the work order and, if completed, those paid for on the invoices. The inspection will include assessment of work quality and whether all newly installed weatherization measures have been installed in accordance with program workmanship protocols and material standards. Health and Safety (H&S) concerns observed by the CT WAP QCI must be addressed

immediately with the worksite supervisor and also reported to Subgrantees' weatherization program management for follow-up. During the TFM, the CT WAP QCI assesses the range of weatherization work completed on the unit, including whether:

- The auditor considered all energy efficiency measures and H&S issues;
- The energy audit called for comprehensive weatherization measures;
- H&S problems detected by the auditor or others were remedied or mitigated prior to the weatherization steps, as appropriate;
- All energy efficiency measures called for in the original work order, or as modified with Subgrantees' approval, were conducted, and done in the order of priority assigned to each;
- Air sealing and other energy efficiency measures were completed correctly using standard program protocols with approved materials and parts;
- The inspection of the insulation work and review of the certificate of insulation show that insulation was properly installed within the manufacturer standards and at the levels, locations and types called for by WAP guidelines;
- Based on the inspector's pressure differential analysis the proper alignment of the unit's thermal and pressure (air) boundaries were achieved;
- Based on blower door guided pressure testing, air sealing was effectively completed;
- Optimal ventilation rates in the house were achieved in conformance with ASHRAE 62.2-2016;
- Based on the evaluation under 'worst case' configuration of the house the combustion appliances are operating safely in the weatherized unit;
- Based on Combustion Air Zone (CAZ) testing methods adequate combustion air is available for all combustion appliances;
- Based on testing with a gas detector, there are no gas line leaks;
- Based on the inspector's own testing, and/or the inspector's review of the test results from the installer on any heating system or water heater replacements in the unit, such appliances were properly installed, properly sized, and test within acceptable energy efficiency standards;
- Based on testing, heating system energy efficiency levels were improved to at least a 70% level;
- Based on all testing and visual inspection, all appropriate measures were considered and reasons were documented when measures were not installed;
- Based on a client interview, the occupants have no complaints about the work completed and the occupants understand the actions needed to maintain the efficiency of the unit;
- All measures were done satisfactorily, and if so, the inspector and client must sign the completion certificate; and

- One or more measures were not installed to standard, and if so the Inspector is required to arrange to fix measures prior to either the client or inspector signing the completion certificate.

Outline of Technical Field Monitoring

1. Examination of Applicant Files

a. Review of the applicant file prior to the inspection of the dwelling unit to verify the eligibility and materials and labor expenditures entered in the Central Database. Documentation subject to review includes:

- Application for assistance and income eligibility documentation;
- Notice of Eligibility to household;
- Weatherization Agreement;
- Utility release form;
- Energy audit and supporting data;
- Work specifications;
- Subcontractor agreements;
- Inspection reports;
- Materials invoices;
- Any change orders or explanations of deviation from the work scope must be recorded on the **Weatherization Agreement Work Change Order;**
- Documentation of infiltration reduction as a result of blower-door-assisted infiltration reduction protocols; and
- Documentation of lead-safe weatherization (LSW) practices and measures to address other H&S conditions.

See “Section 2.11 Required Client File Documentation” for a list of typical unit file documentation of the weatherization services.

b. After review of files, verification that all required information in the Database was properly entered, including unit information, applicant Social Security number and demographic data, work start and ends dates, material and labor costs, and data on air infiltration following completion of work.

2. Inspection of a completed dwelling unit.

a. Exterior:

- Inspection of the general condition of the structure including the foundation and major

building components;

- Inspection of sidewall insulation, if included on work scope;
- Inspection of any related repairs, including roof work, if accessible; and
- Inspection of any other visible exterior conditions that could impact performance of installed measures.

b. Interior:

- Inspection of living spaces, attic, basement, crawl spaces, and other areas as needed to verify that the work scope was appropriate, and that work was performed in accordance with applicable standards and specifications;
- Inspection of the unit ventilation system; and
- Inspection of all interior work called for in the work scope to determine that it was completed in accordance with CT WAP standards.

Review of building files to verify that all required pre- and post-tests were performed in accordance with CT WAP standards, including:

<u>General Tests:</u>

Blower Door @ 50 Pa or equivalent;

Attic and Crawl Space Zonal Pressures;

House-to-garage wall assembly leakage tests on attached garages (garage door open and closed);

Test Smoke & CO Detectors;

Pressure Pan Test (if work was done on ducts outside the thermal envelope); and

Exhaust Fan Flow Test (CFM) (on units that have been repaired or replaced).

<u>Heating Appliance:</u>

Combustion Analysis/CO in Flue;

Combustion Spillage Test;

Natural Draft Test;

Clocking the Gas Meter (Natural Gas on clean and tune);

Test for Fuel Leaks;

Heat Rise Test on Furnace (on units that have been repaired or replaced, or if ducts have been sealed or filters have been added);

Ambient CO Test throughout the entire dwelling;

Smoke Test on Oil Furnace/Oil Water Heater (on units that have been repaired or replaced);

Worst Case CAZ Depressurization Test;

Test heating system emergency Shutoff Switch;

Test for proper function of thermostat;

Recheck Room Balancing (on forced air heating plant;

Space Heater (includes gas fireplaces) Combustion Analysis/CO in Flue;

Space Heater (includes gas fireplaces) Combustion Spillage Test;

Space Heater (includes gas fireplaces) Natural Draft Test;

Space Heater (includes gas fireplaces) Worst Case CAZ Depressurization Test;

Solid Fuel Fired Appliances-(Includes Wood, Coal, Pellet Stoves) Per NFPA 211 or in accordance with agency having jurisdiction. (Pre-and Post- Weatherization); and

Fireplaces- Conduct (Pre- and Post- Weatherization).

Water Heater:

Worst Case CAZ Depressurization Test;

Natural Draft Test;

Combustion Analysis/CO in Flue (on units that have been repaired or replaced); and

Combustion Spillage Test.

See full list of required tests in WPN 22-7 and recommended procedures outlined in BPI 1200 standard.

c. Inspection of any repairs performed, to verify that they were incidental, and designed to protect or supplement WAP measures, including:

- Installation of ventilation equipment;
- Heating distribution/fuel system repair or replacement or chimney repair/replacement;
- Domestic hot water repair/replacement;
- Electrical system upgrades, including lighting fixture replacement and ground fault circuit interrupter installations; and
- Roof repairs.

3. Interview a member of the assisted household to ask about their experience with the work and whether they have noticed any changes in comfort or energy costs.

4. Assessment of leveraging efforts, including review of documentation associated with other funding sources and inspection of work completed with leveraged funds to assure quality control.

The Following Table Summarizes the Technical Field Monitoring Activities of the CT WAP QCI:

Topic	Monitoring Procedure
Energy Audit	• Observation of an energy audit in process for correct and complete procedures. • Review of an audit report for measures called for in a unit and other factors. • Specific technical re-testing to verify the audit results for the unit (e.g., pre-weatherization blower door readings, "worst case" CAZ draft testing).
Final Inspection	• Inspection of the quality of work and materials for all measures called for and installed in a unit, as reported. • Specific technical tests may be performed to verify results on the unit (e.g., post- blower door reading, "worst case" CAZ draft test, insulation and/or air sealing verification, proper ventilation per ASHRAE 62.2 2016).
Health Safety	• Inspection of the unit and paperwork to determine if H&S issues were related to & addressed prior to weatherization. • Check smoke detectors and CO alarms are properly installed & working. • Specific technical tests may be performed to verify H&S results on the unit (e.g., "worst case" CAZ draft test, appliance testing, inspection for mold & moisture, proper ventilation, electrical safety).
Air Sealing	• Inspection of quality of measures (e.g., caulking, weatherstripping, incidental repairs). • Overall inspection, including zonal testing of usual locations for missed air sealing opportunities. • Blower door testing and verification of installer or inspector readings. • Verification of optimum air exchange calculations per ASHRAE 62.2 2016. • Inspection of windows & doors repair and replacement for quality of installation and checked against the order specs.
Insulation	• Inspection of attic insulation for proper depth, even application, proper baffling, materials used around chimneys, and hatch door insulation and knob & tube wiring de-energized. • Visual inspection of sidewall insulation areas, including use of infrared technology to check for coverage or invasive testing using a borescope inspection camera. • Visual check of other insulated areas.
Mechanical	• Inspection of repaired or replaced furnaces, water heaters, oil tanks, knob & tube wiring, and electrical systems. • Comparison of appliance specifications with work as ordered. Verification of calculations (e.g., manual J). • Follow-up appliance testing, if needed.
Energy Education	• Observation of efforts to inform and educate clients throughout the course of the weatherization services. • Client Interview

See "Section 8 Implementing Weatherization Measures" 300, for comprehensive information regarding measures that may be installed, as well as "Section 7 Health and Safety Testing" and the Connecticut Weatherization Field Guide for approved technical protocols.

9.2.4 General Considerations:

At each Technical Field Monitoring visit, the subgrantee must have its blower-door, steady-state efficiency (SSE) kit, H&S equipment, and a staff person who is knowledgeable about instrumented audits available. The use of the blower-door for monitoring provides the program field representative with consistent data for the evaluation of air sealing work. The Subgrantee must have applicant eligibility documentation available in the field during CT WAP site visits. The Subgrantee should ensure that more

than one staff person is knowledgeable about the location of dwelling units, files, invoices, and contracts, to ensure the availability of required documentation.

Prior to or during the CT WAP QCI's arrival, the Subgrantee should print a Client Completion Report and Final Work Orders that will be presented during that field visit. These reports summarize and organize certain costs and technical information for each job as they are presented for certification for one-to-four-unit buildings.

Grantee Review:

At the end of the site visit, CT WAP QCI will consider all field observations and testing results and provide a written report to CT WAP. CT WAP will review the report and issue it to the Subgrantee within 5 business days of the TFM.

Post TFM Activities:

After a TFM a Site Visit Report is issued by CT WAP to the Subgrantee, it is responsible for addressing any issues raised and working with any contracted resources to ensure work is corrected within 2 weeks. After the corrections have been made, the unit will be reinspected by both the Subgrantee QCI and CT WAP QCI. If the unit passes inspection by the CT WAP QCI, it will be reported as complete to DOE, and payment will be issued to the Subgrantee.

Re-Work and Warranty

Subgrantees are responsible for ensuring that all weatherization work is completed to DOE WAP standards and specifications. This responsibility applies to work conducted by the Subgrantee's own personnel as well as that performed by contractors.

If measures were not called for that should have been, the CT WAP QCI will make note of them, and the subgrantee must re-run the software audit with all appropriate measures called for in the software audit. If these measures are matters of H&S or screening at an individual SIR of one (1) or more, the Subgrantee will arrange for the further installation by Subgrantee personnel or by the appropriate contractor. Once additional work is completed, the CT WAP QCI must conduct another complete final inspection, following procedures outlined above, to confirm all necessary corrections were made.

Rework Dispute: If the subcontractor refuses to rework a rejected measure, the Subgrantee should re-order the specific work to be redone by another subcontractor. The original subcontractor's invoice for that measure will be rejected. Other acceptable work may be paid for, but the subcontractor will then be disqualified from subsequent work in the WAP program. If a technical dispute over whether to pass a measure cannot be resolved, the Subgrantee should contact CT WAP, and CT WAP's decision will be binding on the resolution of the dispute.

Any measures that do not pass CT WAP's TFM must be addressed by the Subgrantee immediately. If problems are discovered after the unit has been reported as passing CT WAP final inspection, additional work may not be conducted, and the Subgrantee must contact CT WAP in writing to request

instructions.

Disallowed or Unauthorized Work

Expenditures on measures that are not authorized or installed within WAP program protocols will be disallowed by CT WAP.

Non-Compliant QCI Protocols

THIS SECTION IS IN ADDITION TO, AND NOT IN SUBSTITUTION FOR ANY REMEDIES AVAILABLE TO DEEP PURSUANT TO ITS WRITTEN AGREEMENT WITH THE SUBGRANTEE. NOTHING IN THIS MANUAL CONFERS ADDITIONAL RIGHTS ON A SUBGRANTEE NOT CONTAINED IN THE AGREEMENT BETWEEN DEEP AND THE SUBGRANTEE. THE FACT THAT CT WAP OR DEEP PLACES A SUBGRANTEE ON A PROBATIONARY PERIOD IN NO WAY OBLIGATES DEEP TO RETAIN THE SUBGRANTEE FOR AN ADDITIONAL SIX MONTHS, OR FOR THE FULL PROBATIONARY PERIOD.

If, through TFM or any other monitoring activity, patterns of non-compliance are noted by the CT WAP QCI, then, at CT WAP's discretion, a written Notice of Deficiency with corrective action may be issued to the Subgrantee by CT WAP.

Upon receipt of the Notice of Deficiency, the Subgrantee QCI that is non-compliant is immediately placed on probation for a period of up to 6-months, and the work completed by the non-compliant QCI will be under Elevated Review. During Elevated Review the CT WAP QCI will increase monitoring beyond the standard 10% of completed and 10% of in-progress units to 20% of completed and 20% of in-progress units. If the issues with compliance are not addressed, CT WAP reserves the right to disallow costs and suspend the Subgrantee QCI or Subgrantee from participating in the WAP program, in addition to the remedies set forth in the Subgrantee's agreement with DEEP. CT WAP will not pay for non-compliant work.

The Subgrantee is responsible for the implementation of corrective action described in the Notice of Deficiency within the timeframe specified by the CT WAP. The CT WAP QCI and CT WAP staff will follow up weekly with the Subgrantee until all non-compliance issues are fully addressed. Once the non-compliance issues have been fully addressed to the satisfaction of the CT WAP QCI, the CT WAP QCI will provide written notification to CT WAP.

If all issues are found to be corrected during the next QCIs by the CT WAP QCI then the Subgrantee may, at the discretion of CT WAP, be removed from Elevated Review status and normal QCI rules will be in effect.

Special Considerations

In addition to the above protocol, when Issues and trends are noted over time, they will be addressed in the APM Report. At that time, CT WAP will address any technical issues or additional areas where the Subgrantee or its contractor is out of compliance with prescribed field protocols.

Where indicated by prior performance or finding, CT WAP reserves the right to disallow costs and suspend the Subgrantee QCI or Subgrantee from participating in the WAP program.

9.2.5 Ad-Hoc Review

Ad-Hoc Reviews will be conducted over the contract year as needed. Ad-Hoc Review concentrates on individual units, reviewing both client file content and weatherization services provided. The grantee desk monitor may view client files that are in progress and complete beyond those required as part of monitoring activities. This may also be done in unison with the Grantee QCI.

The grantee QCI may visit project sites to assess the ongoing quality of work, including but not limited to: audits, installations, and final inspections. Again, this may be done in unison with the grantee desk monitor.

Ad-Hoc Review allows problems to be identified and corrected to avoid program disallowances and provides an opportunity for training to be conducted on those specific issues.

Ad-Hoc Report will be completed at the end of the ad-hoc review that addresses areas of concern and recommendations for improvement. Ongoing issues or trends may also be discussed later in the APM.

9.2.6 Technical Assistance

On-site visits may also be carried out in the context of technical assistance by CT WAP QCI where the subgrantee has requested such assistance, or CT WAP has other reasons for observing the work of a particular subgrantee or contractor.

Technical assistance may not be as formal as monitoring. Test results, observations, and recommendations may be discussed with subgrantee's weatherization technicians or managers at the job site, or, depending on the significance of the issues, in subsequent meetings with subgrantees.

Technical Assistance may also be provided through meetings between the Grantee Desk Monitor and subgrantee staff. These meetings are less formal than monitoring and allow the Subgrantee to discuss specific issues that are encountered during the provision of weatherization services. Recommendations will be provided by the Desk Monitor to the Subgrantees.

Whether or not such assistance results in a written monitoring report, the subgrantee must keep records of the technical assistance, as any issues may eventually become part of the APM.

9.3 Comprehensive Desk Monitoring (CDM)

Subgrantees are responsible for maintaining a complete and unique file on each household whose application is moved off the Waiting list for weatherization services. All paperwork related to the individual unit must be labeled with a unique unit number assigned by subgrantees and kept in the file.

Weatherization unit files should include all notifications, referrals, forms, notes, correspondence, and other documentation explaining the eligibility of the unit, the client's eligibility for services, and the weatherization services approved and delivered.

In accordance with DOE rules, at least ten percent (10%) of the client files that are closed and at least ten percent (10%) of the client files that are in progress are reviewed for accuracy and completeness by the CT WAP Desk Monitor. At its discretion, the CT WAP Desk Monitor may also review more than the targeted percentage.

The CT WAP Desk Monitor will review the individual case files. The current file review form lists the following specific items, but any documentation that supports the actions taken in the unit must be available for the CT WAP Desk Monitor's review.

The CDM covers the following items:

- Eligibility Documentation
- NEAT/MHEA Client Completion Report (all versions)
- Subgrantee QCI Documentation (signed and dated by subgrantee QCI and Client), Data Collection Documentation (NEAT, MHEA)
- DOE REDcalc / ASHRAE 62.3.2016 compliance documentation
- Work Orders (signed and dated by contractors and clients)
- Invoices, Receipts, and other Cost documents
- Blower Door Air-Sealing Work Order/Input Sheet
- Required Health and Safety documentation, including Occupant Screening and Hazard communication documentation
- Smoke & CO Detector forms (if applicable)
- Weatherization Agreement
- Permit Copies (if applicable)
- Documentation for weatherization work that requires review and approval
- Documentation for WRF Work
- HES-IE Cost share documentation

- SHPO Compliance documentation
- Health and Safety documents and photographs (if applicable)
- Landlord contribution documentation (if applicable)
- Other appropriate documents

All the subgrantee weatherization client files must have at a minimum the forms listed above, and the forms must be used and completed in compliance with weatherization program polices. The monitoring of the items involves a check of unit documents regarding client and unit eligibility, as well as the weatherization services received. The cost of the weatherization will be verified against the measures called for in the Client Completion Report and the amounts claimed for the unit.

The CT WAP Desk Monitor will also review the subgrantee's adherence to the weatherization program's service priorities in pulling the client from the waiting list. Once the CDM is completed, the subgrantee is provided with a desk monitoring report.

This report at a minimum:

- Identifies the Desk Monitor
- The client's name
- The client's address
- The File Review
- Observations and Trends
- Best Practices, Findings, Concerns, and Recommendations
- Corrective Actions, including a timeline

If the CT WAP Desk Monitor discovers that WAP funds were used to weatherize an ineligible unit during Desk Monitoring or at any other time. The findings will be provided to both the grantee and subgrantee, and the cost will be disallowed by the grantee.

See "Section 2.11 Required Client File Documentation" for a list of typical unit file documents.

9.3.1 Desk Review of Monthly Claims and Reports

The grantee programmatic and fiscal staff will conduct reviews of subgrantee claims and reports as they are submitted each month throughout the year. Any discrepancies will be communicated to subgrantees for resolution. It is expected that such issues may be resolved immediately, but no longer than fifteen business days from the notification.

A record of the review is kept so that persistent issues may then be addressed again in the APM and AFM. Ongoing grantee checks of Subgrantee submissions will include reviews of the:

- Monthly and quarterly production in comparison to grantee and subgrantee production goals
- Monthly expenditure reports against subgrantee budgets and line-item limitations
- All completion reports submitted for claims and reporting purposes
- Annual independent single audit of weatherization funds
- All closeouts, final claims, and advance repayment balances
- Other reports, as required

CT WAP reviews 100% of the monthly claims and reports submitted for payment by the subgrantee. The Client completion Reports must balance against the monthly reports that are submitted. Each measure reported for the unit must meet the individual Savings to Investment Ratio (SIR) test or the overall SIR as appropriate, unless the measure is addressed under H&S or GHW. Approved waivers obtained for work completed on the unit must be on file, as applicable. CT WAP will also compare the invoiced charges against the program maximum prices or other amounts negotiated by subgrantees for the specific job. CT WAP will also maintain a close check on the repayment of any outstanding advances and will monitor closeouts and final claims.

CT WAP staff will also review incoming monthly and quarterly subgrantee reports to see that Subgrantees are on target to meet goals for production and funds utilization, and will review reports to see that Subgrantees remain on track to use their funds and reach the target number of units.

Any shortfalls projected in production and expenditure rates will be addressed with the subgrantee on an ongoing basis and as part of the APM and AFM. Significantly low production will require corrective action on the part of subgrantees, which will be closely monitored by CT WAP. Persistent problems in meeting production goals may affect the subgrantee's continued contractual arrangement with CT WAP. Unresolved issues and trends found during the desk reviews will be maintained in the program file and will be addressed during the APM monitoring visit. The grantee will disallow and require the return or deduction of any expenditure that does not comply with weatherization program policies, regulations, and laws.

See "Section 10.3 Cost Categories" for definitive information regarding allowable program cost categories, expenditure limitations, and eligible program activities.

9.4 Subgrantee Monitoring

Subgrantees are responsible for the performance of their own staff as well as that of their contractors in the implementation of weatherization services. There are numerous Subgrantee responsibilities (detailed in this manual) which will require Subgrantees to set up a review program of their own to monitor ongoing performance and compliance by Subgrantee Staff and their contracted resources. Some key areas which must be addressed include the following:

- Implementation of a process of careful review of all contractor invoices and backup documentation, including:
    - The measures ordered on the Work Order
    - The measures paid by invoice and,
    - the measures passed in the Final Inspection.
- Subgrantees must have ongoing quality management procedures in which a weatherization manager reviews a significant percentage of unit files for completeness and accuracy. All work orders must be approved by a supervisor prior to issuance.
- Subgrantees must have ongoing quality management procedures in which the quality of its weatherization work is monitored. This monitoring should be conducted by a weatherization technical expert who routinely visits the worksites and observes the installation work, along with paperwork, to ensure the job is being done right. Contractors should be issued written reports requiring corrective action on significant issues with their work or workplace, as well as recognized for work that meets or exceeds quality standards.
- Subgrantees must maintain and monitor a log of all of the training of its contractors, as well as its own staff. Training must be tracked for each individual employed by the contractor and Subgrantee.
- Subgrantees must compare the individual training record with the types of training required by the weatherization program according to job function. Contractors should be issued written reports on the requirements for training. Subgrantees are also responsible to see that required certifications and/or state licenses are current for persons working at weatherization sites.
- Subgrantees must put in place any other procedures that are necessary to monitor the compliance by Subgrantees' own staff and that of its contractors to its contract agreement with Subgrantees as well as all the policies contained herein.

Note: All Subgrantee monitoring related to work performed and reported as DOE completed must follow DOE WPN 22-4 and the CT WAP Quality Work Plan requirements, Connecticut Weatherization Field Guide and the Current year State Plan.

9.5 State Reports

DOE continues to emphasize that state Grantee performance will be closely monitored through the Quarterly Performance Report, the Quarterly Federal Financial Report, and the Annual Training and Technical Assistance, Monitoring and Leveraging Report. Accurate and complete DEEP reports largely depend on the quality of information aggregated from Subgrantees and its contractors.

PART 3 | Reporting, Payments, Procurement, and Other Considerations

10 Reporting

CT WAP, Subgrantees, and the weatherization installation contractors each have the responsibility for certain levels of reporting for CT WAP activities. Reports at every level must be based on information that accurately reflects their performance in the weatherization program.

Subgrantees and their contractors are prohibited from using client records for any purpose other than that directly related to eligibility, services, and reporting for the Weatherization Assistance Program.

Subgrantees must guard against unnecessarily revealing information about individual weatherization clients. Most reports are set up to obtain aggregate, numerical data for which specific, individual information is not needed.

Additionally, subgrantees must put in place procedures and forms that ensure that their contractors provide statistical and financial information regarding the weatherization work performed. Such overall reporting includes but is not necessarily limited to documentation of the weatherization work performed, material costs, overhead costs, employee time records, and employee pay records.

Subgrantees are required to submit monthly reports detailing the subgrantees' implementation of the weatherization program. The reports submitted to CT WAP provide updates on the subgrantees' progress in weatherizing units, assisting clients, and expending program funds.

Subgrantees meet their monthly reporting requirements and place payment requests by submitting the **Subgrantee Monthly Report and Financial Package**, which includes various forms detailing the subgrantees' statistics, production, and expenditures for the completed month.

Subgrantees may only submit reports on completed, denied, or deferred units, based on the requested information on each form. Units where all the measures from the final work order have not been implemented cannot be listed on reports.

In addition to monthly requirements, subgrantees must also submit **Final Closeout Documents** at the end of every annual grant period. No later than thirty (30) days following a termination of its contract or the conclusion of every program year, subgrantees shall submit final closeout documents. Closeout documents are provided by CT WAP (in spreadsheet formats) for submission.

Lastly, CT WAP also has reporting responsibilities as DOE closely monitors that state Grantee performance through the **Quarterly Performance Report**, the **Quarterly Federal Financial Report**, and the **Annual Training and Technical Assistance, Monitoring and Leveraging Report**. Accurate and complete CT WAP reports largely depend on the quality of information aggregated from subgrantees and their contractors.

10.1 Reporting Completed Units

For each monthly report packet, subgrantees are required to report materials costs for each of the units completed and in process.

According to DOE, a DOE weatherized unit is a dwelling in which a DOE-approved energy audit or priority list has been applied and weatherization work has been completed. DOE funds used on this unit may include, but are not limited to, those used for auditing, testing, measurement installation, inspection, or use of DOE equipment and/or vehicles, or if DOE provides the training, and/or administrative funds.

Therefore, a dwelling unit that meets the definition of a DOE weatherized unit and has DOE funds used directly on it must be counted as a DOE completed unit.

A unit may be reported as "complete" only after it has been certified as passing the Final QCI Inspection. A completed unit may only be reported under one funding source. Where DOE funds are used along with other funds (e.g., utility funds), the unit is to be reported as a DOE completion.

The number of completed units reported should equal the total number reported for the current month. And units must be counted and claimed in the contract period in which they are completed.

Units are considered to be ***in-progress*** if an Energy Audit has been completed and Work Order(s) have been assigned but the work is not completed, including passing the Final QCI Inspection.

All units reported as DOE completed within CT WAP sites must follow DOE WPN 22-4 15- 4 and the CT WAP Quality Work Plan requirements, Connecticut Weatherization Field Guide and the DOE-approved State Plan for the current program year.

10.1.1 Call Back or Returning to the Building/Unit

Any unit presented to CT WAP as completed must have all materials installed and all work completed as required, and have been successfully QC inspected by the subgrantee before being presented to CT WAP.

Paying for additional work on buildings already reported to DOE as completed is not a permissible use of DOE WAP funds. Subgrantees may not charge CT WAP for additional work on homes that have already been processed and reported by CT WAP to DOE as completed.

Once a unit is presented to CT WAP for payment and the final inspection indicates that all applicable work performed has been done satisfactorily, including all work that may have been contracted out, such as furnace work, etc., no additional WAP funds may be expended on this unit.

Using DOE funds for performing activities such as routine maintenance, repairs, or warranty-type work is not permitted for work beyond those costs already invoiced. Subgrantees may use other funds that are

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

10.1.2 Denied Case Files

The Subgrantee must retain and maintain all closed case files in which weatherization work has not been provided, and those case files are to be kept separate from eligible client files. The closed case file will include all of the following that are applicable (i.e. appeal documents):

- The completed application for Weatherization.
- Notice of Denial.
- All correspondence related to the case.
- Documentation of reason(s) used to determine ineligibility; and
- Written case notes as applicable. If the denial was appealed:
- Documentation related to a denied applicant's appeal.
- Notice to the appellant regarding all appeal decisions.
- Copy of further appeal to DEEP; and
- Copy of DEEP's decision on the appeal.

10.1.3 Reporting Leveraged Funds

Leveraged funds include all funds received from non-federal sources, including private sources that can be used to provide weatherization assistance to an eligible applicant. Subgrantees are responsible for ensuring that all required data on leveraging is properly included in the Database, including data on funding from other energy programs.

10.2 Subgrantee Monthly Report and Financial Package

Subgrantees are required to submit the **Subgrantee Monthly Report and Financial Package** on a monthly basis, by the 10th of the month following unit completion. This package contains all required reporting information related to the completed units that are necessary for compliance and tracking program implementation, in accordance with DOE regulations and CT WAP policies.

Subgrantees must also submit **Subgrantee Monthly Report and Financial Package** to request reimbursement for completed units. See "Section 11.Payments" for more information.

It is the subgrantee's responsibility to ensure all data and information provided on the **Subgrantee Monthly and Financial Package** is accurate. The package includes the following:

- **WAP Monthly Report (WAPMR)** detailing subgrantees statistics, production, and expenditures for the month. A copy of all paid invoices and receipts for each expense must also be submitted.
- Building Weatherization Report (BWR).
- All approved waiver requests.

The WAPMR, provided by the State, includes the forms that need to be completed to report on:

- Monthly Fiscal Report (MFR), which is completed based on the information entered in the following sheets:
- Program Support (Itemized)
- Health & Safety (Itemized)
- T&TA (Itemized)
- Financial Audits (Itemized)
- Insurance (Itemized)
- Administration (Itemized)
- Health & Safety (Itemized)
- WRF (Itemized)
- Monthly Weatherization Status Report (MWSR)
- Monthly Unit Cost Data Report (MUCD)
- State Historic Preservation Office Report (SHPO)
- Deferrals must include all necessary documentation to justify each deferral
- Weatherization Readiness Funds Tracking (WRFT)

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It is the responsibility of subgrantees to understand which expenditures are allowable in each weatherization cost category, including the dollar limits on expenditures. Below, “Section 10.3 Cost Categories” and “Section 10.4 Cost for Weatherization Services” provide detailed information on expenses and how to correctly categorize each measure under the provided reporting categories.

Expenditures that are inappropriately claimed, that cannot be legitimately assigned to a weatherization cost category, or that cause the subgrantee to exceed caps within a limited category, will be disallowed by CT WAP.

10.3 Cost Categories

DOE regulation at 10 C.F.R. § 440.18 establishes specific cost categories for all CT WAP expenditures, including: administration, training and technical assistance, program operations (material, labor and other program support), H&S, vehicles and equipment, liability and pollution occurrence insurance, and financial audit.

CT WAP strictly monitors the expenditures under various cost categories during the processing of claims, in APM and AFM, and in fiscal audits. Additionally, these cost categories are also reflected in the MWSR.

Costs that do not conform to program policies and definitions may be rejected, questioned, or disallowed. Costs that are beyond established expenditure limits may be denied or disallowed. Disallowed costs become the responsibility of Subgrantees and may not, under any circumstances, be paid from weatherization funds.

Funds may only be expended for those cost categories defined in the approved Connecticut State Plan and detailed in this CT WAP OPS Manual. Below are the different cost categories and their corresponding budget line items:

SECTION AND CATEGORY	BUDGET LINE ITEMS
Program Support	• Storage • Contractor – Labor • Contractor – Materials • Contractor – Other (attach itemized sheet) • Maintenance, Repair, Operation of Tools, Equipment & Vehicles • Insurance for Tools, Equipment, and Vehicles • Purchase of Non-Expendable Tools, Equipment, and Vehicles • Purchase of Expendable Tools and Equipment • Annual Lease of Tools and Equipment • Salaries – Field Staff • Salaries – Supervisory Staff • Salaries - Support Staff • Fringe Benefits

	• Transportation • Program Support - Other (complete itemized sheet)
Training and Technical Assistance	• Complete Itemized Form
Insurance	• Liability Insurance • Pollution Insurance • Other Insurances
Financial Audit	• Program Specific – Cost
Health and Safety	• Health and Safety Materials • Health and Safety Labor
Administration	• Salaries • Fringe Benefits • Travel • Other (Complete Itemized Sheet)
Weatherization Readiness Funds	• Weatherization Readiness Funds – Material • Weatherization Readiness Funds – Labor

10.3.1 Program Support

Subgrantee expenditures for the cost of program support are allowable.

The Program Support costs are reported (and claimed) on the monthly expenditure analysis report, Analysis of Expenditures against Approved Budget Items. Items include:

- Storage
- Contractor Installed Measures - Labor
- Contractor-Other (itemized)
- Maintenance, Repair, Operation of Tools, Equipment & Vehicles
- Insurance for Tools, Equipment and Vehicles
- Purchase of Non-Expendable Tools, Equipment and Vehicles

- Purchase of Expendable Tools and Equipment
- Annual Lease of Tools and Equipment
- Salaries - Crew
- Salaries - Supervisory
- Salaries - Program Staff
- Fringe Benefits
- Transportation
- Program Support - Other (itemized)

Subgrantee Staff

As part of Program Support, subgrantees may expend funds for the cost of all personnel and labor assigned to the weatherization program operation. The following line items should be used to allocate different expenditures with subgrantee staff:

- Salaries – Crew
- Salaries – Supervisory
- Salaries - Program Staff
- Fringe Benefits

Where employees work on multiple activities, their costs are to be allocated based on a consistently reasonable method and adequate documentation of their activities across programs.

When Subgrantee staff is in training the cost for time spent may be charged to Program Support or to T&TA at Subgrantees' discretion, and in consultation with DEEP.

Subgrantees' expenditures including salaries, payroll taxes, group health insurance, and other employee benefits that may include but are not limited to pensions for those employees receiving salaries, are allowable expenses paid to:

- Supervisory Staff – including Weatherization Program Coordinators, Program Directors, Program Supervisors, and on-site supervisors.
- Program Support Staff – including staff providing direct support to the Weatherization Program, such as intake, data entry, clerical support, and other services directly associated with the program.
- Weatherization Field Staff – including agency staff performing initial Energy Audits and Final QCI Inspections of dwellings receiving Weatherization services.

Subgrantee Materials

The total materials cost for work completed by a subgrantee is an allowable expenditure for the weatherization program support. This includes subgrantee materials for installing authorized weatherization measures, H&S activities, and Incidental Repairs, and should be allocated under the following budget line item:

- Subgrantee – Materials

Weatherization Contractor Labor

The total labor cost for work completed by a contractor under the subgrantee is an allowable expenditure for the weatherization program support. This includes contractor labor for installing authorized weatherization measures, H&S activities, and Incidental Repairs. The following budget item lines should be utilized for such expenditures:

- Contractor – Labor
- Contractor – Other (itemized)

The spreadsheet report "Contractor -Other Itemized" must be submitted as a part of the monthly reporting packet detailing contractor expenditures, as follows:

- Name of Company
- Employee Name(s)
- List Work Performed
- Audit/Inspection Done By
- Site ID#
- Current Month Amount Paid
- Current Month Grant to Date

This includes all contractor costs for staff and labor, including contractor management staff, supervisory staff, and laborers, as well as contractor overhead, including material handling.

Contractors must invoice for one unit at a time, detailing all charges for materials and labor separately. CT WAP must receive proof of payment of contractor invoices.

Contractors may submit request for partial or in progress payments, but must clearly delineate the address of the unit, what this partial or in progress payment covers, i.e. number of labor hours at specified labor rate, with dates, or list of itemized and quantified materials with install or delivery dates, all substantiated by signed delivery slips, or payroll paid time slips as acknowledged by the Subgrantee. An interim inspection of the installed measure is required prior to payment.

Weatherization Contractor Materials

The total materials cost for work completed by a weatherization contractor is an allowable expenditure for the weatherization program support. This includes contractor materials for installing authorized weatherization measures, H&S activities, and Incidental Repairs, and the following budget item line should be used to allocate these:

- Contractor – Materials

Equipment, Supplies, and Operation

Subgrantee expenditures are allowable for the direct costs to the program for equipment, supplies, and tools. The following budget line items should be utilized to allocate these costs:

- Maintenance, Repair, Operation of Tools, Equipment & Vehicles
- Insurance for Tools, Equipment, and Vehicles
- Purchase of Non-Expendable Tools, Equipment, and Vehicles
- Purchase of Expendable Tools and Equipment

Rent, Utilities, and Other Direct

Subgrantee expenditures are allowable for the direct costs to the program for rent and utilities, program advertising, supplies consumed by the program, as well as office equipment, furnishings, and computer equipment used in the program. Program support charges must be made using the actual cost to the program. The following budget line items should be utilized for these expenditures:

- Program Support - Other

Equipment: Equipment is defined by federal regulation as an item of non-expendable, tangible personal property, having a useful life of more than one year and an acquisition cost which equals or exceeds a unit cost of $5,000. Equipment may be bought outright and charged to the grant in the contract period in which it was purchased. Alternately, the purchase may be amortized over its expected useful life and charged over that period. Finally, equipment may be leased and charged according to the periodic lease payments. In any instance, the cost of the equipment would be prorated to each completed unit to compute the average cost per unit.

Supplies: Supplies, including tools are defined as items valued at less than $5,000 per unit.

Other acceptable, related expenditures for equipment and tools used in the CT WAP include:

- The costs for maintenance and repair of tools and equipment
- Maintenance agreements, insurance premiums for tools and equipment
- Rental fees for tools and equipment, including the lease cost(s)

Vehicle Expenses

The cost of a vehicle for the sole use by Subgrantees in the weatherization program is an allowable expense, and it should be allocated under one of the following budget item lines:

- Maintenance, Repair, Operation of Tools, Equipment, and Vehicles
- Insurance for Tools, Equipment, and Vehicles
- Purchase of Non-Expendable Tools, Equipment, and Vehicles

A vehicle may be bought outright and charged to the grant in the contract period in which it was purchased. Alternatively, the purchase may be amortized over its expected life and charged over that period. Finally, a vehicle may be leased and charged according to the periodic lease payments. In any instance, the cost of a vehicle would be prorated to each completed unit to compute the average cost per unit.

Prior Approval: Any purchase or lease of a vehicle requires prior approval by both CT WAP and the DOE. Subgrantees must follow the proper competitive procurement method to obtain a vehicle. Other acceptable, related expenditures for vehicles used in the CT WAP include:

- Maintenance or repair of vehicles
- Cost of gas, oil, or other fluids
- Storage or garage rental fees
- Insurance premium payments

Transportation

Subgrantee reimbursement of weatherization program-related travel costs incurred by an employee using the employee's own vehicle is allowable, in the form of mileage reimbursement.

Costs must be paid in accordance to CT WAP travel policies, but only up to the maximum rates allowed by the State of Connecticut. Such expenditures should be allocated under the following budget item line:

- Transportation

10.3.2 Training and Technical Assistance (T&TA)

A separate award is made to each subgrantee with weatherization funds that are specifically allocated for T&TA activities. T&TA funds are to be used only for activities that accomplish the training priorities listed in the grantee or subgrantee T&TA plan that improve the knowledge and skills of subgrantee employees and contractors. T&TA activities may cover a variety of training topics, including: policy,

administration, support functions and technical knowledge. All expenses related to T&TA must be allocated to the following budget item line:

- Training and Technical Assistance (T&TA)

CT WAP T&TA Plan

Training that is paid for and/or required by CT WAP as part of its overall training plan shall be considered by Subgrantees as already approved.

Subgrantee T&TA Plan

A subgrantee T&TA Plan must be submitted at the start of a contract year. All activities in a previously approved subgrantee T&TA plan only require further approval if there is a significant change, resulting in increased projected costs to the grant.

Prior Approval

All T&TA expenditures and activities not listed in the subgrantee or grantee T&TA plan require the prior approval of the grantee. Prior approval is only granted for activities relevant to the weatherization program to be allowed for payment from T&TA funds

Subgrantee T&TA expenditures that require the prior approval of the Grantee must be submitted to the Grantee least ten (10) business days prior to the training date. Any training request should include:

- Training sponsor, title, location, dates
- Training brochure, agenda or other explanation of the content
- Agency attendee(s) name and position
- Costs and details for training registration or fees, travel, lodging, per diem, other
- Training presentation costs, as applicable, including facility, materials, trainers, equipment rental, and other costs
- Proposed cost category (T&TA or Program Support: Labor)
- Brief justification in terms of each attendee's weatherization role; including a justification for more than one attendee from the Subgrantee

Subgrantees may also submit T&TA requests anytime over the course of the contract period.

Individual training requests and approval may be handled between Subgrantee staff, CT WAP staff, and the training provider by email.

Staff Costs

Subgrantee cost for time spent in training by Subgrantee personnel, in consultation with the DEEP staff, may be charged to the T&TA category. Alternatively, staff time in training may be charged to Program Support: Labor

Contractor Costs

Properly trained and qualified contractor staff is a requirement of the contract with any individual or company. Therefore, the DEEP or Subgrantee may use T&TA funds to provide training and include contractor participation at no additional cost to the contractor. A flat $150 per diem per person is allowable for contractors attending training to offset the cost associated with travel. Prior DEEP approval must be obtained first.

However, those costs associated with contractor staff time to attend training should be included in the contractor's price determination and are not an allowable expense under T&TA.

Under certain circumstances where contractor staff must meet licensing or other certification requirements such as lead safe training, it is generally the contractor's responsibility to pay for further training of its employees. Still, DEEP will consider the approval of training requests for a contractor on a case-by-case basis.

All Subgrantee contractor training related to work performed and reported as DOE completed CT WAP sites must follow DOE WPN 22-4 and the CT WAP Quality Work Plan requirements, the Connecticut Weatherization Field Guide, and the DOE-approved State Plan for the current program year.

Presentation Costs

Subgrantee presentation costs are allowable under the T&TA grant in the amount of the actual expenditures for the training.

Specific expenditures under this line item may include:

- presenter fees (including presenter travel costs)
- training materials
- facility rental
- presentation supplies
- equipment rental
- other directly related costs

Training may be directly conducted by Subgrantees or contracted with a qualified individual trainer or training organization.

Training presentations may be directed to Subgrantees' staff or to the Subgrantee's weatherization contractor staff.

Travel Costs

Travel cost for approved training is an allowable expenditure under the T&TA grant.

Travel costs must be charged according to Subgrantees' travel policies but only up to the maximum rates allowed by the State of Connecticut and subject to prior approval by DEEP. Specific expenditures may include:

- Mileage
- Car rental
- Airfare
- Lodging
- Per diem (federal rate used)

To qualify for reimbursement for lodging or per diem expenses, the traveler must be in travel status according to Connecticut state travel policy. Travel status is indicated by the fact that the person is spending the night more than fifty miles from his/her station.

A flat $150 per diem is allowable for contractors attending training to offset cost associated with travel to attend State or Subgrantee sponsored training.

Registration Costs

Conference, workshop or similar fees required for attendance at an approved weatherization training event may be expended under the T&TA cost category.

Documentation

Subgrantees have a responsibility to fully document T&TA expenditures. Documentation will include travel vouchers, invoices, programs, brochures agenda and so forth.

Subgrantees should request clarification from DEEP on the appropriateness of any questionable training expenditure.

10.3.3 Insurance Liability

The premium payment for acquiring liability insurance is an allowable Subgrantee expenditure under the weatherization grant. Allowable insurance expenditures should be allocated under the following budget line item:

- Insurance

The actual direct cost for liability insurance to the subgrantee is allowed under this line item. It is not counted as an administrative cost and so is not a part of the limit on that cost category. Neither is it counted as a program operation cost nor considered in any related limitations on those costs.

Subgrantees must carry liability insurance and must require the same of their weatherization contractors.

For more information on required insurance and coverages, refer to “Section 2.4 Insurance Requirements.”

10.3.4 Insurance Pollution Occurrence (PO)

The premium payment for acquiring PO insurance is an allowable expense, under the following budget item line:

- Insurance

The actual direct cost for PO insurance to the subgrantee is allowed as a separate line item. It is not counted as an administrative cost and is not a part of the limit on that cost category. Neither is it counted as a program operation cost nor considered in any related limitations on those costs.

For more information on required insurance and coverages, refer to “Section 2.4 Insurance Requirements.”

10.3.5 Financial Audit

The cost of the Financial Audit is an allowable subgrantee expenditure under the weatherization grant, and should be allocated on the following budget line item:

- Financial Audit

The Financial Audit costs reported and claimed on the monthly expenditure analysis, Analysis of Expenditures against Approved Budget Items.

The actual direct cost of Subgrantee for the Financial Audit is allowed as a separate line item. It is not counted as an administrative cost and is not a part of the limit on that cost category. Neither is it counted as a program operation cost nor considered in any related limitations on those costs.

Subgrantees shall conduct a financial audit of its weatherization program in accordance with 2 C.F.R. § 200, as amended.

If more than one program is being audited, the cost to the weatherization program is to be allocated on a reasonable basis.

10.3.6 Health and Safety

See “Section 7 Health & Safety Testing” for allowable Health & Safety Costs under the CT WAP.

10.3.7 Administration

Subgrantees costs for the administration of the CT WAP is an allowable expense. Subgrantees must expend and administer funds in accordance with the policies and regulations as defined by DOE in 2

C.F.R. § 200, as amended.

Cost Category: Administration.

The Administration costs reported and claimed on the monthly expenditure analysis report, Analysis of Expenditures against Approved Budget Items.

DEEP provides to Subgrantee funds to cover the cost of administering the program in an amount based on a formula that includes a base allocation and other factors. This amount is determined yearly by DEEP and is provided to Subgrantees through their contractual agreement. The actual amount claimed by Subgrantees for administration costs over the period of the contract cannot exceed this limit. Any expenditure exceeding this limit is the responsibility of Subgrantees and cannot be reimbursed from program funds.

Administration costs are costs associated with those functions of a general nature not clearly specific to one program but applied to a range of Subgrantees' programs salary and fringe costs for individuals such as directors, fiscal staff, and legal staff.

Personnel functions such as agency planning, budgeting, accounting, and activities that establish and direct Subgrantees' policies, goals, and objectives overall, are usually considered administrative costs.

Salaries shall include the salaries of administrative staff including fiscal personnel and the cost of supervisory personnel indirectly providing Program services. Allowable costs include:

- Fringe Benefits: such as, group health insurance, worker’s compensation, and other employee benefits that may include, but are not limited to, pensions for those employees receiving salaries.
- Travel: including the cost of mileage reimbursement for those employees identified above for the use of their personal vehicles in the provision of program services.
- Other Costs: include but not limited to the cost of postage, copying fees, office space, machinery rentals and purchases in the provision of CT WAP services.

Administration Budget Examples

Some specific examples of costs that, so far as they are not directly chargeable to program operations, may be considered as administrative include:

- Executive functions
- Office management functions
- Accounting, auditing, and budgeting
- Corporate legal services
- Personnel management
- Purchasing and distribution of supplies
- Insurance and bonding
- Receptionist, mail distribution, filing, and other central clerical services
- Data processing and computer services
- Computer equipment used for administrative functions
- General record keeping
- Office space/facilities lease or rental
- Utilities in the office space/facilities
- Postage
- Duplicating/copying.
- Telephone equipment and services
- Administrative staff training
- Applicable state and local taxes

Cost Allocations

Overall agency costs that cover a range of programs must be assigned using a reasonable and consistent formula to figure how much to charge each program. Most agencies split overall agency administrative costs among programs based on a cost allocation plan, using time studies of the employees involved.

Specific costs may be allocated to the weatherization program if they are treated consistently with other costs incurred for the same purpose in like circumstances and if they:

- Are incurred specifically for the purposes and benefit of the sub-grant
- Can be distributed in reasonable proportion to the benefits received by the program
- Are necessary to the overall operation of the organization, although a direct relationship to any particular cost objective cannot be shown.
- More rarely, an agency applies an indirect cost rate that has been approved by the Subgrantee's cognizant, federal. To use this method, the approved indirect cost rate must be

properly documented by Subgrantees.

Subgrantees must be able to demonstrate a valid basis for administrative charges to the weatherization programs, both for fiscal monitoring by DEEP and in an agency-wide audit

10.3.8 Weatherization Readiness Funds

See Section *6.11 – Weatherization Readiness Funds* for allowable costs utilizing Weatherization Readiness Funding

10.4 Cost for Weatherization Services

10.4.1 Energy Audit

Subgrantees may claim the total cost of an energy auditor. Such costs will include:

- Salary
- Fringe
- Other costs attributable to the position

Cost Category: Program Support (Labor and other support costs).

However, an energy auditor who spends time with other programs or on non-audit functions must have the costs allocated and charged to weatherization according to the actual time spent on the Energy Audit functions.

CT WAP Approved Contractor energy auditor costs may be paid as a flat fee or based on actual time, depending on the terms of the contract.

10.4.2 Air Sealing

Expenditures for labor and material in application of air sealing measures are allowable costs, within limitations. Typical materials include caulk, foam and weather-strips. Typical labor includes personnel time to locate major leakage using the blower door or other equipment, as well as the time to seal areas of infiltration.

Cost Category: Material and Program Support (labor and other support costs), within limitations.

Limitations: CT WAP reimburses blower door guided air sealing at the rate of $126 per-hour. Of the total hourly rate, $36 is to be allocated to materials and $90 is to be allocated to the program support cost of the job, out of which the contractor labor will be paid. These amounts will be computed using the air sealing activity information entered into the NEAT, MHEA software.

Subgrantees are allowed to bill up to five (5) hours of air sealing per unit, provided SIR is achieved for all related costs. The following materials are routinely included in the hourly rate:

- Application of urethane foam
- Interior caulking

Whenever justified, additional hours of air sealing may be charged with the prior approval of Subgrantees' program monitor. The monitor's approval may be obtained by phone by Subgrantees and must be notated in the case file and on the air sealing paperwork.

Health & Safety: Ventilation may be required by the tightening of the unit through air sealing. Material and labor for ventilation installed according to ASHRAE 62.2.2016 standards is to be paid under the H&S cost category.

Incidental Repairs: Air sealing work, particularly with regard to windows and doors are likely to require Incidental Repairs which should be paid from that cost category.

Miscellaneous Materials: Miscellaneous materials for covering large holes such as sheetrock, plywood, flashing, insulation board, cardboard, nails, screws and other hardware.

10.4.3 Windows and Doors

Expenditures for labor and material in sealing or repairing doors and windows to reduce air infiltration are allowable costs.

Cost category: Materials and Program Support (labor and other support costs).

Materials: Caulk, thresholds, sash kits, window components, door components, locksets, latches, and glass. Typical labor includes personnel time to locate window and door leakage using the blower door or other equipment, as well as the time to install new components, and seal areas of infiltration around windows and doors.

Replacement: In the limited circumstances in which windows and doors may be replaced, materials and labor would include the entire cost of the replacement, including the new door or window. The replacement of doors or windows requires an individual SIR of one (1) or better.

10.4.4 Insulation

Expenditures for labor and material in the installation of insulation are allowable costs. Typical materials include various types of insulation:

- Cellulose
- Fiberglass
- Foam board
- Foam spray

Labor includes installer time to properly apply the insulation measures.

Cost Category: Materials and Program Support (labor and other support costs).

Any Subgrantee insulation costs that are reimbursed, such as the payment received from some utility companies for a percentage of the insulation costs, must be deducted from the amount claimed by Subgrantees for the job.

Health & Safety: Insulation of cold-water pipes in areas in jeopardy of freezing, or steam heating piping that may present a danger to occupants, or need replacement related to encapsulation or removal, may be charged to the H&S line item.

10.4.5 Heating Appliance

Expenditures for labor and material used in the repair, retrofit or installation of heating appliances and connected systems are allowable costs. When these activities are conducted as energy efficiency measures they are allowable. In some instances, heating system costs may qualify under the H&S category.

Typical materials include:

- Replacement parts
- Sealants
- Filters
- Vents
- Pipes
- Appliances and systems
- Oil tanks

Labor includes:

- Cleaning
- Tuning
- Testing
- Installation

Cost Category: Materials (parts) and Program Support (labor and other support costs) or measures may be charged to H&S, as justified.

Health & Safety: Under certain circumstances, heating appliance measures are conducted for reasons of H&S of the unit's occupants. Such measures must first be screened to see if they qualify as cost-effective energy efficiency measures with an SIR of 1.0, or better. If not, they must be charged to the H&S category, provided they qualify otherwise. If such measures do not qualify either way, they may not be installed. This includes a standard CTT procedure. The CTT should first be screened in Waweb to see if it generates an SIR of 1.0 or greater. If it yields the required SIR, then it should be billed to the Program Support category. If the CTT fails to yield the required SIR, then it may be categorized as a H&S measure.

In Connecticut, repairs to the heating appliance along with emergency repairs, are charged to the H&S cost category. Such costs must fall within the definition and dollar limits in that category.

10.4.6 Central Air Conditioning System

The CT WAP program does not allow the expenditure of CT WAP funds to address any issues with central or window type air conditioning systems. However, if a central air conditioning system's "A" coil shares the supply plenum or supply ductwork with a heating system then the cleaning of the "A" coil of a working central A/C system and repair to the condensate pan/drain is an allowable cost.

10.4.7 Humidification System

The CT WAP program does not allow the expenditure of CT WAP funds to address any issues with central humidification systems that share the supply plenum or supply ductwork with a heating system. In addition, no humidification system is allowed to be installed into the supply plenum or supply ductwork of a replacement heating system paid for with WAP funds.

10.4.8 Domestic Hot Water (DHW) System

Expenditures for labor and material used in the repair, retrofit or installation of domestic water heating appliances and connected systems are allowable costs. These activities are allowable as energy efficiency measures. In some instances, water heater costs may qualify in the H&S category.

Typical materials include:

- replacement parts
- sealants
- filters
- flues
- hoods
- diverters
- thermocouples
- burners
- pipes
- insulation
- appliances and systems

Labor includes:

- cleaning
- tuning
- testing
- installation of parts

Cost Category: Materials and Program Support (labor and other support costs) or measures may be charged as H&S, when justified.

Health & Safety: Under certain circumstances, water heating appliance measures are conducted for reasons of H&S of the unit's occupants. Such measures must first be screened to see if they qualify as cost-effective energy efficiency measures with an SIR of 1.0, or better. If not, they must be charged to the H&S category.

Prior approval: Expenditures for the replacement of a domestic water heater require prior approval by CT WAP. Expenditures may not be claimed if this process has not been completed.

10.4.9 General Waste Heat (GWH) Reduction Measures

The Department allows for up to $100 in materials to install DOE pre-approved GHW measures for Subgrantees working in municipalities where such measures are not covered by public utility programs. DOE pre-approved GHW measures vary from those GWH measures allowed by the utility programs.

Those DOE-approved, presumptively cost-effective materials include:

- Water heater wrap (i.e., insulating blanket).
- Water heater pipe insulation (on the first six feet of hot water pipe exiting the water heater);
- Faucet aerators;
- Low-flow showerheads;
- Limited weather-stripping and caulking to increase comfort (does not include regular air sealing work on Energy Audit);
- Furnace or air conditioner filters.

Cost Category: Materials and Program Support (labor and other support costs).

10.4.10 Health and Safety Funding

Weatherization program funds may be used for the separate cost of certain H&S activities that meet the defined criteria related to the weatherization work and are within the dollar limits specified in the

State's approved H&S plan. Expenditures for these ancillary activities required to ensure that weatherization measures do not cause or exacerbate H&S problems for workers and occupants are

allowable costs only to the extent they are reasonable and specified as permissible in the CT WAP policies.

Cost Category: Health & Safety.

Activities assigned to the H&S costs are not subject to the SIR analysis.

See "Section 7 Health & Safety Testing" for allowable Health & Safety Costs under the CT WAP.

10.4.11 Incidental Repair Funding

Weatherization funds may be used for the cost of certain Incidental Repairs when such repairs are reasonable and necessary to ensure the sustainability and effectiveness of weatherization measures.

Incidental Repair costs can be treated in two ways, by being considered a component of the energy conservation measure and incorporated into the SIR of the associated measure or incorporated into the SIR for the overall package of measures.

Incidental Repairs can only be considered if the overall package maintains an SIR of 1.0, or greater, and the repairs do not prevent the installation of any weatherization measure that would have otherwise been installed.

Cost Category: Material and Program Support labor and other program support costs. The Incidental Repair is included in the average cost per unit calculation.

Allowable Costs: Subgrantees must refer to the State of Connecticut's H&S Plan which specifies IR activities and costs that are allowed under the CT WAP.

Incidental Repair Limit: CT WAP allows Subgrantees to include Incidental Repairs as part of the over-all SIR calculation or be added with the individual measure; under either method, the Incidental Repair is allowable as long as its cost screens 1 or more.

10.5 Client Completion Report (CCR)

Subgrantees must maintain all of the required documentation supporting the work reported as complete in the CCR. Records are to be maintained and organized by a unique work order number and cross-referenced with the client's name, the date the unit passed final inspection, and the address of the weatherized unit. Subgrantees are to require weatherization contractors to maintain and submit documentation required by the program.

The grantee requires that subgrantees submit a CCR for every dwelling unit completed that has passed the final inspection.

For more information on detailed monthly reporting requirements and a description of the CCR, see "Section 10 Reporting." The CCR is the primary document detailing the work that was ordered, installed and finalized on each unit. The Subgrantee Monthly Report and Financial Package must include the correct CCR for each completed unit claimed in the report month. The CCR is to be submitted with the required backup documentation to support the reported and claimed units properly.

The CCR is a control document that is produced from the WAweb (NEAT, MHEA) software at any point during the weatherization process. The measures included on the CCR will only be those that are allowable under CT WAP and that meet the SIR requirement, as applicable. (H&S activities will also be on the Client Completion Report.)

The initial input by the energy auditor produces a draft CCR that may be used to propose measures to be ordered. Proposed measures may need further review by Subgrantees' supervision and/or prior approval by CT WAP before they are actually assigned.

The Recommended Measures Report (RMR) indicates the measures that are authorized to be assigned to one or more work orders and distributed to subgrantee crews or contracted installers as appropriate. At any time that the work is changed during the installation, a modified RMR must be produced that reflects the approved changes in the work.

The installed RMR must reflect all of the work that was actually completed, inspected, and passed in the unit. This version of the RMR is submitted as the backup to each unit reported in the monthly packet of reports.

The CCR includes information as entered in the NEAT, MHEA program, including, but not limited to:

- Unit identification
- Building unit types and details
- Client identification
- Family demographics
- Audit summary, auditor, job #, dates, other

- Heating system type
- Blower door pre- and post-weatherization readings
- Minimum Ventilation Guideline calculation
- Weatherization measures by funding, type, agency, and installer
- Costs broken out by materials and labor
- Other comments and information, as required

10.6 Monthly Weatherization Status Report (MWSR)

Subgrantees are required to report monthly totals on the characteristics of the completed units and the individuals occupying them. These details are reported only for units that have been completed.

Statistics are reported on both a Monthly and Grant to Date (GTD) basis, through the CT WAP Monthly Weatherization Status Report (MWSR).

The unit and fuel type categories will total the same as the total number of units completed. The occupant category will total the number of individuals served in the completed units.

10.7 T&TA Report

Subgrantees are responsible for tracking the certification and training of all personnel used in the weatherization program. This information includes both required and optional training. Training of Subgrantees' own employees as well as those of its contractors must be tracked on an individual basis and made available to CT WAP program staff upon request.

Subgrantees should utilize the T&TA Form provided by CT WAP to submit this information.

The utilization of appropriately trained employees is a requirement for payment for work under the program. The inability to document the training of individuals used in weatherization may result in a disallowed or questioned cost for weatherization work conducted by those individuals.

10.7.1 Contractor Training Reporting

In order to report properly, Subgrantees must require that their contractors document employee participation in certain training programs. The training must be reported for each individual who works on weatherization under Subgrantees' contracts.

10.8 Monthly Unit Cost Data Sheet (MUCD)

Subgrantees must also require the Contractor to report data needed to complete the unit production information detailed in § 706, above.

Contractors must keep detailed records of the measures that have been performed on each unit. All work records must be identified by the Work Order Number assigned by Subgrantees. All labor and materials must be clearly delineated for each unit weatherized.

The contractor is required to retain production records for no less than three (3) years after the close of its contract period. Records must be made available, upon request, to Subgrantees, DEEP, and DOE or to any other duly authorized state or federal entity, for the purpose of a fiscal review or an audit, as required.

Invoice, claim and other financial information on the work performed must also be cross referenced to the individual unit by work order number.

10.9 SHPO Reporting

Any unit with provenance indicating historic significance or homes built 50 or more years ago must be submitted to the SHPO for review. If the unit is deemed historic by SHPO, subgrantees must work with CT WAP to create an appropriate weatherization plan for the unit that is compliant with SHPO and aligned with CT WAP policies.

Every unit that is deemed historic by SHPO must be recorded on the SHPO form that is part of the Subgrantee Monthly Report and Financial Package. Information must be submitted on a monthly basis.

For more information on SHPO policies, refer to “Section 6.8.1 SHPO Submission.”

10.10 Deferrals Reporting

All units that are deferred must be recorded on the Deferrals form that is part of the Subgrantee Monthly Report and Financial Package. Information must be submitted on a monthly basis.

Every deferral must be accompanied by all required backup documentation that justifies the deferral decision and demonstrates proper communication with the client.

For more information on deferral guidelines, refer to “Section 12.4 Deferral Guidelines.”

10.11 Subgrantee Central Contractor Registration

Being “first-tier” recipients of federal funds, Subgrantees must also register and report directly on their activities at the federal website at the Central Contractor Registration (http://www.ccr.gov). A Dunne and Bradstreet Data Universal Numbering System (DUNS) Number (http://www.dnb.com) is required for registration. The subgrantees must also be registered in the SAM System (sam.gov).

10.12 State DOE Reports

Most of the information collected from each Subgrantee is aggregated in reports completed by DEEP and reported to DOE.

Grantee Quarterly Performance Report (QPR)

CT WAP submits a quarterly report to DOE that lists the statewide totals for all metrics reported by Subgrantees on units and individuals.

Training, Technical Assistance, Monitoring, and Leveraging

This report is made annually to DOE as a part of DEEP's Weatherization Program State Plan. It describes

DEEP's progress in the following three areas:

- Training and Technical Assistance Activities: lists and describes the training and technical assistance activities attended and conducted during the previous program year.
- Monitoring Activities: lists Subgrantees which were monitored during the year. Describes significant findings and corrective actions.
- Leveraging Activities lists and describes the projects executed and the amount and source of funding successfully leveraged during the report year.

Quarterly Financial Status Report

As with all federal grants, DEEP reports quarterly weatherization budget expenditures on Standard Form 269A, Financial Status Report, as prescribed by OMB Circulars A-102 and A-110.

Grantee Central Contractor Registration

As a recipient of federal funds, DEEP must register and report directly on its activities at the federal website, the Central Contractor Registration (http://www.ccr.gov). A Dunne and Bradstreet Data Universal Numbering System (DUNS) Number (http://www.dnb.com) is required for registration.

11 Payments

The purpose of this section is to describe the subgrantee's procedure for requesting payment, through a reimbursement claim process.

The CT WAP has developed an integrated process for reporting and claiming that ensures that subgrantees' production results are meeting program goals, through allowable expenditures in correct cost categories and for approved weatherization measures.

Through subgrantees' submission and the CT WAP's review of the Monthly Weatherization Status Report Reporting Template and the supporting documentation on each unit reported, the process ensures that the assignment of claimed costs is made to the correct and allowable categories.

Please refer to "Section 10. Reporting" for more information on Reporting Templates.

11.1 Financial Records

All Accounting records related to budgets, claims, and purchases must be maintained following 2 CFR 200, the Generally Accepted Accounting Principles (GAAP), and the procedures detailed in this OPS Manual, for fund accounting. Subgrantees' financial records shall include, but are not limited to:

- Accounting books, ledgers, charts;
- Time sheets, payroll reports, wage records;
- Accounting reports, bank statements;
- Fiscal reviews, audits;
- Tax records, tax withholding records;
- Source documents, bills, claims, canceled checks;
- Job descriptions, pay rates, pay schedules;
- Proof that all invoices have been paid;
- Other fiscal forms and reports, as required by the State.

All fiscal accounting records must be made available to the DOE, the State, DEEP, or other appropriate agencies, upon request.

11.2 Overall Cost Limitations

The expenditures for CT WAP are subject to the limits of the overall allocation of funds to subgrantees, as well as capped dollar amounts or comparative percentages for each cost category and line item as defined by the CT WAP policies. Subgrantees are responsible for tracking program expenditures to stay within all set limits and terms.

Overall Budget: Subgrantees may not exceed their total allocations of funds for the period of the contract. Any expenditure exceeding the allocation becomes the responsibility of subgrantees and may not, under any circumstances, be paid out of DOE grant funds.

Average Cost Per Unit: The expenditure of CT WAP funds for labor, weatherization materials, and other program support costs is limited to the set average cost per unit. The average is updated annually by the State and reviewed by the DOE. Subgrantees may not claim any expenditure that exceeds the allowable average cost per unit over the contract period.

Materials Cost Limit on Program Support: For every $1.00 spent on materials, subgrantees may expend a maximum of $2.50 for all other program support costs, including labor. The limit applies on a cumulative basis over the contract period.

CT WAP will track the cumulative expenditures for materials by subgrantees on a monthly basis. Any claimed expenditure for the non-materials program support costs that exceeds the allowed amount will be reduced on the monthly claim payment. At any point that the cumulative cost returns to the allowed amounts, the program support reimbursements will be restored by CT WAP.

Minimum Materials Expenditure: CT WAP has established an expenditure minimum of $50 in materials per unit.

Maximum per Unit Expenditure:

CT WAP spending limits have been established as follows:

- Up to $10,000 on energy efficiency measures, including ancillary and Incidental Repair measures and program support costs or submit request for prior Grantee approval.
- Up to $1,500 for H&S measures or submit a request for prior Grantee approval.
- Up to $2,500 for Incidental Repair costs or submit a request for prior Grantee approval.

11.3 Submission of the Subgrantee Monthly Report and Financial Package

Subgrantees must request reimbursement from CT WAP for all allowable costs associated with the weatherization program on a monthly basis. The request is made by submitting a **Subgrantee Monthly Report and Financial Package.** See "Section 10. Reporting" for further information on completing and submitting the monthly package. It is the subgrantee's responsibility to ensure all data and information provided on the Subgrantee and Financial Package is accurate.

No payment request may be submitted for:

- Weatherization work until the subgrantee has performed the Final QCI Inspection and has issued a written determination that the work has been performed in a satisfactory manner.
- Weatherization work which is outside of the measures set forth by Subgrantees' work order, without a prior, written modification of that order.
- Weatherization work performed by personnel who have not fulfilled the weatherization training and certification required for such work.
- Additional weatherization work conducted on a unit after the unit has been reported as completed.

Certification: The monthly report must include Subgrantees certification form attesting to the accuracy of the claim. The form is signed and dated by the Subgrantee's weatherization coordinator, executive director and finance director.

11.3.1 Process

1) **Subgrantee Submission:** The Contractor shall make best efforts to provide the report by the 10th of each month. Should the 10th fall on a weekend or holiday, the report shall be submitted by the first business day after the 10th. The report must be submitted by the twelfth (12th) of each month. Any reports submitted after the 12th shall be considered late and may result in delayed payment to the Contractor. The Subgrantee must provide all required backup documentation and review all information provided before submission for accuracy to avoid delays in processing.

2) CTWAP Review: CT WAP staff will review the reports and their attachments, as well as all approved waivers, for accuracy and completeness.

The review of the Subgrantee Monthly Report and Financial Package will include a review of:

- The Status Report and each Completion Report for accuracy and completeness
- The measures installed compared to the measures in the Energy Audit and on the Work Order(s)
- The insulation materials expenditure against quantity of insulation installed

- Agency and contractor materials expenditures against program limits
- Individual and package SIR ratios
- ASHRAE 62.2.2016 Compliance
- The required demographics for program management and DOE reporting, including the:
    - number and types of dwellings
    - numbers and types of people assisted

When applicable, the CT WAP reviewer will adjust for any changes such as landlord contributions and disallowances. Then, claimed amounts will be assigned by the reviewer to the appropriate cost category according to the rules set forth in this section.

3) State Fiscal Review: Once the CT WAP reviewer completes the review and approves the claimed expenditures and reports, the WAPMR is submitted to the State Fiscal staff for financial review and payment submission.

The fiscal review will include a review of:

- The status report and each completion report for accuracy and completeness
- The charges for air sealing within dollar limits
- Agency and contractor materials expenditures against program limits
- Contractor labor expenditures against program limits
- The limits between the cumulative materials cost credits and the other program support costs
- H&S materials expenditures against program limits

4) **Disallowance:** If discrepancies are found, the Subgrantee will be notified in writing that a unit claimed is being temporarily disallowed. At this point the unit will not be counted as a completion on any reports for the period. The BWR for the disallowed unit will be removed, the amount claimed deducted, and the status reports adjusted.

   Subgrantees must respond to all disallowed expenditures taking corrective actions to the satisfaction of CT WAP within forty-five (45) days of receipt of the notice. This allows for Subgrantees to return to the dwelling and address measures if required, and to resubmit the completion to the State for reimbursement. Subgrantees are required to request extensions in writing if they cannot meet the forty-five (45) daytime limit.

5) **Approval and Payment:** Once the information on the Subgrantee Monthly report and Financial Package is reconciled and approved, the claim will be processed for payment by DEEP. The data will also be reported to DOE, as required, in the Performance and Accountability for Grants in Energy (PAGE) Reporting System.

The monthly report must include the Subgrantees certification form attesting to the accuracy of the claim. The form is signed and dated by the Subgrantee's weatherization coordinator, executive director, and finance director.

11.3.2 Payment Timeframe, Method, and Tracking

Payment Timeframe

Accurate and complete claims received by the due date will be paid to Subgrantees within thirty days (30) of receipt.

Electronic Payments

Subgrantees will receive payment directly by automated clearing house transfer and are responsible for ensuring that they meet CT Business Office guidelines for electronic payments. Additional information regarding electronic payments may be obtained from the Business Office's website.

Payment Tracking

Subgrantees are able to track payment processing by accessing the Vendor Resources website, part of the Accounts Payable Division ,Office of the State Comptroller. Subgrantee must create an account to track invoice progress.

11.3.3 Ongoing Expenditures

A payment request for ongoing expenditures is submitted with the monthly report. Ongoing expenditures can be included in the following items lines:

- Administration
- Liability Insurance
- Fiscal Audit
- T&TA

Ongoing claims will be paid by CT WAP. It is the responsibility of Subgrantees to track its claims to ensure that the allocated amount of funds in each of these cost categories are not exceeded by the cumulative claimed costs. Funds paid to a Subgrantee in excess of its allowable expenditures will be required to be re-paid to DEEP.

11.3.4 Allowable Expenditures

"Allowable expenditures" shall mean the total of all expenditures qualifying as "allowable expenditures" in accordance with the terms and conditions of the Federal rules published at 10 CFR 440 and at 2 CFR 200 and with all other pertinent guidance from DOE and CT WAP, including this manual. All expenditure

must be properly documented as costs incurred on eligible dwelling units in the subgrantee's books and records. Expenditure must be consistent with the latest approved budget.

Administrative Costs

"Administrative costs" shall mean those costs which a subgrantee incurs that are not in direct support of individual WAP projects but are necessary for the organization to operate the WAP. Typical expenditures found in this category are wages and fringe benefits for executive, accounting, and administrative personnel working on the program. Other typical administration cost category expenditures are payroll processing costs, costs to administer health insurance programs, data processing costs, indirect costs as allowable under subcontractor agreement, and bank service fees. As with the other weatherization cost categories, those costs applied to administration must be actual and allowable under the applicable federal regulation.

Health and Safety

Allowable expenditures include work scope measures which promote energy-related H&S or costs related to the elimination of H&S hazards which are necessary before or because of installation of weatherization materials. All H&S repairs provided under the program must be incidental and designed to protect or supplement WAP measures. See "Section 7 Health & Safety Testing" for allowable Health & Safety Costs under the CT WAP.

Indirect Costs

"Indirect costs" will be an allowable expenditure only when written approval of the indirect cost rate has been obtained by the subgrantee from the subgrantee's cognizant federal agency.

Indirect costs are generally considered administrative costs; however, as part of an approved indirect cost pool, there may be costs included in this pool that are eligible for cost categories other than administration. For example, when audit and liability insurance costs are included in the cost pool, they may be prorated and included in their respective cost categories.

In cases where the pool contains costs that may be directly charged to the "Program Support-Other" line, a prorated share may be allowed; however, costs of this nature still have a share that has an administrative component. For example, all copying costs are charged to the indirect cost pool; however, there are both Program Support and Administrative costs contained within this pool. Subgrantees must first break out the share of the total copying costs for WAP and then provide the appropriate split between the "Program Support-Other" and "Administrative" cost categories.

Leave Time

Allowable expenditures include leave time and benefits earned only during the budget period, provided that the subgrantee records its liability for leave time and benefits earned during this budget period and payable thereafter in accordance with the subgrantee's board-approved employee benefits/personnel

written policy. Severance pay may be an allowable expenditure if deemed reasonable and supported in the subgrantee's written personnel policy.

Program Support

Allowable Program Support expenditures include items such as space, utilities, telephone, cost for energy audits from authorized outside entities, and similar costs that are directly attributable to Program Support personnel.

Transportation Costs

Transportation allowances shall be reimbursed in accordance with CT WAP's policies, which require documentation of the start and end point of each trip, the business purpose, and number of miles traveled, along with the current IRS mileage rate and total requested for reimbursement. The reimbursement rate will be based on the latest federal mileage and/or rental rates per CFR 200.

Liability Insurance

Allowable liability insurance expenditures shall be the documented and allowable portion of the total cost to acquire the liability insurance in accordance with the limits outlined in "Section 2.4 Insurance Requirements" of this manual.

Financial Audit

Allowable financial audit expenditures shall be the documented and allowable portion of the total cost of producing the audit in accordance with the limits outlined in "Section 2.4 Insurance Requirements" of this manual.

Training and Technical Assistance (T&TA)

Allowable T&TA expenditures shall include expenditures made in accordance with the approved program income budget for the Program Year in the Database. This budget is submitted with your initial contract package and subsequent budget amendments.

11.3.5 Disallowed Costs

The total final payment request must be offset either by subgrantees or by CT WAP with credits for:

- Any amount in excess of the total contract;
- Any amount which exceeds the limit of ten percent (10%) on a specific line item;
- Any amount which exceeds the allowable average cost per unit over the period of the contract;
- Any amount which causes the Subgrantee to exceed the amount ratio between materials and program support cost categories;

- Subgrantee settlement of disallowed costs found in an audit; and
- Subgrantee settlement for incorrectly expended funds that cannot be transferred to a correct cost category, as determined by CT WAP's fiscal monitoring; and
- Any other amounts as determined between Subgrantees and CT WAP.

If a contract is terminated, subgrantees must return to CT WAP all unexpended funds in full within thirty (30) days.

For more information on cost categories and monthly reporting, see "Section 10 Reporting."

11.4 Contractor Invoices

Subgrantee contractors are required to maintain strict accountability for the costs invoiced to the program. All claimed costs must be linked directly to weatherization activities performed on a specific job and identifiable by the work order number, case name, and address. All labor and materials must be clearly identifiable with each unit weatherized, on each invoice. The work order number is assigned by Subgrantees and must appear on all documents related to the unit.

Contractor books, records, documents, and other evidence must be set up in a way that follows generally accepted accounting principles, using procedures and practices that sufficiently and properly reflect all costs attributed to each service provided.

The contractor is required to retain records for no less than three (3) years after the close of the contract period with Subgrantees. Records must be made available, upon request, to Subgrantees, DEEP, and DOE or to any other duly authorized state or federal entity, for the purpose of a fiscal review or an audit, as required.

All invoices for work performed and reported as DOE completed on CT WAP sites must follow DOE WPN 22-4 and the CT WAP Quality Work Plan requirements, Connecticut Weatherization Field Guide and the DOE approved State Plan for the current program year.

To substantiate Subgrantees' claim each contractor invoice must include:

- Contractor name, address, phone and contact information;
- Work order number assigned to the unit by Subgrantees;
- Physical address of the Unit;
- All dates that the company worked on the Unit;
- A copy of the original approved work order and any work order modification approved by; Subgrantees
- Breakdown by weatherization measure of costs for labor on the Unit;
- Breakdown by weatherization measure of costs for materials, parts, or other costs on the unit;
- Invoice total;
- Original receipts for all materials purchased and being billed by the company, as required by Subgrantees;
- Other information or documentation required by Subgrantees or State;
- Signature of authorized company employee.

Contractors shall submit invoices within five (5) days of the completion of their work.

Subgrantees will make payment within thirty (30) days upon the contractor's submission of an acceptable invoice and other required documents, but only after the completed unit has passed the Final Inspection or an approved Progress Inspection.

11.4.1 Interim Contractor Claims

In some instances, payments to certain contractors completing their share of the work on a unit may be excessively delayed because other weatherization work is not done. For example, an insulation contractor may be finished, but the Final Inspection is held up because of a delay in installing the heating system. The insulation installer may have submitted an invoice, and subgrantees are under an obligation by DOE to pay it within thirty (30) days.

In this situation, rather than delaying payment beyond the thirty-day limit on invoice payments, Subgrantees may choose to conduct a "Progress Inspection" of the contractor's individual work. If the work can be passed, the contractor's invoice may then be submitted to CTWAP by subgrantees for payment. However, no payments may be issued before the work passes the Progress Inspection conducted by Subgrantees' QCI Inspector and the CT WAP QCI Inspector and a signed copy of the Progress QCI Inspection Report by the Subgrantee is submitted with the claim for payment to DEEP.

A subgrantee electing to use a Progress QCI Inspection is required to have a system that ensures that, in the end, all measures are QCI inspected and there is no duplication of invoice payments to its contractors.

Measures which are inspected on a Progress QCI Inspection must be inspected again as a part of the unit's overall Final QCI Inspection. A Final QCI completion certificate may only be signed after the completion of the entire job and passing Final QCI Inspection. Units may not be reported by Subgrantees as completed on the **MWSR** until it has entirely passed the Final QCI Inspection.

11.5 Withholding of Funds

CT WAP may withhold full or partial payment of claims under several circumstances. Subgrantees will be notified prior to funds being withheld and given an opportunity to ameliorate the underlying issue, during which time the payment will be held.

Errors

CT WAP may withhold payment to a subgrantee if a report submitted by subgrantees is inaccurate, incomplete, or unsubstantiated, or if subgrantees have not otherwise complied with the instructions issued by CT WAP.

Fiscal Monitoring and Audit Issues

CT WAP may withhold payment to a subgrantee in instances of incorrect, inappropriate, or unsubstantiated costs that have been discovered through fiscal monitoring. Payment may be withheld for expenditures that have been disallowed in an audit of subgrantee weatherization funds.

12 Special Considerations for Weatherization

The purpose of this section is to outline special considerations for weatherization, including criteria for when weatherization services should be deferred or denied. Also included are the requirements for weatherizing homes where lead-based paint or mold and moisture problems may be present, and requirements for providing assistance to previously assisted units.

12.1 Subgrantee Production Requirements

Subgrantees must have a process in place to ensure that production numbers are realized. CT WAP tracks the performance of Subgrantees in the production of weatherized units. DOE closely monitors CT WAP's production through the Quarterly Program Reports, the Quarterly Financial Status Report, and the Annual Training and Technical Assistance, Monitoring and Leveraging Reports.

Production goals are determined annually based on the available funding allocation and the ACPU set by the DOE. It is the responsibility of the Subgrantee to ensure that those goals are met in their respective service area.

12.1.1 Weatherization Timeframes

Subgrantees must ensure that client eligibility is completed within one week of receiving all required documentation from the client. Subgrantees must ensure that all clients who are scheduled to receive weatherization services have an application that is good for 6 months or must recertify the client prior to scheduling the initial energy audit. Subgrantees must recertify any client placed on a waitlist if their application is older than twelve months and schedule them for services at least 6 months before their application expires. Once certified clients are scheduled for energy audits in the order they applied, prioritization is given to vulnerable clients and those who have been waiting for 6 months or more. After an audit is completed, a scope of work is to be generated within three business days. Agencies are expected to complete quality and effective weatherization work on a home within 30 days from the initial audit and the same program year. Subgrantees should report to the Grantee if there are any unusual delays when weatherizing a home. Final inspections must be completed within 30 days of the completion of weatherization work and reported within the same program year. Failure to complete and inspect all work within the same program year will result in disallowed costs.

All contractors are to be paid for weatherization work that has passed inspection within 60 days of the completion of work. Any delays in payment for satisfactory work must be communicated to the Grantee and the contractor prior to the 60-day deadline. Delays in payment due to rework are only allowable if the contractor is informed of the necessary rework before the 60-day deadline.

Energy audits can be rolled from one program year into the next so long as no work has begun within the home and as long as the client's income eligibility verification is still valid (not more than twelve months old).

12.1.2 Production Schedule

It is up to subgrantees' program staff to coordinate the weatherization activities in each unit to ensure the job is done properly, in the agreed-upon time frame, and within the program year timelines.

The scheduling of several jobs at a time, as well as outside work schedules, may affect the availability of

any given crew or contractor. Likewise, the family's schedule or the owner's schedule may have an impact on the job timing and duration. Other factors such as time of year, the weather, and work site accessibility may all contribute to the difficulties of coordinating the work.

Factors such as the subgrantee's contracts and budgetary status may impact the production schedule.

It is up to the subgrantee's program management to take all of the factors into account to maintain a schedule that will meet the overall production goals of the program.

Subgrantee contractors are contractually required to complete units within the time frame established for each unit. Any anticipated delays in the completion timeframe on the part of the contractor should be communicated to Subgrantees in writing prior to accepting a job.

Any subsequent changes to the schedule must also be requested in writing and addressed as an official modification of the work order.

12.1.3 Work Order

It is the subgrantee's responsibility to determine what measures are going to be implemented in a given unit based on the proper use of the DOE energy modeling software and comprehensive analysis of the program by the Subgrantee's Weatherization staff and administrators taking into account the audit information and the available unit budget, and recommended measures on the work order(s). The ordered measures must be:

- Justified by the results of the audit;
- In conformance with weatherization program protocols, standards, and guidelines;
- Ranked in order of the comparative cost-effectiveness ratings;
- Based on cost categories as allowed within program guidelines; and
- Within the available budget, including the limitations of the average cost-per-unit.

When the work order(s) are complete, Subgrantees are to assign the job to the contractor who is able to provide quality and effective weatherization services and within the time frames previously mentioned. The contractor may not commence any weatherization work until written authorization is received from subgrantees in the form of an executed, signed work order.

12.2 Measure Skipping and Client Refusal of Certain Measures

In DOE's WPN 23-6, measure skipping is defined as "not installing, in order of decreasing Savings to Investment Ratio (SIR), the cost-justified Energy Conservation Measures (ECMs) and related Incidental Repairs Measures (IRM) included in the work scope produced by the Department of Energy (DOE) approved energy audit tool or priority list. This could also be the result of failure to evaluate all applicable energy saving measures for the dwelling". A major measure is any high-priority measure that returns an SIR of 1.0 or greater, excluding General Heat Waste (GHW) measures. Skipping major measures would result in only the partial weatherization of a unit. These include but are not limited to:

- Air sealing;
- Duct sealing outside the thermal boundary, and;
- Thermal boundary insulation (i.e., attic, wall, floor/ belly, foundation, still, etc.)

DOE does not permit measure skipping of cost-justified major measures. Alterations to the cost-justified work order must be addressed in the following ways:

- **Funding limitations:** If all funds available to be spent on the job will not cover the entire work scope, then measures may be removed from the work order starting with the lowest SIR measure and working up the list from there. The work order must remain cost-effective overall or the job must be deferred. Necessary Health and Safety (H&S) measures may not be removed from the work order. However, ECMs can be removed.
- **Client refusal of certain measures:** Client education is important to inform a client of planned measures and material use. Resistance from a client to install any measures and/or materials that are a part of an energy audit directed work order, or priority list should be addressed with either additional education and/or re-running the energy audit with a different but acceptable measure to determine if the substitute measure is cost-effective. If no cost-effective option for the measure can be identified, the auditor should again explain and discuss the situation with the client. If the client still declines a non-major measure, the auditor must include documentation of the refusal in the client file. All other weatherization measures must be installed. If the client refuses any major measures, the Subgrantee's personnel must attempt to explain the need for and the advantages of the measure. If the client still refuses the installation of a major measure, this is a reason for deferral, where no measures will be installed in the unit. By refusing the installation of any major measure, the client risks losing all weatherization assistance through WAP until they agree to the installation of all measures. The client's refusal/ deferral must be documented in the client file. The client's refusal/ deferral can be documented with the Notice of Postponement form.
- In cases where the client declines a major measure after installation has begun, the Subgrantee should make a reasonable effort to educate and persuade the client to accept installation of that measure. If the client still declines, the unit may be reported to DEEP as partially weatherized, where some measures were installed before work was halted.
- Partially Weatherized dwellings are counted against the agency's budget categories but are not counted towards or reported to DOE as a Weatherized dwelling. (ie. The agency can

report the costs but cannot count the unit as a completion)

- **Unexpected Circumstances:** If unforeseen circumstances arise during the weatherization process (i.e., the client passes away, access to the home is lost, severe flooding occurs, etc.), the unit may not be completed as planned. From an administrative standpoint, both DEEP and DOE recognize that such situations require specific reporting actions. While the unit expenses may still be reimbursed to the Subgrantee, the unit cannot be reported to DOE as a completed unit. Instead, it must be categorized as either:
- Partially weatherized if some measures were installed before work was halted, or;
- Deferred if no work could be completed.
- **Inadequate training:** A lack of training for Subgrantees is not an allowable reason to skip measures. The standard procedure is to postpone job(s) requiring priority measures that cannot be installed due to lack of trained staff until adequate training is acquired.
- **After a job has begun:** If during the installation process, the client declines a measure, work must stop at that time. The Subgrantee's personnel should remind the client that the signed weatherization agreement states that all recommended measures as specified by the energy audit within allowable program dollar amounts will be installed. If the client continues to refuse a measure, a deferral form must be signed and issued to the client. The Grantee and Subgrantee will work to determine the best method to close-out or defer the unit.
- **General Heat Waste (GHW) measure:** GHW measures may be skipped for any documented reason, including refusal by the client. The Subgrantee should make every reasonable effort to educate and persuade the client. If the client continues to refuse, then GHW measures may be skipped. This refusal must be documented and stored in the client file.

12.3 Client Education

Each of the various agents in the program has a role to play in informing and educating the family about their part in energy conservation and maintaining the improvements brought about by weatherization.

12.3.1 Subgrantee's Responsibility

Subgrantees must provide the case work, which should initiate client interaction and education during the application process. Some critical areas of responsibility in the beginning are:

- Provide an initial overview of the weatherization program, eligibility, rules, and the process;
- Provide written educational information such as "A Brief Guide to Mold, Moisture, and Your Home" as part of the client education process;
- Provide the EPA pamphlet "Renovate Right: Important Lead Hazard Information for Families, Child Care Providers and Schools" to all families in units built before 1978. Obtain a signed receipt from the family;
- Provide a copy of the EPA pamphlet "A Citizen's Guide to Radon" and obtain a signed copy of the Client's informed consent to provide weatherization (Radon Disclaimer);
- Provide clients with all paperwork and manuals associated with any installed equipment;
- Explain in layman's terms the various weatherization services and how they will benefit the occupants of the home through improved comfort, safety, and cost savings;
- Discuss the appropriate use and maintenance of all combustion appliances, including indications of improper or unsafe operation;
- Discuss and provide information regarding proper procedures to address disposal of bulk fuel storage and resources available to address issues not discussed during weatherization activities;
- Coordinate weatherization job scheduling between the Subgrantee Weatherization Staff, the sub-contractor(s), and the family;
- Be available to answer the family's questions as the weatherization work progresses;
- Officially notify the occupants and/or owners of the unit of any reason for deferral of the work. Explain H&S or other issues that are the obstacle, and
- Be prepared with the knowledge of resources available outside of the weatherization funding to help families remedy problems causing a deferral.

12.3.2 Energy Auditor's Responsibility

The energy auditor can provide more in-depth information about the energy conservation measures that the family can take. Some important areas for the auditor to interact with include:

- Interact with the client regarding any energy problems that they have noticed, temperature discomfort, a non-functioning heating appliance, leakiness & drafts in the unit, high utility costs, and other indicators of weatherization needs;
- Provide brochures or other information not completed in the initial case work contact;.
- Provide a simple explanation of the testing to be done in the unit, in terms of energy efficiency and savings results;
- Discuss and explain audit results, including recommendations which the auditor may have for the occupants;
- Explain the general heat waste reduction and/or base load measures in terms of energy savings;
- Explain the importance of installing and maintaining smoke detectors and CO detectors. Instruct how to check and replace batteries; and
- Provide basic tips on energy conservation: room temperature setback periods, demonstrate how furnace filter changes out, water heater temperature setback, keeping doors and windows shut, and so forth.

12.3.3 Sub-Contractor's Responsibility

The subcontractor plays a crucial role, particularly when new equipment or materials have been installed. The subcontractor role includes:

- Explain the proper care and maintenance of any measures that the subcontractor company has installed;
- Explain and leave any manuals or other written materials for products the company has installed;
- Demonstrate to the family the operation of heating appliances or other newly installed equipment and parts; and
- Inquire and answer any customer questions regarding the company's work.

12.3.4 Final Inspector's Responsibility

The final inspector has an important role to ensure that the family understands what weatherization was completed or installed. The inspector's responsibilities include:

- Interview the client as to the family's satisfaction with weatherization work, the improved comfort level, and decreased energy costs (if known);
- Inquire and answer any follow-up questions from the family regarding the weatherization work; and,
- Assess the family's knowledge of maintaining the weatherization work and re-instruct the

client on any weatherization energy conservation techniques as needed.

12.4 Deferral Guidelines

There are situations when it is appropriate for a subgrantee to defer or discontinue providing service to an otherwise eligible unit until an unsafe or ineligible condition is corrected.

The CT WAP's Deferral Policy described in this section stipulates reasons for deferral or denial of weatherization services to a unit or building, details the deferral process, and provides further resources that should be shared with applicants in case of deferrals. Subgrantees are responsible for compliance with this policy, and CT WAP will monitor adherence to these regulations during the annual monitoring process.

12.4.1 Reasons for Deferral

Circumstances under which a unit is to be deferred include, but are not limited to:

- **Structure for sale:** building or dwelling unit is for sale or subject to bankruptcy or foreclosure.
- **Legal issues:** building or dwelling unit where ownership cannot be legally confirmed. Clear title must be established before services can be provided.
- **Demolition:** building or dwelling unit scheduled for demolition.
- **Not cost-effective:** The building's mechanical systems, including electrical and plumbing, are in such a state of disrepair that failure is imminent, and the conditions cannot be resolved cost-effectively.
- **Structural problems:** building or dwelling unit is found to have serious structural problems which make weatherization impractical or impossible. The energy auditor should report these findings to the subgrantee. If corrective action cannot be arranged, the subgrantee should consult with the CT WAP staff before either proceeding with or denying weatherization. The applicant and building owner must be given a Notice of Postponement form.
- **Budget Constraints:** Any existing condition that could endanger the health and/or safety of the work crew and/or contractor and cannot safely be remediated within the budget or scope of Weatherization, Health and Safety, and/or Weatherization Readiness Funding;
- **Condemned Building:** The building has been condemned.
- **Red Tagged Equipment:** Electrical, heating, plumbing, or other equipment has been red tagged by local or state building officials or utilities.
- **Sewage and sanitary issues:** The building has sewage or other sanitary problems that would further endanger the client and weatherization installers if weatherization work were performed. A **Notice of Postponement** form must be completed and shared with applicants and building owners, and a copy of the signed form must be placed in the client file.
- **Infestation:** if a building is infested with rats, roaches, or other vermin, the subgrantee should refuse to weatherize until the condition is corrected. If conditions cannot be corrected, weatherization may be denied. The **Notice of Postponement** form should be completed and

shared with applicants and building owners, and a copy of the signed form must be placed in the client file.

- **Health or safety hazard:** when, in the judgment of the energy auditor, any condition exists which may endanger the health and/or safety of the client, work crew, or subcontractor, the work should not proceed until the condition is corrected. If conditions cannot be corrected, weatherization may be denied. A **Notice of Postponement** form must be completed and shared with applicants and building owners, and a copy of the signed form must be placed in the client file.
- Unsafe or inoperable heating appliance: a **Notice of Postponement** form must be completed and shared with applicants and building owners.
- **Uninhabitable:** when a dwelling has been condemned or determined to be uninhabitable by a local jurisdiction, it should not be weatherized. A **Notice of Postponement** form must be completed and shared with applicants and building owners, and a copy of the signed form must be placed in the client file.
- **Commercial operation:** when the unit is being used as a commercial enterprise.
- **Uncooperative applicant:** when an eligible applicant is uncooperative with the subgrantee, either in demanding that certain work be done and refusing higher priority work which is needed (e.g., demanding only windows), by being abusive or threatening to the work crew or subcontractor, or by being unreasonable in allowing access to the unit. Every effort should be made to explain the program and its benefits. If this fails, work must be suspended, and CT WAP staff consulted. A written summary of the situation must be documented and placed in the client's file.
- **Conflict of interest or appearance of conflict:** when the structure is owned, managed, or occupied by an employee, board member, officer, or relative of a subgrantee employee, prior approval must be obtained from the Regional Supervisor, using the **Prior Approval by CT WAP management** before work is started (see Subsection 2.21).
- **Extensive work scope:** the building needs extensive rehabilitation, and no such rehabilitation has been provided. A **Notice of Postponement** form must be completed and shared with applicants and building owners; a copy of the signed form must then be placed in the client file.
- **Illegal Activities:** The energy auditor suspects that illegal activities are taking place on the property.
- **Owner intransigence:** the building identified for weatherization is not a priority for service; the non-income-eligible building owner refuses to abide by the Weatherization Agreement.
- **Potential lead hazard:** concern that weatherization work would disturb loose, peeling, flaking, and chipping paint or could spread paint dust and related debris and possibly cause harm to occupants. A **Notice of Postponement** form must be completed and shared with applicants and building owners and a copy of the signed form must be placed in the client file.
- **Potential mold or moisture problems:** concern that mold and existing moisture conditions

would be made worse as a result of providing weatherization services. A **Notice of Postponement** form must be completed and issued to applicants and building owners and a signed copy of the form must be placed in the building/client file.

- **Hoarding:** The client exhibits signs of hoarding behavior that prevent the installation of weatherization measures that are necessary to improve the efficiency of the home.
- **Health Condition of Unit Occupant:** A contagious or otherwise dangerous health condition of an occupant; that cannot be cared for within a reasonable time;
- **VOC's:** Dangerous conditions exist due to high carbon monoxide levels in combustion appliances, high levels of formaldehyde, an unsafe level of other pollutants or VOCs, and these conditions cannot be resolved under existing guidelines. A **Notice of Postponement** form must be completed and issued to applicants and building owners and a signed copy of the form must be placed in the building/client file.

12.4.2 Deferral Process

Subgrantees must have an internal deferral process, approved by CT WAP, and in compliance with CT WAP's Deferral Policy.

Deferrals may occur at any phase of the weatherization process. Subgrantee staff or weatherization contractors must recommend deferring work at any point when a health and safety risk to occupants or workers is identified.

Deferrals are to be reviewed and approved by the subgrantee management and fully documented in the client file.

In unusual situations not covered in the section above or where other unique problems exist, the CT WAP staff should be consulted. In such cases, the subgrantee should have pictures and written documentation explaining the nature and scope of the situation, along with an explanation for a possible deferral decision.

If obvious discrepancies are found between the information supplied by the applicant on the application and observed conditions at the time of weatherization, the subgrantee must resolve these questions prior to weatherization. Some examples of discrepancies are an obvious change in the applicant's income (e.g., an unemployed applicant who is now back to work), a difference in the number of persons living in the dwelling unit, (fewer persons than listed or a person or persons not accounted for who may have income), evidence of business being conducted in the unit, etc.

If at any time prior to certification of the weatherization work, the subgrantee determines that the applicant or building is no longer eligible, the unit cannot be presented for certification. When a subgrantee has first-hand knowledge or reason to believe that circumstances may have changed, the subgrantee may request an updated application from the applicant.

Issuance of the Notice of Postponement

Whenever a unit is deferred for any reason(s) listed in the CT WAP Deferral Policy, the subgrantee must notify the applicant through a **Notice of Postponement**, either by hand delivery, electronic, or regular mail. In the case of rentals, the subgrantee will send the **Notice of Postponement** to the property owner, who is responsible for alleviating the issues, with a copy to the occupants of the unit. The applicant and/or owner must sign the **Notice of Postponement** form, and a copy of the signed **Notice of Postponement** must be included in the client file.

The NPS must:

- Identify the specific reason(s) for deferral; and
- Include an adequate timeline for the owner to address the issues; and
- Be signed by the Client and the Service Provider; or
- Be completed by the Subgrantee representative and provided to the property owner.

In addition to the **Notice of Postponement** form, and when appropriate, subgrantees should suggest solutions to the applicant, including alternative resources that may be available to address each basis for deferral.

Deferral Resolution

Once the subgrantee confirms that the issues specified on the **Notice of Postponement** are addressed, the project is returned to the queue in the order in which it was initially received, and is subject to verification of current eligibility requirements.

If the issues specified on the Notice of Postponement of Services are not addressed by the property owner within the allowed timeframe, Subgrantees may deny further weatherization services. In this instance, a written denial notice must be issued to the applicant by certified mail. Time extensions may be granted, if in the judgment of the Subgrantee's weatherization program management, the owner is making progress on the underlying issues and may be expected to resolve the problem within a reasonably extended time period. Because such extensions tie up Subgrantee resources and prevent the use of funds on other eligible units, it is recommended that no more than two (2) extensions be granted. Once the specified deferral issues are adequately addressed, the process may continue as authorized by the subgrantee.

Notice of Ineligibility

At any point after an applicant has been selected to receive weatherization services and is subsequently denied services, subgrantees are to provide the applicant with a written **Notice of Ineligibility**. Please see "Section 4.6 Notice of Ineligibility" for more information.

Applicant Appeal Process

Please see more information on the applicant appeal process to weatherization denials in "Section 2.14

Dispute Resolution."

Denied Client Files

The subgrantee must retain and maintain closed files where weatherization services have not been provided to a client that was initially eligible to receive services and subsequently denied services. Denied client files are to be kept separate from eligible client files. The closed file must include all of the following that are applicable:

- The completed application for Weatherization;
- Notice of Denial;
- All correspondence related to the case;
- Documentation of reason(s) used to determine ineligibility;
- Written case notes as applicable;
- Documentation related to a denied applicant's appeal;
- Notice to the appellant regarding all appeal decisions;
- A copy of further appeal to CT WAP, and;
- A copy of DEEP's decision on the appeal.

Documentation

The subgrantee shall maintain a list of units and buildings that are deferred, which shall include the address, date, and reason for denial.

12.4.3 Resources for Referral

Where appropriate, referrals may be made to alternative resources where effective communication must be established between the Subgrantee staff and the referral agency staff. Several example programs include:

- U.S. Department of Housing and Urban Development (HUD) - HOME Program
- HUD - Community Development Block Grant
- U.S. Department of Health and Human Services - Community Services Block Grant
- U.S. Department of Agriculture - Rural Economic Community Development
- State-funded housing and rehabilitation programs
- Low-income program funds provided by local utilities
- City-funded housing and rehabilitation programs

- Donations or financial participation from landlords
- Donations from local churches or community groups
- Local Department of Health or Social Services Department

12.5 Lead-safe Weatherization

DOE requires that all WAP-funded work be conducted in a lead-safe manner (WPN 09-6). WAP is subject to the Environmental Protection Agency (EPA) Lead; Renovation, Repair, and Painting program final rule that became effective in 2008. To ensure compliance with this rule, all subgrantees and their subcontractors must receive training in lead-safe work (LSW) practices. CT WAP provides ongoing training in lead-safe weatherization work and requires subgrantees to attend, ensuring that crews and subcontractors are knowledgeable about the requirements applicable to WAP.

Subgrantee protocols must designate that any house built before 1978 that has not been cleared by an official lead inspection contains lead paint hazards. The personnel on-site and the work practices must reflect this designation. All work that potentially will disturb existing lead paint must follow proper EPA RRP Practices. The Client education materials on the EPA Lead RRP must be included in the client file. The client file must also contain the client's sign-off and acknowledgement of the risks associated with lead paint.

The EPA rule requires that each subgrantee be certified by the EPA as a Certified Renovation firm. The rule also has provisions on worker protections, household notification, household health and safety, and documentation of LSW. CT WAP has provided additional guidance and training on these requirements to subgrantees.

See the CT WAP Operations Manual § 419, “Lead Safe Weatherization”, and Connecticut Weatherization Field Guide.

12.6 Mold and Moisture Problems

Health professionals and building scientists have become increasingly concerned with the presence of mold and mold-like conditions in and around the home and the health effects on building occupants. The WAP has been concerned with indoor air quality issues for many years and has paid close attention to the role of moisture and ventilation as variables affecting the quality of the living environment. Although weatherization funds cannot be spent to mitigate severe mold issues, limited water damage repairs can be addressed by weatherization workers and correction of moisture and mold creating conditions are allowed, when necessary, in order to weatherize the home and to ensure the long-term stability and durability of the measures. Subgrantees must be aware of the conditions in and around the dwelling unit that can cause or worsen mold and mold-like conditions and document any mold or moisture problems that exist prior to start of any work.

In the course of performing the initial walk-through and energy audit of the dwelling unit, and when interviewing the applicant, it is very important that the energy auditor and/or inspector assess the property and speak with the applicant to determine the presence of mold or building and environmental conditions that can produce mold or exacerbate existing mold conditions.

High levels of indoor relative humidity (over 60% for an extended time) encourage increased growth of mold and germs. The negative health effects of mold spores can be exacerbated by weatherization because of the reduced air flow throughout the unit, resulting from air sealing activities.

Although mold can appear in any part of the house, it is most often associated with bathrooms, basements, and crawl spaces. Mold-producing conditions result when there are moisture sources such as water leaks, flooding, and basements or any other areas in the home that get damp and wet. Water collecting around the perimeter of the dwelling from improper drainage, underground water supplies, lack of proper gutters, roof leaks, excessive condensation, and numerous other conditions can also result in the presence of mold. If the building has no system to eliminate moisture, the result is often various levels and types of mold growth.

Subgrantees must document all equipment and methodology utilized to conduct analysis of water and moisture conditions, including the evaluation of ventilation devices. Field notes should document all subject conditions photographically and indicate date, time, and location of analyses.

Subgrantees must incorporate a moisture and mold inspection protocol as part of their routine pre-weatherization assessment of the dwelling. The presence of mold should be documented in writing on the Health and Safety Intake Survey and the Notice of Postponement form. Evidence of H&S issues resulting from these problems is determined by the energy auditor conducting a moisture assessment on all units. This assessment will check for the following conditions:

- Water stains or mold in the attic, especially on the underside of roof sheathing
- Evidence of excessive condensation on windows

- Water stains or mold on exterior wall surfaces and roofs
- Standing water in basements or stains indicating periodic flooding
- Damp basements or crawl spaces with dirt floors
- The use of sump pumps in basements or crawl spaces
- Inadequately vented clothes dryers
- Inoperable or inadequately vented bathroom fans
- Inoperable or inadequately vented kitchen exhaust fans

Furthermore, the following are allowed with some restrictions:

- **Limited Water Damage:** When necessary and within the program policies, water damage can be addressed by weatherization workers to weatherize the home and ensure long-term stability and durability of the installed measures.
- **Source Control:** When necessary and within the program policies, correction of moisture and mold-creating conditions can be addressed to ensure the long-term stability and durability of the installed measures.
- **Surface Preparation:** It is allowed when justifiable and where weatherization measures are being installed. It must be charged as part of the installed ECM.
- **Drainage:** Minor re-grading of the perimeter grounds to correct improper drainage and reduce the excessive water accumulation.

  The maximum allowable action is limited to work that can be addressed with hand tools and limited material costs, within a four-hour labor cost limit. Minor gutter system measures may be taken to correct water accumulation around the home perimeter. “Minor gutter system measures” are defined by the program as the repair or replacement of existing gutters and downspouts, or the installation of non-existent gutters and downspouts. The maximum allowable replacement under this policy is a length of twenty-five feet of gutter and fifty feet of downspout.

  CT WAP will review special requests for gutter and downspout repairs on a case-by-case basis provided sufficient documentation of need is provided and costs are within program limits for “minor” repair or replacement
- **Plumbing:** Minor plumbing by a licensed Contractor to fix leaks that are causing water problems.

  All actions, including the installation of a sump pump, that are to alleviate moisture problems and plumbing issues require Subgrantees to obtain prior approval from CT WAP. Such approval will require a **waiver request** by Subgrantees. The request includes a description of the work, a justification connecting the plumbing work to the weatherization and three quotes from licensed plumbers for the job. The request is submitted to the CT WAP staff with a copy to the Grantee technical representative.

Subgrantees must have written approval from CT WAP before commencing plumbing work.

- **Clothes Dryer Ventilation:** The correction or installation of proper clothes dryer ventilation may alleviate moisture issues in the unit. Venting clothes dryers to the outside of the dwelling, or the correction of existing dryer vents, including ventilation flex ducts installed to the outside, are required H&S activities.

- **Bathroom Ventilation:** Excessive moisture may also be remedied by the correction of bathroom exhaust fans. Fans should always be checked for cleanliness and operability. Fans must be vented to the outside to avoid moisture build-up in the house or attic. Repair or replacement of bathroom vents, including ventilation flex ducts, is required as an H&S measure. Bathroom replacement fans must provide a minimum of 50 CFM spot ventilation at a noise level of 1 sone.

- **Kitchen Exhaust Fans:** To mitigate excessive moisture, kitchen exhaust fans must always be checked for cleanliness and operability. Fans must be vented to the outside to avoid moisture build-up in the house or attic. Repair or replacement of kitchen ventilation, including ventilation flex ducts to the outside, is required as an H&S measure. Kitchen replacement fans must provide a minimum of 100 CFM of spot ventilation at 2 sones.

- **Vapor Retarders:** Install a ground moisture barrier, which is a piece of heavy plastic sheeting (6 Mil) laid on the ground. Black heavy plastic film works well, but tough cross-linked polyethylene is even more durable. The edges should be sealed to the foundation walls with urethane adhesive and/or mechanical fasteners. The seams should be sealed as well.

- **Roof Repairs:** Reasonable and limited repairs of roof conditions that effectively control the source of water damage and moisture problems are allowable.

  Actions to repair a roof for H&S reasons require Subgrantees to obtain prior CT WAP approval. Such approval will require a waiver request by the Subgrantees. The request must include a description of the roof work, a justification connecting the roof work to weatherization, and three quotes from roofing contractors for the job. The request is to be submitted to the CT WAP staff with a copy to the CT WAP technical representative. Subgrantees must have written prior approval before commencing with roofing work.

  All roof repair requests must provide photo documentation of the exterior drainage plane and related flashing, interior roof decking and flashing and any interior finished surfaces or insulation materials damaged as a result on existing roof leaks.

  Roof repair may also be justified as an Incidental Repair (IR) needed to ensure the effectiveness of the measure being installed, such as the installation of attic insulation. Determining whether to charge roof work depends on the reason for the repairs. If the leaking roof was causing moisture and mold, the work would most likely be considered an H&S activity. If the roof work was necessary to ensure the integrity of insulation work, the job would better be charged as an Incidental Repair.

A copy of the EPA publication “A Brief Guide to Mold, Moisture and Your Home” must always be given to the occupants by the energy auditor for the purposes of client education.

The applicant or the applicant’s representative should clean extensive mold before weatherization work

can proceed, as mold cleanup is not an allowable H&S measure. Weatherization funds cannot be used for mold remediation activity. If the subgrantee suspects that hazards remain, the subgrantee should explore utilizing WRF funds. Active mold, mildew, or water damage can be addressed utilizing WRF when possible.

If, by using WRF, the issues are still not remediated, the unit should be deferred pending a determination regarding how to proceed. Additionally, the subgrantee should inform clients of other community resources for the work. For example, in instances where mold is significant in the living unit and abatement is critical, the client should be referred to other partners, such as the local office of the CT Department of Public Health (DPH).

Subgrantees are encouraged to proceed with caution when considering dwelling units for weatherization where the presence of mold has been observed. In some cases, the cleaning and removal of the presence of the mold, coupled with activities designed to alleviate the original causes of the mold, such as improved ventilation, addition of a bathroom or kitchen fan, a change in household behavior, etc., may effectively address the situation.

However, if mold is more extensive and the conditions that produced the original mold are not easily corrected or are beyond the scope of what weatherization can handle, work must be deferred until other funds are available to address the cause of the mold condition.

Before completing the work scope, the subgrantee must assess whether air sealing, insulating, adding mechanical ventilation/dehumidification, performing heating system work, or any other weatherization measures will promote an improvement, make the mold condition worse, or have no effect. Weatherization work can only proceed when it is clear that the work will not cause moisture problems.

Subgrantees are encouraged to thoroughly document the visible conditions of the dwelling unit and the surrounding areas with photographs, some narrative on the observations, and any relevant data, and to consult with CT WAP staff before making a final decision about whether to proceed, if doubts remain. Notice of Postponement form should be completed and provided to the client and building owner as appropriate. A copy of this form must be placed in the client's file.

12.7 No Undue Enhancements

The goal of weatherization is to reduce energy costs for the client. When determining the work plan on a rental unit, Subgrantees must ensure that the benefits of the weatherization assistance accrue primarily to the low-income tenants in the unit.

Measures such as window replacement and door replacement should be used sparingly in rental units, and only as clearly warranted by the energy audit. No undue enhancement to the value of the property should occur beyond the scope of energy conservation work.

12.8 Emergency Services Related to Energy Crisis

CT WAP utilizes the DOE definition of an energy crisis which is defined as "an emergency resulting from an energy supply crisis, economic impacts, widespread energy distribution interruption, or energy infrastructure damage. It includes all actions taken to ensure the balance generation and load to ensure reliability of the electric interconnection."

The primary energy-related crisis that low-income households in CT face is an inoperable heating system during the heating season, defined as October 1 – April 30. CT WAP eligible households will receive priority service delivery to conduct comprehensive site-specific health, safety, and energy efficiency assessments and initiate heating system diagnostics and repair or replacement proposals. CT WAP Subgrantees will ensure that appropriate actions are taken to address heating-related crises in a timely manner and deliver high-quality and comprehensive weatherization to all sites receiving emergency heating services. Any emergency replacements that cannot be addressed by WAP shall be referred to DSS's Connecticut Energy Assistance Program (CEAP).

12.8.1 Disaster Plan

Connecticut has developed a State Response Framework (SFR)that outlines the roles and interactions of the State government with Federal, Local, Tribal, Non-Governmental, and Private Entities as well as the media and public in implementing emergency response and recovery functions in times of crisis. The framework describes actions to be taken and general responses to disasters that require statewide action. The current framework does not identify WAP as a resource for disaster response.

For weatherization purposes, a disaster is determined by a Presidential or Gubernatorial order declaring a Federal or State Emergency. The disaster may be caused by natural or man-made hazards and generally involves at least three phases: the crisis itself, the clean-up, and the rebuilding of the affected area.

In the event of a Federal or State-declared disaster, Subgrantees may continue to use DOE WAP funds to support typical weatherization activities. The Subgrantee can prioritize households that are in the in the Federal or state-declared disaster area as long as they meet one of the previously established prioritization criteria (Section V.3) for the program and as long as the household is free and clear of any insurance claims or other forms of compensation resulting from the disaster.

Please note that the following programmatic requirements still apply:

- ACPU limit(s)
- Allowable uses for WRF, as outlined in the Grantee Plan
- Requirements around incidental repairs (See 10 CFR 440.14(c)(6)(viii) for more details)
- Use of agency weatherization vehicles and/or equipment.
- Priority assistance to elderly persons, persons with disabilities, families with children, high

residential energy users, and households with high energy burdens (10 CFR 440.16(b)).

Allowable measures are limited to those contained within:

- 10 CFR 440
- DOE WPN 22-7
- DOE WPN 25-1

All Costs are to follow the rules applied to WAP as stated in the following:

- 10 CFR 200
- CT WAP Operations Manual
- Generally Accepted Accounting Principles (GAAP)

12.8.2 Special Circumstances (Acts of God)

When a previously weatherized dwelling is damaged by fire, flood, or other disaster (e.g., tornado, earthquake, lightning, or other natural disaster), the unit may be re-weatherized if the owner has insufficient or no insurance to cover the damage. Assistance will only be provided to pay for damage not covered by insurance. Only those materials and labor costs considered allowable under WAP guidelines will be allowed.

13 Procurement

This section outlines federal and state procurement requirements and provides guidelines and examples to aid in understanding the process. The established policy for competitive procurement and how it is implemented in Connecticut are also covered in this section. The objective of the procurement process is to obtain needed services, goods, and materials at the lowest possible price, in a fair and open manner, without compromising quality or production.

13.1 Procurement Procedures

All subgrantees must establish written procurement procedures that implement the requirements of this section and all applicable federal and state requirements and result in procurement transactions that provide, to the maximum extent practical, open and free competition. The subgrantee Procurement Policy must be submitted to and approved by CT WAP before implementation. While the Procurement Policy will be reviewed annually by CT WAP as part of the program's administrative monitoring, CT WAP still must be notified of changes to the Procurement Policy.

Procurement of professional services must also follow specific procedures. Professional services include those services rendered by persons who possess specialized skills and are not officers or employees of the organization. These services include, but are not limited to, consulting for accounting, auditing, computer, and legal. Contracting for a person or entity to conduct procurement on behalf of a subgrantee would also be considered a professional service. Appropriate documentation must be maintained for review by CT WAP staff.

Purchases of items or services with an aggregate cost of $5,000.00 or more must be approved by DEEP. Additionally, under 2 CFR 200.439(b)(2), purchases above $10,000 also require prior approval by DOE. And, in accordance with 10 CFR 440.18(d)(6), purchases of a vehicle in any amount also require prior approval by DOE before any purchase is made.

In the event that CT WAP determines that a subgrantee's procurement procedures are not in compliance with this section, the subgrantee may be required to implement additional, specific procedures deemed reasonable and necessary for compliance. WAP payments may also be disallowed.

Cost plus a percentage of the cost of purchasing is not allowed. Weatherization program expenditures cannot be made on this basis, and, as such, quotes must be based on a firm fixed price.

13.2 Procurement Regulation

The procurement procedures must meet all guidelines set by CT WAP, DEEP, the Department of Administrative Services, and DOE. Applicable procurement regulations include:

- DOE Regulations at 2 C.F.R. Part 200
- Conn. Gen. Stat. § 4a-40 et seq.

Additionally, when purchasing materials and parts for weatherization, care should be taken to meet the qualitative requirements listed in 10 CFR 440, Appendix A. Further information on product standards can be found on the Connecticut Weatherization Field Guide.

13.3 Small Purchase

Small purchases utilize relatively direct and informal procurement methods for securing services, supplies, or other items that do not cost more than $4,999.99 in aggregate. In accordance with the State's procurement policies, available on DEEP's website, small purchases can be completed using direct purchase authority. Unless otherwise stated for specific items, small purchases do not require prior approval by CT WAP.

13.4 Invitation to Bid (ITB)

Purchases of items or services with an aggregate cost of $5,000 or more, for which cost is the sole factor and no other comparative factors are involved, should be completed through a competitive bid process, usually called the Invitation to Bid (ITB).

An ITB is to be issued by subgrantees detailing the description and specifications of the item or service to be purchased. Specifications may not be written that limit the procurement to a particular brand. Invitations to bid are issued to all prospective bidders at the same time.

The ITB process then requires that the purchase be made from the lowest price quoted by a responsive and responsible bidder.

All bids received by subgrantees must be kept sealed and secured by agency purchasing personnel until the specified date and time of the bid opening.

If any bid is rejected for any reason other than price, sound documentation for such must be written and placed with other bid materials.

The bid packet that is issued must be fully documented by subgrantees, along with the selection process and subsequent purchase records.

Strict deadlines and other requirements must apply to all bidders equally.

The following must be included in the bid materials for review and audit by CT WAP:

- Written, prior approval of the bid purchase from CT WAP;.
- A written description of the item or service to be purchased, with detailed specifications, as applicable;.
- Date, time, location and minutes of the bid opening;.
- Selection methodology for the bid's lowest price bid;.
- A record of a minimum of three written invitations for bids;.
- A record of all quotes received for the purchase;.
- Detailed record of the reason for the rejection of any bidder;.
- Approval of the purchase signed by the authorized administrative or financial subgrantee official;.
- Purchase record, receipt, invoice, etc.; and,
- Contracts or other agreements which result from and govern the purchase of the item or service, as applicable.

13.5 Request for Proposal (RFP)

Purchases of items or services with an aggregate or individual cost of $5,000 or more, for which price is not the sole determining factor, should happen in a competitive negotiation process usually referred to as a Request for Proposals (RFP). This price level requires prior approval by CT WAP and is in accordance with CT DEEP's procurement policy which is available on DEEP's website. While cost remains a key factor, the RFP allows for the evaluation of several other proposal criteria, particularly when purchasing contractor services.

As there are numerous factors used in choosing weatherization contractors, an RFP process must be used by subgrantees to select individuals and companies for subcontracting weatherization program services.

Best efforts should be made to obtain more than three (3) proposals. If the subgrantee only receives three (3) or fewer proposals, the best proposal may be selected. CT WAP must be notified when this occurs, and proper documentation must be kept that verifies that all procedures were followed correctly and best efforts were made.

13.5.1 Documentation

Documentation of the process and subsequent purchase records must be maintained by Subgrantees and made available for review and audit. RFP materials must include:

- A written description of the item or service to be purchased, with detailed specifications and other factors considered in the selection, as applicable;.
- Written, prior approval from CT WAP of the item or service to be purchased;.
- A copy of the RFP that was issued;
- A statement of how firms to be solicited were identified;
- A list of firms solicited;
- A record of a minimum of three written requests for proposals for the purchase;.
- A record of all proposals received for the purchase (advertised prices or prices posted online are acceptable as price quotations provided the subgrantee keeps a printed copy of the ad or webpage for its records);
- The written criteria for evaluation of the proposals;
- Documentation of evaluation of the proposals;
- Approval of the purchase signed by the authorized administrative or financial subgrantee agency official;.
- Purchase record, receipt, invoice; and,

- Contracts or other agreements which result from and govern the purchase, as applicable.

13.6 Vehicle Acquisition

All subgrantee vehicle purchases for the WAP program are subject to competitive procurement and require prior approval by CT WAP and DOE. Failure to follow these procedures may result in disallowances of these costs.

Requests for vehicle purchase must be submitted to the CT WAP staff and must include:

- Evidence that a lease/purchase option comparison was conducted.
- Justification for need to replace old vehicle or add vehicle.
- Submission of a completed **Vehicle Request Folio** containing all the required documents contained in the folio, including the subgrantee checklist.

Note: All vehicle specifications must be generic enough to encourage competitive participation. They cannot be manufacturer or brand name specific, nor can they include options or combinations of options available from only one manufacturer or dealer. In keeping with the WAP mission of conserving energy, subgrantees are strongly encouraged to purchase alternative-fueled vehicles.

A Mileage Log must be maintained by the subgrantee for each vehicle purchased with WAP funds.

An Equipment/Vehicle Acquisition/Disposition Report must be completed for each vehicle acquired/disposed.

Vehicle Replacement: Vehicles are essential for transporting staff and materials or conducting energy audits and inspections. A safe, reliable vehicle is a necessity; however, as a result of maintaining a fleet, each subgrantee is eventually faced with repair or replacement decisions. There comes a point when the cost to repair may be prohibitive, and replacement is warranted.

It is recommended that each subgrantee project the usable life of each vehicle in their fleet and establish a replacement rotation so as not to burden any one budget period, especially with an unusually large number of vehicles to replace. For example, if the subgrantee determines a six-year life for each vehicle in a fleet of three vehicles, it may purchase one vehicle every two budget periods. Also, the cost of the vehicle may be charged over two budget periods.

13.7 Capital Equipment Purchase

All equipment purchases exceeding $5,000 per item are considered capital equipment purchases and must be approved by CT WAP. These purchases will be reviewed either as a part of the annual budget approval process at the start of a budget period or during the course of the annual budget period.

When reviewing a capital equipment request, CT WAP will consider the necessity of the equipment, the ability of the subgrantee's personnel to use the equipment properly, and the reasonableness of the request.

13.8 Contractor Procurement

A significant part of the successful delivery of weatherization program services depends on the selection of Contractors with the specialized experience and knowledge required to apply the wide range of weatherization measures to units safely and effectively. To ensure the best quality and the most reasonable cost, it is required that the weatherization Contractor be chosen through a Request for Proposal (RFP) process. The success of subgrantees largely depends on its initial choice and ongoing handling of the contractors.

In addition to the RFP process described above, Contractor Procurement should also be designed in accordance with the specifications in this section.

13.8.1 Debarment and Suspension

The contractor must certify that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from entering into a contract or agreement by any Federal or State department or agency.

13.8.2 Contractor Types

Subgrantees will determine their contracting needs based on their use of in-house crews for weatherization, the volume of work that needs to be covered, and the funds available for the work.

Additional sections of the RFP may then be added, directed explicitly to the requirements for different contractor types, based on the different measures to be contracted out. A typical list of contractors needed for the weatherization program may include:

- Energy auditor, Quality Control Inspector;
- Air sealing and other building shell weatherization contractor;
- Insulation contractor;
- Window and door contractor;
- Heating and ventilation, mechanical systems contractor
- Heating and ventilation, mechanical systems contractor;
- Electrical contractor;
- Weatherization materials and parts contractor; and
- Contractors experienced in remediation work, specifically for the measures allowable with the Weatherization Readiness Funds (WRF) (i.e., roof repairs, plumbing repairs, mold remediation, asbestos remediation, etc.).

13.8.3 Contractor Agreement for Services

Subgrantees must contractually ensure that their contractor(s) deliver weatherization services at the contracted funding amount and within program requirements including the assignment of qualified personnel furnished with appropriate equipment to perform weatherization in a quality manner, using prescribed technical protocols, and installing materials that meet or exceed program specifications.

The contract(s) shall state that all work completed by the contractor(s) must meet the quality workmanship standards established by the weatherization program.

All weatherization work completed by the Subcontractor must meet descriptions and specifications identical to those stated in the approved contract.

The subgrantee and contractor agree on a Contractor Agreement for Materials and/or Services (Contractor's Agreement) on a job-by-job basis until subgrantees' procurement is completed and in place for the new program year. Subgrantees must seek CT WAP pre-approval for all work conducted during the option period of incomplete procurement.

13.9 Considerations for Procurement

13.9.1 Specifications

Effective procurement provides a clear and concise description and specifications for the desired item or service to be procured. Examples of descriptive information include the following:

- Complete description of the item or service;
- Special requirements regarding color, design, materials, parts;
- Quantity, minimum and/or maximum number of units, package sizes, as applicable;
- Minimum quality requirements;
- Special delivery requirements;
- Applicable warranty requirements; and,
- Cost breakdown requirements for the bid (e.g., labor/materials, single item/bulk);

13.9.2 Advertisement

Bids and RFP's must be advertised. Advertising ensures a more competitive process and will result in a more reasonable cost.

Ads should be published in relevant digital or print outlets to maximize reach and well before the deadline, giving respondents enough time to reply properly. Some of the essential information for a good ad includes the following:

- Subgrantee agency name, address, where response should be sent;
- Contact information for obtaining additional information;
- Purpose of the solicitation with a brief description of the item or service;
- Directions for responding;
- Notice of any meetings or other means for help with responses;
- Deadlines for responses;
- Statement encouraging responses by small, minority-owned, women-owned businesses in accordance with 2 C.F.R. § 200.321 and CT State Statutes;
- Statement of limitations on the response, i.e., response will or will not be accepted in certain formats (e.g. mail, email, fax); and,
- Statement that late responses will not be accepted, if applicable.

13.9.3 Minority and Women Business Enterprises

Subgrantees are encouraged to solicit competitive responses from small businesses, minority- owned businesses, and women-owned businesses. This requirement should not be interpreted to mean that preferential treatment is given to such entities in the award process. However, efforts should be made to identify such businesses in the area and ensure that they are notified of the availability of opportunities to bid on purchases.

13.9.4 Evaluation

The method used to evaluate a response depends on the procurement type, purchase complexity, and purchase amount. The evaluation, like the procurement process, should be designed to ensure the best product at the most reasonable cost. In some cases, the evaluation will simply determine the lowest quoted cost. For more complex purchases, such as weatherization subcontracts, subgrantees will need to conduct an evaluation that not only scores the proposal based on price but also considers other qualitative factors like the company's experience, resources, ability to deliver services within the required timeframe, and staffing.

For more complicated evaluations, such as with contractor proposals, the subgrantee may want to set up an evaluation committee, including knowledgeable individuals from outside the subgrantee agency, to score the proposals. Care should be taken to ensure there is no conflict of interest with the evaluation committee members.

13.9.5 Procurement Process Documentation

All procurement transactions, from start to finish, must be fully documented. Subgrantees shall maintain records of individual procurement transactions in sufficient detail to record the history of the procurement. Documentation must be made available to the State for administrative monitoring and be available for the subgrantee audit. Procurement records shall include, but are not limited to, the following:

- The rationale for the type of procurement process used (small purchases, price quotes, bids, requests for proposals);
- Documentation of the procurement process (requests, newspaper advertisements, responses, bidder meeting records, proposal documentation, evaluation forms, etc.);
- Evaluation records, tabulation of bids;
- Basis for vendor/contractor selection or rejection;
- Basis for purchase/ contract price;
- Price or quote sheets for those procurements where a more competitive process is not required;
- Appropriate written justification and authorization if the low bidder or highest scoring proposal

was not selected;

- Appropriate sign-offs by authorized subgrantee staff; and,
- Prior approval documentation from CT WAP, as required.

13.9.6 Protest Resolution

Please review the CT WAP's Dispute Resolution Policy in "Section 2.14 Dispute Resolution."